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Welcome to this issue of the ***Business Education Innovation Journal***.

The purpose of this journal is to assemble researched and documented ideas that help drive successful learning and motivate business students to learn. The intention is to draw ideas from across both methods and disciplines and to create a refereed body of knowledge on innovation in business education. As a result, the primary audience includes business education faculty, curriculum directors, and practitioners who are dedicated to providing effective and exciting education.

We invite you to read about innovations published and apply in your classroom. We also encourage you to develop your original creative ideas, prepare an article, and submit for review.

This particular issue includes a number of interesting classroom innovations in diverse areas.

Peter J. Billington
Editor

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Business Education Innovation Journal

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An In-Class Assignment on Multidimensional Scaling: Creating Perceptual Maps of Current Movies

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ABSTRACT

Students gain an appreciation of perceptual mapping techniques through an assignment in which they supply their own similarities data for analysis via multidimensional scaling and then analyze the output. By using a product category – current movies – in which students have great interest, and by letting students evaluate their own perceptions, the assignment generates interest in some of the technique's more arcane problems; these include proper labeling of axes, specifying the correct number of dimensions, and designating a suitable number and composition of concepts. Step-by-step instructions for the instructor are provided, as well as a set of questions and answers for assessing students' understanding. Students' assessment of the assignment indicate that they evaluated the assignment favorably in terms of pedagogical merit and affect.

Keywords: perceptual mapping, multidimensional scaling, consumer research, in-class assignments

INTRODUCTION

Today's undergraduate students have developed a culture of student involvement unlike any previous generation (McLaughlin, 2013; Twenge, 2006). These students expect immediate feedback and gratification (McLaughlin, 2013). They have limited attention spans associated with their use of electronic devices that provide them efficient, abbreviated communication while text messaging or using personal electronic entertainment devices like iPods, iPads, and iPhones (Martin & Tulgan, 2001). In addition, these behaviors have expanded to the graduate student population. It is incumbent upon today's educators to have engaging, in-class activities and exercises that these students are interested in that match their visual learning styles in-terms of interaction with technology.

Marketing educators increasingly strive to provide practical, hands-on experiential exercises for their students in order to enhance learning of key concepts. Moreover, they frequently find that "there is a need to develop specific activities and materials that … promote statistical intelligence goals," (Dobni & Links, 2008, p. 63). Statistical intelligence can be described in terms of ability to question and investigate issues using statistics, while being aware of the technique's limitations (Chance, 2002) and to apply statistical literacy and reasoning skills in context (delMas, 2002). Moreover, it involves critical thinking and the ability to use statistical tools in real-life, decision making situations (Dobni & Links, 2008).

Statistics can be very intimidating and/or even "boring" to students. But given the inherent new interest in the field of marketing analytics by businesses throughout the world, marketing curriculums recently have been redesigned to accommodate market demand for new skills (Erevelles, Fukawa & Swayne, 2016; Liu & Burns, 2018). Part of the history of marketing data analyses has been the technique of Multidimensional Scaling, (MDS). According to Bijmolt and Wedel (1999) MDS is one of the most popular tools of marketing research (Naumann, Jackson, & Wolfe 1994; Wind, Rao, & Green, 1991). It is applied to a wide range of marketing problems (Cooper, 1983), in particular in the area of perceptual mapping, for which one purpose can be to derive a spatial representation of the market. Yet, according to Arbaugh and Hwang (2012) in a review of management education articles pertaining to online teaching and learning in business courses that used multivariate analytical techniques between the years of 2000 and 2010, only one article out of 113 reported used MDS, suggesting MDS is not yet a popular multivariate technique used by management researchers.

PERCEPTUAL MAPPING RATIONALE

Perceptual mapping methodologies provide a unique opportunity for an in-class assignment that meets both goals. Perceptual mapping is widely used by marketers for positioning products and developing marketing strategies

(Burton, Johnston, & Russ, 1991), making it a valuable tool for students to grasp. Perceptual maps provide a visual representation of consumers' beliefs about brands that compete in a particular market. Brands that appear closer to each other are considered to be "more direct" competitors in that they would appeal to similar markets or market segments. Crowded areas indicate highly competitive spaces, whereas open areas indicate market gaps that may be profitable opportunities for new brands. Approaches that use consumer data to develop perceptual maps involve statistical techniques that can be conveyed at varying levels of rigor, depending on the goals of the instructor. Many techniques can be employed. Instructors wishing to cover perceptual mapping techniques in some depth should consider an in-class assignment that gives students hands-on experience with the data collection process and interpretation of a perceptual map based on similarities data, or an OS (overall similarities) approach to creating perceptual maps (Dolan, 1991). With this approach, a student is asked to evaluate a group of competing brands in terms of how similar or different they are believed to be; evaluations are done piecemeal, by evaluating pairs of brands and indicating which pairs are most similar and which pairs are most different. MDS software is then used to generate a visual map that captures the underlying logic of all the evaluations. An important side benefit of the OS approach is that the underlying logic of the map is revealed via the spatial dimensions (usually two, but more are possible) onto which the brands are mapped; the dimensions' axes correspond to brand attributes or characteristics. MDS software does not name the axes, but they be inferred subjectively, with care. Labeling the axes is essentially equivalent to naming the *determinant* brand attributes the student (or more generally, the consumer) uses to evaluate the brands in question (Crawford & di Benedetto, 2008).

Burton, Johnston, and Russ (1991) describe an approach for bringing the OS approach into the classroom in a previous paper; however, the present paper provides an updated approach for SPSS for Windows that incorporates student use of the Internet to formulate their judgments, as well as step-by-step instructions for implementing the assignment that instructors will find valuable. The assignment is inspired by Dolan's (1991) teaching note on perceptual mapping, in which familiar movies serve as the brands to be analyzed. Students are instructed to rank order movie pairs in terms of their similarities, then fill out and submit a similarities matrix. Subsequently the matrix is input into SPSS for analysis via MDS. Software output, which largely centers on a two-dimensional similarities map, is returned to the student for analysis and discussion. The assignment requires about 75 minutes of class time, spread over two sessions, as well as an hour (for a class of 30 students) or so of instructor time outside of class for running the MDS analysis. An Excel spreadsheet is available from the lead author via e-mail that helps generate a full set of movie pairings for students to evaluate, as well as capture their similarities judgments for processing.

Instructors teaching undergraduate or graduate courses in marketing research, new product development, or marketing strategy should consider this assignment if they wish to offer an interactive, hands-on approach to understanding perceptual mapping techniques. Dobni and Links (2008) recommend that assignments involving statistical methods relate to students' subject matter expertise in order to "evoke interest and motivation" (p. 63). By extension, requiring the student to analyze his own judgments will heighten interest in the exercise. For this reason students act as their own respondents in the study and evaluate their own perceptual maps. Moreover, the assignment centers on movies, a category of nearly universal interest to students. The goal is not to understand how the methodology can be used in the movie industry but, rather, to use a product category that all students are eager to talk about and feel they have suitable competence in evaluating.

An important concern for any assignment involving advanced data analysis is the student's "statistics anxiety," (Onwuegbuzie, 1998). Indeed, the very mention of MDS can be intimidating to students. For this reason the instructor has used this as an in-class assignment, and made it in an ungraded (apart from a class participation grade) exercise, as suggested by Pirog (2010).

STIMULI SELECTION AND DATA COLLECTION

A minimum of six movie titles is needed for the assignment in order to generate a map. However, a total of n = 8 titles tends to provide much better results while moderately increasing the respondents' workload. One way to create an appropriate sample of titles is to bring up the topic of movies during a discussion of current events, and note the movies that generate students' interest. To increase likelihood that MDS generates perceptual maps that are easy to interpret, the instructor can impose some similarity among the movie titles by trying to pick films that fall neatly into two or three genres (for example, comedy, romance, action, horror). When the list of n movie titles is compiled, students should be given the list and told to view the trailers for the movies that they have not seen or are not

familiar with outside of class on YouTube or a similar site. (Instructors may want to send a broadcast e-mail to their students containing the links to the trailers.)

After the students have had a chance to review the movie trailers they are ready to participate in the data generation and collection phase. Data collection requires that each student receive a set of (n)(n-1)/2 movie pairings, with each pair on a separate card or slip of paper. (The Excel spreadsheet available from the instructor automates this task for an eight-title set.) Then, students should be told to do the following:

1. First, create three piles: in the first pile, put the pairs that are very similar; in the second pile, put the pairs that are most different; in the third pile put the pairs that are somewhere in between.
2. Then, sort each pile, with the most similar pair at the top, and the least similar pair at the bottom.
3. Finally, put the first pile on top of the third pile, and then put the combined piles on top of the second pile.
4. Number the pairs (cards) consecutively, with the most similar pair (top card) numbered "1."

While these instructions are fairly straightforward, some confusion nevertheless arises, so it is best to have the students move through the steps together as a group. When finished, each student should enter the rankings in a similarities matrix (the Excel spreadsheet available from the instructor makes this a simple task), which then is submitted to the instructor. To ensure that the process runs smoothly and that students conform to protocol as closely as possible, we promise extra credit for those students who follow directions well and also fill out an evaluation of the assignment when it is finished. Electronic submissions permit the instructor to copy and paste the information directly into an SPSS file. The file should specify the correct number of movie titles, and an abbreviated name for each title that simplifies interpretation of the map.

APPLYING MDS TO THE DATA

The MDS procedure is widely available in SPSS, SAS, R, MaxStat Professional, NewMDSX, SYSTAT, and in Excel with the XLSTAT or BiPlot add-on statistical software packages. MDS is straightforward enough to use that students could even be required to run the analysis themselves (MDS is included in the Student Version of SPSS). However, where the instructor is primarily interested in the practical, managerial applications of perceptual mapping, he or she should consider running the analyses on the students' behalf. Most of SPSS's defaults are appropriate for the data, but two options need to be addressed:

1. Number of map dimensions. With six movie titles, only two dimensions are permitted. Seven or more titles permit additional dimensions; however, two dimensions usually are satisfactory, and one author has found that three-dimensional maps create an unnecessary layer of complexity to the assignment.
2. Group plots. This option is by default turned off; it must be turned on to get the visual rendition of the perceptual map.

The perceptual map can be copied from the SPSS output file directly into a Word or WordPerfect file. A single document can accommodate the whole class's outputs; the instructor should type the student's name at the top of each page, paste the output to the page, followed by a page break.

STUDENT ANALYSIS OF RESULTS

Print-outs of the maps can be distributed and discussed in the next class meeting. The instructor should begin by reminding the students of the movie titles, their judgment task, and the task of transcribing their judgments into a similarities matrix (a visual example of a similarities matrix helps to reinforce the concepts). Then the instructor can simply say that the similarities matrices were read into the SPSS software, processed, and translated into two-dimensional renditions; each student will receive his or her own perceptual map.

After the students receive their maps, they should be asked to analyze the maps as follows:

1. Which movies are most similar? Most different? Why?
2. How would you label your X-axis? Y-axis? Why?
3. Do you think this map is an accurate picture of how you view these movies? Why or why not?
4. What (if anything) do these axes tell us about you?

The resulting discussion tends to be quite interesting, as students tend to appreciate the chance to express themselves, which students increasingly appreciate in their coursework (Matulich, Papp, & Haytko, 2008). Answers to the first three questions will vary according to the idiosyncrasies of both student perceptions and MDS output. Question #4 addresses the issue of an attribute's "salience" to the respondent, and its role in discriminating among product offerings.

In the authors' experience, most students will be able to label the axes and find that their maps do a reasonably good job of representing their perceptions; however, exceptions do arise. The most frequent problem is that some of the movie titles group together in a way that violates a discernable pattern for the rest of the titles. While in some cases this is due to the student's failure to execute the instructions properly, it usually can be explained by the need for a larger number of dimensions than is possible given the limited number of movie titles. To some extent the instructor can minimize the chance of this outcome by carefully choosing from two categories of movies, which will increase the probability that the movies can be suitably represented in two dimensions. Alternatively, the instructor can specify a relatively "large" set of movies (eight or more is large for this assignment). However, this requires that students evaluate an even larger set of movie pairings. Fortunately, eight pairings have provided good results for this assignment.

Experience indicates that students appreciate the assignment even when they obtain subpar results; generally, the students can interpret parts of the map and then identify movie titles that violate their interpretations. In these cases, the student is receptive to the notion that having more data points with which to work may have improved their results.

After discussing the maps and possible data shortcomings, the instructor will need to emphasize that the students' maps represent their perceptions of brands, but imply no normative information on their own. A brief discussion of ideal points and vectors, longitudinal tracking, and the need for supplemental research is a good way to close out the discussion. Crawford and di Benedetto (2008) provide a good managerial discussion of these issues. For an advanced course, the instructor may want to discuss how the data can be aggregated for the purpose of market segmentation; Hair et. al. (1998) provide an excellent discussion in this regard.

Finally, as Dolan (1991) suggests in his teaching note, the axes for perceptual maps of movies tend to correspond to time-honored genres (*e.g.*, comedies, dramas, science fiction, romance), which studios manipulate to position their brands (movies) throughout production and distribution. Thus, consumer perceptions of the brand are likely to comport with studio planners' perceptions closely enough that MDS studies have limited practical value compared to other industries. Nevertheless, students can be encouraged to think about how OS perceptual maps could add value to the marketing of movies; for example, pre-release mapping of scheduled releases can refine marketing efforts to position the movie against other titles, as well as refine forecasts of box-office receipts. This is a good point to consider near the end of the class discussion, because it helps to emphasize the value of perceptual maps outside of the entertainment industry, where brands represent long-term programs that survive through adept competitive positioning. In this context, the opportunities for perceptual mapping extend from the new product development phase through launch planning, post-launch diagnosis and version proliferation (Urban & Hauser, 1980).

STUDENT ASSESSMENT

The assignment was designed to enhance relevancy of the course material, a vital goal in business education (Berry, 1993). Student perception of the assignment's relevancy is a critical component of its success (Abernethy and Butler, 1993). Therefore, we assessed the MDS assignment using data from a survey of student perceptions patterned around a subset of items from Sandler and Kamins (1987). Data were collected over two semesters of an upper level course on "new product management and development." These represent the second and third times that the assignment was used in the course, where the first iteration served as a pilot for refining the in-class and behind-the-scenes procedures. Classroom instructions and related protocol for the assignment essentially were identical across the two assessment semesters, and informal feedback from students was similar throughout the experiences. Questionnaires were administered during class; students were offered a small (less than one percent) amount of extra credit in order to encourage participation. To encourage a high rate of quality responses, instructions emphasized the anonymity of responses and encouraged students to provide honest answers in the spirit of helping the instructor understand how students felt about the assignments. Students were instructed to take their questionnaires to the

department secretary after class, who would record their names for extra credit purposes; it also was explained that the secretary would hold the questionnaires until the end of the semester (i.e., after grades were submitted). Ultimately, nineteen usable questionnaires were collected for the first assessment (out of twenty-two students); twenty were collected for the second (out of twenty-four students).

Table 1 shows the assessment's six scale items, which capture students' beliefs about the *merits* of the assignment, ("helpful," "realistic," and "learned"), as well as *affective* responses, ("involved," "enjoyable"), and an *overall* assessment, ("worthwhile"), akin to satisfaction with the assignment that captures both effects. Responses were captured via 9-point Likert-style scales, where "strongly disagree" = 1, "strongly agree" = 9, and the neutral category "neither disagree nor agree" = 5. To determine if the data could be combined, the six items were summed for each student and divided by six to construct an average score; this was compared across semesters. Analysis of variance indicated no significant difference across semesters ($F = .75$, 38 d.f., $p = .39$). Thus, data for the two sections were combined (N=38). Descriptive statistics (means and standard deviations) are presented in Table 1.

Average scores across the six scale items (6.98, S.D. = 1.29) indicate that students evaluated the MDS assignment favorably. Responses to the three questions that directly address perceived merit of the assignment, ("helpful," "realistic," "learned"), were 6.92 or higher, indicating that students felt they gained useful knowledge. Notably, responses to the "realistic" item averaged 7.56 (S.D. = 1.33), which the authors found encouraging because the primary goal of the assignment is to provide students with a problem they perceive to be relevant to their professional development. The two affective responses, ("involved," "enjoyed"), scored slightly lower on average (means of 6.90 and 6.26, respectively) than the merit questions, with comparable variances, but were encouraging nonetheless. Finally, the overall assessment score, ("worthwhile"), is 7.28 (S.D. = 1.38), which is higher than all the others except "realistic." Again, this is encouraging because it is an indicator of overall satisfaction; students may not have been as involved with the assignment or enjoyed it as much as we had hoped, but in the end, they were glad they did it.

Focusing only on means in Table 1, it is tempting to conclude that overall satisfaction with the assignment (as measured by "worthwhile") is driven by students' perceptions that it is "realistic," since these means are similar and lie outside the range for the other variables. However, such a conclusion is possible only by an evaluation of correlations. Therefore, we constructed Pearson r coefficients for correlations between "worthwhile" and the other five scale items. The values are shown in the final column of Table 1. Interestingly, "realistic" was found to have the weakest correlation with "worthwhile," ($r = .51$), while the other merit variables, "helped" and "learned," were most strongly correlated with it (r equal to .91 and .89, respectively). Interestingly, r-values for the two affect variables ("involved" and "enjoyed") were smaller ($r = .60$ and .58, respectively), which indicates that student satisfaction with the exercise is driven more by how much students perceive they learned than how much they liked the assignment or how realistic they found the exercise.

CONCLUSION

According to Arbaugh and Hwang (2012) in a review of management education articles pertaining to online teaching and learning in business courses that used multivariate analytical techniques between the years of 2000 and 2010, only one article out of 113 reported using MDS, suggesting MDS may not be popular multivariate technique among management researchers. However, that should not dissuade any researcher or educator in a variety of disciplines from using perceptual mapping techniques such as MDS. As a matter of fact, Stern and Tseng (2002) found in their study asking marketing academics and practitioners what should be taught in an undergraduate marketing research course that marketing practitioners favored more coverage of advanced multivariate data analysis, including MDS. Given the visual dependence on technological and electronic devices to hold the attention of the millennial and post-millennial student where they can interact with the data and see where the data maps, perceptual mapping exercises seem perfectly suited to engage today's students.

Ultimately, the goal of this assignment is not to make the student an expert in the OS method for producing perceptual maps. Rather, the goal is to provide a suitable depth of understanding of the underlying concepts involved in perceptual mapping using consumer data. By acting as both respondent and analyst, students have an opportunity to appreciate OS perceptual mapping in more depth than they would by reading about the technique. Moreover, the experience is a suitable springboard for discussing the attribute ratings (AR) approach to perceptual mapping, which should be discussed as a viable alternative (Dolan, 1991). The AR approach renders the perceptual map by

specifying the most determinant attributes *a priori*, and then using them as axes for plotting student's ratings of brands on an X-Y graph. Students essentially plot the map much as they would a scatter plot for a business statistics course, the difference being that the scatter of AR data indicate distinct brands. As a result, overall similarities are revealed in the final stage of analysis (*i.e.*, when the map is rendered) rather at the beginning. In contrast to the OS approach, AR techniques require no specialized software, and the kinds of questionnaires used for data collection are more familiar to students than is the case with OS. However, the AR approach is fraught with challenges of its own, not the least of which is correctly specifying the determinant attributes up front. Furthermore, a good deal of effort is required to fill out the questionnaires, which are very repetitive, and then quantitatively analyze the data to choose an underlying logic for rendering the perceptual map (see Crawford & di Benedetto, 2008 for a thorough discussion). Finally, by design the AR approach lacks the "prestige," or dramatic reveal, that the MDS map provides. Confronted with the MDS map, students set out forensically to explain the underlying logic, which is a satisfying puzzle in its own right. Experience with the assignment strongly indicates that the OS/MDS approach to perceptual mapping prepares students to appreciate the salient details of other mapping methods, in an informative and engaging manner.

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Table 1

Student Assessments of the MDS Assignment

Scale Item	Variable	Mean	S.D.	r*
The MDS assignment was helpful to me in understanding consumer research (merit)	helpful	6.97	1.55	0.91
I learned a lot about this topic from this assignment (merit)	learned	6.92	1.58	0.89
Working on this assignment allowed me to apply my knowledge to a realistic marketing problem (merit)	realistic	7.56	1.33	0.51
I was highly involved in this assignment (affect)	involved	6.90	1.74	0.60
The assignment was enjoyable (affect)	enjoyed	6.26	1.60	0.58
This activity was worth the effort (combination: merit and affect)	worthwhile	7.28	1.38	1.00
	Total ÷ 6	*6.98*	*1.29*	

Note: N = 48; scale items range from Strongly Disagree (1) to Strongly Agree (9).
*Correlation with "worthwhile"

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Vulnerability in the Classroom: A Catalyst for Subjective Well-Being, Empathy, and Learning

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ABSTRACT

Building on a leader development assignment used at the United States Military Academy at West Point, we created an innovative course requirement assigning undergraduate students at a public civilian university in the Mountain West to share and analyze crucible events as part of an individual student presentation. Crucible events are defining moments of change comprised of adversity and a positive response to that adversity. We developed this course requirement to enable enduring positive experiences and enhanced long-term outcomes for students. Although this assignment caused many participating students to feel vulnerable, students reported that this vulnerability facilitated subjective well-being, empathy, and learning.

Keywords: Vulnerability, Subjective well-being, Empathy, Learning

INTRODUCTION

While teaching leadership and management at the United States Military Academy at West Point, two of the authors of this article became familiar with the journey line presentation in which cadets present key moments in their lives where they experienced major struggles and subsequent successes while discussing how each crucible shaped who they have become. As part of a military leadership course, the cadets mapped these moments of struggle and success onto a timeline and shared these crucible moments with their instructor and a mentor of their choosing—offering lessons learned about leadership and character while expounding on the value of authenticity, personal reflection, and resilience.

In this article, we explain how and why we have transformed the journey line activity into an intensive, demanding, and high-impact course requirement for an upper-division advanced organizational behavior course at a public civilian university in the Mountain West. We explain the development and implementation of this course requirement and demonstrate that students report increases in subjective well-being, empathy, and learning.

USE OF THE JOURNEY LINE IN THE CLASSROOM

We developed a journey line course requirement comprised of an oral presentation and written submission. The oral journey line is a ten-minute individual presentation in front of the class where the student tells a story of the positive and negative events that occurred during a certain period in their life: a series of crucibles or defining moments of struggle and growth. Each student tells of two crucibles using concepts related to organizational behavior. Student performance on the oral presentation is assessed using the following criteria: (1) Preparation—being ready, organized, and professional; (2) Communication—communicating clearly, creatively, and enthusiastically in sharing the journey line while connecting with the class through vulnerability; (3) Scholarship—accurately describing concepts related to organizational behavior and effectively linking those concepts to the journey line; and (4) Relevance—establishing the practical significance of the journey line.

Because this is an intensive assignment requiring a substantial and meaningful effort over an extended period-of-time, students rehearse with the instructor, explore potential theories and practical linkages, and give their presentation in front of the class. Students then receive written and verbal feedback relating to the four performance criteria from fellow students and the instructor. Verbal feedback (vis-à-vis the Socratic pedagogy; Bowen, 2014) is an essential element of student development and serves as an important means by which students learn from collaboration with peers and the instructor. Using peer and instructor feedback, the student writes about their

crucibles and aligns them with organizational behavior concepts while telling compelling stories and linking the stories and concepts to practical empirical research outcomes.

Student performance on the written submission is based on the following criteria: (1) Written communication—being concise and compelling while using appropriate grammar and punctuation; (2) Scholarship—accurately describing concepts related to organizational behavior and effectively linking those concepts to the journey line; (3) Relevance—establishing the practical significance of the journey line by linking the concepts to empirical research outcomes; and (4) Response to feedback—being highly responsive to relevant feedback from the oral presentation as it relates to effective storytelling, accurate description of the concepts, and compelling use of empirical data. Some examples of crucible events students have presented include: overcoming addiction; going through a divorce (or observing parents go through a divorce); living in a foreign country; being laid off; being arrested; failing a class; being bullied by friends, coworkers, family members, or supervisors; enduring social shaming due to differing religious beliefs or political views; enduring hateful behavior on the basis of race, gender, or sexual orientation; seeing loved ones suffer through emotional or physical illness; and losing loved ones to suicide and other causes of death.

Some students have difficulty identifying crucible events. When this occurs, the instructor helps the student identify challenges and inflection points in their lives, moments where they have become a different person and begun to adopt a new perspective as a result of adversity. When students have rich crucibles but are struggling to identify how their story connects to theoretical concepts, the instructor mentors them through this process and rehearses with them. The instructor also provides a list of dozens of theories and concepts from which to choose. Moreover, in consultation with certified therapists, we ensure a safe psychological environment in which individuals feel comfortable being vulnerable while also ensuring students understand that they are not compelled to be vulnerable—they have a choice. As such, students are permitted to write a research paper or present to just the instructor as alternatives to the journey line class presentation. A vast majority of the students enjoy the journey line while only a small number of students have opted for the alternative assignment. Allowing students this option (even if few take it) is an important feature of psychological safety in the classroom and risk mitigation for the students. As one student was wrestling with whether or not they would present in front of the class, they determined that presenting to the class would provide valuable closure: “at first, it wasn't pleasurable. I cried when I worked on it. Over time, however, I started finding the positive of my experience and truly felt the positive feelings it started to give me. This was very therapeutic in the end and I felt I needed to present in front of my peers.”

Therefore, with this graded requirement, students get to choose the depth of vulnerability and have complete latitude as to what they choose to share. In addition to being given the option to complete another assignment, before the students share publicly, the instructor meets with the students individually to review their stories and concepts in order to help them work through their decision as to how much they are comfortable sharing with the class. Following the presentation, the instructor focuses on delivering the feedback sensitively and screens written feedback from the students evaluating the journey line. Validating the students’ experiences and helping them see their latent strengths are important elements of the journey line experience (see Selcer, Goodman, & Decker, 2012). For example, one student told about being dropped off on a corner by his drug addicted mother who, before driving away, informed him she did not want him anymore. The student was in his early teens at the time. Now, he is a first generation college student thriving in his classes, leading his peers, and enduring substantial adversity with grace and composure. In a feedback session with the student, the instructor directed him to the research on grit. The student’s face beamed as he began to see the strengths he had developed over the years and the latent competencies he was awakening. As an example of how the journey line experience shaped the life of this student, we show a series of responses from this student regarding his journey line experience:

> I felt that presenting my journey line helped me overcome some challenging items that I needed to gain closure on. I was able to open up to semi-strangers and myself about the underlying truths that I had not yet discovered.
>
> When I was able to connect class concepts to my own life it really helped solidify the education behind them. I was able to get a deeper understanding because it was self-applied. I was able to connect class concepts on events in my life that I had no idea were related. It helped me think deeper on the theories and concepts.

> I was able to gain empathy and understanding of diversity. We are all different, and that is what makes us unique. The fact that we all had something different to share proves that no one is the same, and to me that was powerful.
>
> With each person being so vulnerable, it made me want to be just as vulnerable to show them they were not alone in sadness and struggle. It made me appreciate the thoughts and opinions of each person because they had a story and background to them. I grew to care deeply for my classmates.

IMPACT OF THE JOURNEY LINE IN THE CLASSROOM

In order to assess the effects of the journey line, we collected qualitative data from undergraduate students (n=49) following completion of the journey line assignment. Qualitative data provide the best opportunity to understand the depth of impact of the journey line experience on students' subjective well-being, empathy, and learning. In this regard, qualitative data are especially valuable in uncovering and fostering richness of data from the participant (Cavana, Delahaye, & Sekaran, 2000; Gaya, 2016; Lee, 1999) and often require a smaller sample size than quantitative data. Our focus was to collect enough data to sufficiently understand the emergent themes and attain saturation such that additional participants does not reveal new themes or distinct information. In seeking saturation, we started with a sample size of 31 and then augmented this sample by 18. As anticipated, the additional sample of 18 showed consistency from one data collection to the next and demonstrated strong evidence of qualitative data saturation and consistency across cohorts. Our sample size of 49 is also on the upper end of recommended sample sizes among qualitative studies, with recommendations ranging from 20 to 50 participants (Creswell, 1998; Morse, 1994). The student participants were enrolled in an organizational behavior class in a public civilian university in the Mountain West. 55% of the participants were male and 76% were Caucasian, the average age was 29, and had an average of eight years of work experience. Because this course is part of the core curriculum within the leadership minor and is broadly available to students across campus, students had diverse work and academic experiences.

In a survey, we asked students to describe the experience of presenting and observing journey line presentations. Two instructors independently assessed and categorized student descriptions. Then, they collaborated and generated a consensus regarding the theme of the student description. Based on qualitative data analysis, we found that the journey line experience positively influenced the student's (1) subjective well-being, (2) empathy, and (3) learning. Subjective well-being adds value because it is positively related with mental and physical health, longevity, positive relationships, creativity, and performance (Fredrickson, 2001; Larsen & Eid, 2008). Empathy is important because it is positively associated with pro social behavior, positive affect, life satisfaction, trust, and relationship satisfaction while resulting in lower levels of depression and social anxiety (Batson et al., 1991, Gable et al., 2006; Morelli et al., 2015; and Nezlek, Feist, Wilson, & Plesko, 2001). Learning contributes to student satisfaction, productivity, and performance (Edmondson, 1999).

Subjective Well-Being

Subjective well-being refers to "a person's cognitive and affective evaluations of his or her life" (Diener, Lucas, & Oshi, 2002, p. 63). The eudaimonic component of subjective well-being (relating to flow, meaning, self-realization, and aligning with one's authentic self) is especially related to student responses. With regard to subjective well-being, students noted:

> The vulnerability that I experienced while presenting my journey line was healing. It helped me reflect on where I am at now versus where I was then. I was talking about some really difficult things from my past and opening up about my anxiety and the way it affected my relationship wasn't something that I had really shared with anyone. By being vulnerable about my experiences, I was able to share more of who I was with the class. It finally brought about feelings of acceptance and an opportunity for growth.
>
> Completing this journey line presentation was extremely beneficial for me in this area of vulnerability as it truly made me think about why I acted as I did. It was able to facilitate psychological closure for the event as I thought through the theory associated with it.
>
> Expressing my own personal vulnerability allowed me to harness a stronger sense of self-awareness. It provided the necessary means for reflection. It is always intimidating to present and reveal your vulnerability in front of a public audience, but the assignment was facilitated in a manner that seemed to only promote a growth mindset. It was empowering.

> It was very emotionally therapeutic sharing my crucibles since I don't like discussing private matters with anyone. It allowed me to face some of the struggles that I have been through and embrace my past. It has shown me that I can be more vulnerable more often.
>
> Now I have some self-love. Sharing something so deep and personal allowed me to feel like I had gotten something off of my chest that I didn't realize hindered me. This was very therapeutic because I got to realize how far I've come in moving on from the hard parts of my life and I was able to see what I'm doing now that is different than I did before to deal with hard things that come up.

As noted above, students described the journey line as being therapeutic and providing necessary healing. The journey line enabled reflection, contemplation, and psychological closure regarding the progress they made from previous struggles. Opening up with the class and being genuinely vulnerable was not easy, but it was rewarding and helped them learn to accept their past struggles. Although daunting, this vulnerability fostered increased self-awareness, a growth mindset, and a sense of empowerment. Students who once avoided being open with others began to embrace the idea of being vulnerable. They found self-love and a sense of progress as it relates to their capacity to cope with challenges.

Empathy

Empathy refers to understanding and vicariously experiencing the emotions of others (Morelli, Lieberman, & Zaki, 2015). With regard to empathy, students noted:

> When I was listening to my peers' presentations, I gained an entirely different understanding of them that I would have not gotten with just our interactions in class. I gained respect and empathy for my peers as I learned the trials and triumph's they experienced in their lives. The level of vulnerability they had in sharing their stories helped me to understand the complexities of how that event affected them on an emotional level. I learned that we all suffer in unique ways.
>
> It's quite easy to self-diagnose what you have gone through personally and feel a sort of pity; but to capture the unknown trials of your peers and their respective journeys only elicits an appreciation for each of these experiences and for humanity as a whole. I feel an overcoming sensation of empathy with every presentation. I think the journey line assignment itself draws out compassion in its rawest state.
>
> The biggest takeaway from the journey lines was developing empathy. I think it's easy to go into a class and silently judge people before you know them, but I learned that everyone has their own battles, failures and triumphs. To empathize is to feel with and there were a few moments where I just wanted to offer comfort to those giving their journey line. I gained a deeper respect for all of the students in my class. Reliving someone else's experience allows you to feel and embody what they may have gone through. You may not have personally experienced something of that nature; however, you feel empathy taking over, putting yourself in their shoes.
>
> If you really listen to another's journey line, you never view them the same. It has to do with really listening, understanding, and walking in their moccasins for a way. We don't necessarily need to hear everyone's journey line, we just know it is there and extend them the same respect, courtesy and empathy as if we had just heard their journey line.
>
> The journey lines brought us closer as a class. There is something humanizing about the journey line experience. There is something powerful to hearing stories about adversity that connects us. That is something, I can say, I am not used to seeing from college classmates—everyone was able to participate in embracing a vulnerability and sharing insights from a range of perspectives. I think the collective vulnerability allowed each of us to reveal context beneath our facades. I have never made a solid friend from a college class until this one. By encouraging us to be vulnerable and share our experiences, I made friends that I trust and know that I can talk to.

As noted above, students described the journey line as facilitating respect and empathy, especially as it relates to vulnerability and authenticity—seeing that we all struggle in different ways. The journey line also helped develop a sense of shared humanity and appreciation, taking empathy to a raw state. Some students wished they could comfort other students as they presented their struggles and began to feel comfortable talking to them outside of class and nurturing a friendship. Students were able to take a step back from judging others and learned to consider the weight of somebody else's burdens. The empathy they described seemed to be growing deeper and more personalized while giving them increased courage to embrace advanced depths of vulnerability. In fact, the empathy component is one

of the major modifications to the original journey line experience—we added in-class sharing and peer feedback. This modification seemed to have had a profound influence on students by creating a unique classroom environment that helped students feel comfortable sharing highly vulnerable experiences. As such, it appears the empathy component helped to unlock the subjective well-being and learning components as well.

Learning

Learning refers to knowledge acquisition and application—augmenting one's capacity to understand, implement, process, reflect upon, and modify actions (Edmondson, 1999; also see Revere, Decker, & Hill, 2012). With regard to learning, students noted:

> Working on my journey line and tapping into facets of my vulnerability allowed me to not only unearth the concepts of learned optimism and social cognitive theory, but reflect further on multiple experiences where concepts in class are applicable quite often, even daily. This taught me to identify and deal with issues that were traumatizing in the past that I might not have attributed to causing me trouble in the present day.
>
> Being vulnerable and having to relate it back to theory really helped me realize a hardship that I went through and what good outcomes came from it. I am now able to look back on those moments and not feel as much sadness or anger and feel more understanding. This assignment helped me to realize that I am not so much upset by what actually happened, but rather how I reacted to what happened. I learned how to process my past by connecting it to course concepts.
>
> Reflecting back on crucible moments in my life helped me to recognize and see things I have learned from my crucibles. Giving the presentation felt uncomfortable, but I feel the preparation was beneficial in helping me acknowledge the latent competencies I used.
>
> The theories in my journey line not only helped me retain the knowledge of the theories by teaching them to my peers, but it also helped me find more understanding in the situations that happened. I believe that I understood both crucible events I shared in my journey line and their respective theories much more as I was willing to be vulnerable in explaining those events. I never really understood self-determination until I personalized it.
>
> When a student gave her journey line and connected her crucible to ambivalent identity, I gained an understanding of that identity that I had not connected with prior to that class. When she gave her presentation and explained ambivalence, not with others, but within herself, I connected that theory more than I did when reading the article and with the picture illustration. Applying these concepts to real-life anecdotes allowed for better understanding of the material. Stories have a way of making concepts and lessons stick in your memory in a way that rote memorization does not.
>
> I think vulnerability played a large role in helping me to not only learn from the failure I experienced, but also to learn the importance of learned optimism. I could not have developed learned optimism nor discussed what I learned had I not been vulnerable and willing to change.
>
> The journey line allowed me to identify specific instances in my life and label them with a theory. Previously I would have known the experience but not the reason I had experienced it or why I was feeling what I was feeling at the time.

As mentioned above, students described the journey line as cathartic and educational—attributing this experience to an enhanced ability to process and make sense of previous events as well as course concepts. Although preparing and presenting the journey line was not an easy experience, it helped the students realize dormant strengths they possessed. Students found value in personalizing concepts (e.g., self-determination, learned optimism, and ambivalence) in order to more fully understand them. The journey line enabled students to become more observant of daily events such that they were primed to contemplate ways to resolve future predicaments and crucibles through a theoretical lens. One student noted how they connected to, and understood, a concept at a deeper level after having listened to a classmate share a traumatic experience related to the concept. In this, and other cases, it was clear that observing others' journey lines and integrating one's own crucibles with course concepts were more effective learning tools than reading the article or viewing an illustration during a class discussion.

CONCLUSION

The purpose of this research was to enable positive student experiences and long-term outcomes while outlining how other instructors can facilitate similar outcomes. Going forward, we recommend quantitative assessment of student experiences as a means to corroborate and extend qualitative findings. We also recommend experimenting with a follow-on graded requirement for students to assess the longevity of the positive effects and role in perpetuating increased levels of emotional intelligence, decision making, and resilience. For example, the United States Military Academy at West Point created a follow-on component for cadets in the military leadership course to draw on vulnerability and authenticity in order to develop a growth plan and leadership philosophy. We also recommend further discovery into how student crucibles benefit the instructors. In our case, the instructors often felt they had a much better understanding of their students and were able to relate with them after listening to their journey line. Additionally, as the students began to empathize with each other and deepen their understanding of the material, this enabled greater connection within the class and facilitated subsequent openness, personalized instruction, student engagement, rich examples, and satisfaction in teaching the students.

Our qualitative data offer rich, compelling, and consistent narratives across cohorts, work functions, and life circumstances. With this evidence, we have demonstrated that the journey line experience enables subjective well-being, empathy, and learning—three relevant and meaningful outcomes to individuals and organizations. We encourage other educators to consider adopting similar practices that would create opportunities for students to engage vulnerability within a controlled and psychologically safe environment. We believe similar success could be achieved in other courses and academic settings as well as private-sector and government organizations. There may be particularly high impact if the value of vulnerability is taught across the curriculum and across the organization (see Liesz & Porter, 2015), with organizational leaders taking the lead in modeling vulnerability at work.

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Developing Trustworthy Business Leaders: Modeling and Creating Justice-driven Trust in the MBA Organizational Behavior Classroom

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ABSTRACT

Recent polls suggest that business managers and executives rank very close to the bottom of professions in terms of honesty and ethical standards. Although other contributing causes certainly exist, credible evidence suggests that increasing distrust of business leaders may in part be due to the experience students have in MBA programs. The purpose of this paper is to build on extant research examining trust as a pedagogical tool in MBA program, by proposing a pedagogical platform based on organizational justice in order to create and embed psychological trust as a means of developing ethicality in leaders, specifically via training in MBA *organizational behavior* coursework. We discuss the interrelationship between justice and trust, with organizational justice as the basis for generating trust in the classroom, and provide specific suggestions for modeling justice principles in order to do so. We suggest that such a platform has the potential to restore the trust of employees and other stakeholders by way of training future business leaders to prioritize ethical and just behavior and long-term relationships over more short-term interests.

Keywords: Trust, Trustworthiness, Organizational Justice, Trust in Leadership, Business Ethics, Organizational Behavior, Organizational Behavior Education, Masters of Business Administration Degree, Pedagogy

INTRODUCTION

Many of us remember seeing on the cover of Business 2.0 magazine, the "final last words" of Kenneth Lay, the Founder and CEO of Enron, which he emailed to all Enron employees on August 14, 2001:

> *"Our performance has never been stronger; our business model has never been more robust; our growth has never been more certain."*

By the time Mr. Lay sent his deceptive email, Enron's stock value had already fallen by more than 50%, and would, within weeks, drop to nothing. A $100 billion company, upon which tens of thousands of people staked their livelihoods and retirements, had gone from being one of the most prosperous firms in world history to being less than worthless in approximately one year.

The dramatic fall of Enron, nearly twenty years ago, still echoes as a flagship event in spurring discussions about untrustworthy leadership behavior in business, in part because within one year of Enron's bankruptcy, twenty additional firms followed in declaring bankruptcy, many for reasons identical to or very similar to Enron's (Patsuris, 2002). Since then, ethics problems among business leaders have only increased. In 2005, Tom Kozlowski was convicted of stealing some $600MM from the Tyco Corporation; 2009 saw the sentencing of Bernie Madoff for his Ponzi schemes and the crash of much of the world's economy due to widespread unethical executive behavior within America's financial institutions; in 2016, Wells Fargo was fined $185MM for systematic fraud - and the list continues.

Although the public's trust in business leaders has been in a steady decline for decades, there has been a particularly sharp decline in recent years (Hernandez, 2018). In 2017, global public opinion of the trustworthiness of business leaders saw a double-digit decline; only 37% of those surveyed indicated that CEOs were credible (Harrington, 2017). This is a startling development for many reasons, but especially because of how important employee trust in leadership is to key organizational outcomes. According to the 2019 Edelman Trust Barometer, employees who trust their organizations are 39% more likely to advocate for their employer, 33% more likely to be engaged at work, 38% more likely to be loyal to their organization and 31% more committed to their organization than their mistrusting colleagues (Edelman, 2019). As trust declines, employees' engagement with their work and their organizations will continue to erode these advantages for organizations.

This crisis of unethical leadership has caused many to inquire about causes, and there is likely a constellation of antecedents contributing to what has become a dramatic problem. Evidence suggests that certain personality traits, notably the *dark triad* of Machiavellianism, narcissism and psychopathy are associated with unethical behaviors. For example, Machiavellianism has been linked to unethical decision-making (Kish-Gephart, Harrison, & Trevino, 2010), CEO narcissism to both reductions in corporate social responsibility programs and increases in corporate irresponsibility (Tang, Qian, Chen, & Shen, 2015), and psychopathy to illegal and criminal activity (Hare & Neumann, 2009). Interestingly, a disproportionate number, twenty percent, of CEOs are psychopathic, a percentage similar to that which exists in prisons (Agerholm, 2016).

Individual characteristics notwithstanding, Ghoshal (2005) makes a strong case for an institutionalized system of business schools that "propagate ideologically-inspired amoral theories" (p. 76) such as agency theory and transactional cost economics. Ghoshal suggests that in doing so, business schools pave the way for normalizing and legitimizing unethical behavior on the part of organizational leaders. While an essential assumption behind our argument is that *amoral* does not necessarily equate to *immoral*, the stage appears to be set, and this carries with it important implications. Consider a core tenet of agency theory – the emphasis on the notion that an organization's leadership is responsible only for shareholder wealth maximization (Kochan, 2002) and a consistent focus in MBA curricula. Tang et al. (2015) found that under conditions of financial uncertainty, CEOs would shift away from corporate social responsibility programs and toward corporate irresponsibility in an effort to preserve returns. This suggests that an emphasis on agency theory may lead to unethical means to achieve the end of maximizing shareholder wealth.

We join with Ghoshal (2005), Giacalone and Promislo (2013) and others in suggesting that the training managers and executives are receiving in business schools, in this case specifically their Master of Business Administration (MBA) programs, may be a contributing factor to unethical behavior. It is even possible that unethical people are self-selecting into business schools, either explicitly or implicitly attracted to certain perspectives and practices. While it is likely that there are a host of other contributing factors, in this paper, we focus on responding to the possibility that MBA programs are contributing to the unethical behavior of managers and executives.

Master of Business Administration (MBA) programs represent an intensive socialization process for students who are, or will, lead organizations. The effect of these programs on the ethicality of graduate attitudes and behaviors has recently come into question, and rightfully so:

- McCabe, Dukerich and Dutton (1993) found evidence that MBA students are more likely to cheat on their exams than law students (another notoriously mistrusted profession, Edelman, 2019).

- Scholars have shown that MBA students graduate from their programs less ethical than when they begin them, and that the prevalence of economics-based concepts and approaches in MBA programs is a key cause of this phenomenon (Hühn, 2014; Krishnan, 2008; Wang, Malhotra, & Murnighan, 2011).

- MBA curricula reinforce paradigms of self-interest, short-term wealth maximization and shareholder primacy (e.g., Ghoshal, 2005; Giacalone & Promislo, 2013; Jones & Felps, 2013; Preble, 2005).

Despite sharp increases in ethics course offerings in MBA programs in recent years (Christensen, Peirce, Hartman, Hoffman, & Carrier, 2007), we suggest that the mere addition of ethics courses will not be enough to shift the overall perspective away from the types of attitudes and behaviors that may drive future business leaders toward unethical behavior. Returning to Ghoshal's (2005) assessment that theories taught in business schools can be considered amoral, we suggest that the natural outcome of this process need not be the development of unethical business leaders. We believe that there is an opportunity to emphasize alternative approaches to business management through pedagogical techniques, especially in classes with content unrelated to economics-based (e.g., agency theory, short-term wealth maximization and transaction cost economics) approaches. In line with and extending arguments made in recent research (see Hansen et al., in press) regarding trust-based pedagogy in MBA programs, we suggest that rather than an approach that focuses on short-term profitability and shareholder wealth maximization, a long-term, justice-based pedagogical approach to teaching MBA coursework, specifically in organizational behavior courses, will foster a climate of trust in the classroom that will in turn, positively influence the ethical orientation of MBA students, as well as their future success as business leaders.

To accomplish this, we draw on well-established relationships between trust and organizational justice to provide a practical foundation for developing trust in the classroom. Specifically, we suggest that applying a justice-based approach to teaching organizational behavior coursework in MBA programs is potentially fruitful based on our own experience as former managers and current MBA program faculty. This paper is organized as follows:

- We first present background on the psychology of trust, including the role of trust in the field of organizational behavior and the link between trust and effective business leadership.
- We next introduce organizational justice as a key antecedent to trust and trustworthiness perceptions, providing a parsimonious, well-supported, and applied paradigm in which to foster trust.
- Finally, we draw on scholarly research as well as our own experiences enacting organizational justice in the classroom to provide specific pedagogical guidance for leveraging organizational justice as a tool for generating trust in the MBA classroom and aiding MBA students to become trustworthy executives.

TRUST'S PIVOTAL ROLE IN ORGANIZATIONAL BEHAVIOR

Organizational Behavior (OB) is an evidence-based discipline focusing on understanding the attitudes and behaviors of people in the workplace. OB researchers are particularly interested in explaining and improving these attitudes and behaviors (Colquitt, LePine, & Wesson, 2013). As such, OB coursework in MBA programs is focused on providing leaders with the tools they need to improve employee attitudes and behaviors at work. Decades of research have demonstrated that employee trust is the foundation of effective leadership (Bedi, Alpaslan, & Green, 2016; Dirks, 2000; Dirks & Ferrin, 2002). Empirical research has also made it clear that employee trust is a potent antecedent of a wide variety of important leadership outcomes, including positive attitudes, more effective communication, organizational citizenship behaviors, reduced conflict, job satisfaction, and effective recruitment of new employees, among others (Colquitt, Scott, & LePine, 2007; Dirks & Ferrin, 2000; 2001).

Trust is the "willingness to be vulnerable to others" (Zand, 1972; p. 231), and three key antecedents of trust are the trustee's (e.g., business leader's) *integrity*, *ability*, and *benevolence* (Colquitt et al., 2007; Mayer, Davis, & Schoorman, 1995; Morgan & Hunt, 1994). These three antecedents, when displayed and perceived by observers, contribute to perceptions of an individual's *trustworthiness*. In other words, when trustors (e.g., employees) perceive integrity, ability and benevolence in another, the trustee's trustworthiness is enhanced. A trustee's consistent demonstration of trustworthiness over time leads trustors to engage in trust (Colquitt & Rodell, 2011). As trust is exercised, trustors (e.g., stakeholders such as employees, who rely on business executives) continually update their impression of trustees' characteristics and use this to gauge future interactions with those trustees. Reflecting conceptual roots in social exchange theory (Blau, 1964), consistent trustee trustworthiness and trustor trust become a self-reinforcing dynamic as long as both elements are maintained. Although all three components of trustworthiness (i.e., integrity, ability, and benevolence) uniquely contribute to perceptions of trustworthiness (Colquitt et al., 2007), recent research suggests that integrity and benevolence are likely more important than ability (Finegan, 1994; Gillespie, Dietz, & Lockey, 2014; Greenwood & Van Buren III, 2010; Janowicz-Panjaitan & Krishnan, 2009). Research has also demonstrated that when and where trust is lacking, controls are typically substituted, but at a higher cost for the trustor (Alm, 2015; Das & Bing-Sheng, 1998; Mills & Ungson, 2003).

In order to better understand how trustworthiness and trust lead to the positive workplace outcomes noted above, we offer and explain the term *well-placed trust*. Beyond signaling trustworthiness through the display of integrity, ability and benevolence, well-placed trust indicates the presence of a social exchange process important to employees. Lind (1995) proposed that employees face a *fundamental social dilemma* with regard to their relationship with the organization they work for. At the center of this dilemma is the employee's recognition that organizations may either exploit their efforts for the organization's own gain or may reciprocate their efforts with outcomes, including social outcomes, that are meaningful to the employee. Well-placed trust is generated by consistent, trustworthy behaviors that indicate that the organization's leaders will act fairly and responsibly toward employees, resolving the dilemma. In turn, employees reciprocate with positively-intended behaviors toward both the organization and its members (Colquitt et al., 2007; Dirks & Ferrin, 2000; 2001).

Insomuch as *well-placed trust* drives a wide variety of positive outcomes in organizations, MBA students learning OB from a trust perspective should understand that their effectiveness as leaders depends heavily upon their ability to build current and future employee trust. Therefore, aspiring leaders need to become familiar with known

antecedents of employee trust. In addition to ability, benevolence and integrity (as discussed above), other antecedents to trust that have been explored in recent research include: ethical and inspiring leadership, organizational and supervisory support, perceptions of corporate social responsibility, participative decision-making, and as we discuss here, perceptions of *organizational justice* (Bedi et al., 2016; Colquitt & Rodell, 2011; Dirks & Ferrin, 2002; Hansen, et al., 2011). Such topics are typically covered in MBA OB coursework, but integrating trust with these topics is uncommon. As such, the value of understanding the development, maintenance and outcomes of trust represents a missed opportunity. For students in MBA programs, this value can be realized through a trust-focused approach that is repeatedly reinforced as a strategic goal of OB expertise, across course topics. We next introduce organizational justice and explicate the relationship between perceptions of justice, trustworthiness, and trust.

THE PSYCHOLOGY OF ORGANIZATIONAL JUSTICE IN ORGANIZATIONS

Organizational justice refers to perceptions of fairness experienced in organizational contexts and is one of the most widely studied phenomena in the field of organizational behavior (Colquitt, Conlon, Wesson, Porter, & Ng, 2001). Research in the domain of organizational justice is robust, and spans several decades. Over the course of developing theory about organizational justice, four dimensions of justice have emerged:

- *Distributive justice* stems from Adams' (1965) equity theory and refers to the fairness of outcomes in organizations (Deutsch, 1975). When evaluating the fairness of outcomes, justice judgments are typically based on one of three criteria – equity, equality or need (Leventhal, 1976). Outcomes are considered fair if they are earned, equally distributed, or distributed based on need respectively, and these judgments of deservingness can be context-specific. In work organizations, these outcomes may include pay, promotions, benefits and accommodations for those with disabilities; in academic settings, these outcomes may include grades and other feedback on student performance.

- *Procedural justice* refers to the processes by which outcomes are allocated in organizations (Folger & Cropanzano, 1998; Thibaut & Walker, 1975). Procedures are considered fair if they are consistent, accurate, free of bias, correctible, ethical, and allow for consideration of and input from all affected parties (voice; Leventhal, Karuza, & Fry, 1980). Organizational examples of procedural justice include transparent criteria for promotions and merit-based pay; in academic settings, examples are the use of rubrics and clearly outlined syllabi.

- *Interpersonal justice* refers to the fairness with which individuals treat each other on an interpersonal basis; that is, do people treat each other with respect and dignity, and do they refrain from improper remarks (Bies & Moag 1986)? In the classroom, this may pertain to student-student interactions, professor-student interactions, and the management of student interactions by the professor.

- *Informational justice* refers to the fairness of information provided, specifically whether or not adequate explanations are delivered in a timely manner (Greenberg, 1993). Examples of this in academic settings include the thorough explanation and exploration of course topics, addressing student questions in an immediate and thorough manner, and timely and detailed feedback on student work.

Fairness is tremendously important to people - organizational justice research is characterized by robust relationships between each of the dimensions of justice and a wide variety of outcomes. Meta-analytic studies demonstrate that justice perceptions have a positive relationship with organizational commitment, perceived organizational support, leader-member exchange, job satisfaction, task performance, organizational citizenship behaviors and counterproductive workplace behaviors (neg) (Colquitt et al., 2001; Colquitt et al., 2013). Most importantly, some of the strongest relationships found in the justice literature are those between justice and trust. In their comprehensive meta-analytic review of the justice literature, Colquitt and colleagues (2013) showed strong corrected meta-analytic correlations between distributive justice and trust (r_c = .45), procedural justice and trust (r_c = .65), interpersonal justice and trust (r_c = .59), and informational justice and trust (r_c = .65).

THE INTERRELATIONSHIP BETWEEN JUSTICE PERCEPTIONS AND PSYCHOLOGICAL TRUST

The relationship between justice and trust is nuanced, and in some ways reciprocal. Research indicates that dimensions of justice relate to perceptions of benevolence and integrity (trustworthiness), that a combination of

perceived informational justice, benevolence and integrity leads to trust, and that perceptions of integrity can lead to perceptions of justice (Colquitt & Rodell, 2011). For the purposes of understanding the relationship between justice and trust specifically as it relates to leveraging justice to create trust in the MBA classroom, it is helpful to discuss these concepts through the lens of social exchange theory, particularly as Blau (1964) argues, that the elements that are exchanged can be social elements. Indeed, most of contemporary research on organizational justice is grounded in social exchange theory (Colquitt et al., 2013; Colquitt & Rodell, 2011).

Foa and Foa (1980) build on Blau's (1964) work in elaborating on the nature of social resources that can be exchanged in the context of social exchange theory. Of particular relevance are information, services, and status as resources that can be exchanged (Foa & Foa, 1980). Insomuch as education broadly represents a service that provides information to students, these two resources are particularly relevant. Additionally, we follow Pfeffer and Fong (2002) in recognizing that status is an important resource associated with an MBA education. Foa and Foa (1980) further make the distinction that resources may be universal or particularistic, with particularistic resources characterized by the condition that the provider of that resource is meaningful. They specifically mention that services and status are particularistic (Foa & Foa, 1980). Therefore, a professor in an MBA program may be characterized as a particularistic resource for information as part of a service that confers status. We believe this speaks to the role that MBA professors may have in influencing their students. In conjunction with MBA curricula, a professor's emphasis on shareholder wealth maximization may be a factor leading students to attend to the concepts that have been shown to promote unethical behavior, as discussed above. One of the central arguments of this paper is that this influence may also be used to develop ethical behavior, and that efforts to do so are needed.

The associations noted above (Colquitt & Rodell, 2011) and characteristics of the resources involved (Foa & Foa, 1980) uniquely describe how professor-enacted justice and subsequent perceived trustworthiness lead to trust between MBA students and their professor. By enacting procedural, interpersonal, and informational justice, students in the classroom will perceive that the professor possesses benevolence and integrity, demonstrating trustworthiness. In turn, a combination of informational justice and perceptions of professor benevolence and integrity will lead to student trust in the professor.

Interestingly, Colquitt (2001) suggests that in particular, informational justice may convey a sense of inclusion and signal in-group status, and so both information and status resources may be provided by a professor who enacts informational justice. Particularly relevant to the MBA classroom environment, Colquitt and Rodell (2011) further note the possibility that informational justice relates to trust based on a mutual sharing of ideas and a sense that people can talk freely among themselves (McAllister, 1995). Recent research demonstrates that this is indeed the case; Nelson, Hegtvedt, Haardörfer and Hayward (2019) have found that an authority's enactment of justice leads to trust through, in part, communication between organizational members.

In the following section, based on theory and our own experiences teaching MBA organizational behavior courses, we suggest specific ways for professors to enact procedural, interpersonal and informational justice, thereby creating trust in the professor. We then elaborate on the process by which that trust develops into a self-reinforcing learning context, creating a climate of trust that students internalize and take into their own careers as business leaders.

MODELING TRUST-BUILDING LEADERSHIP THROUGH FAIR MBA CLASSROOM PRACTICES

Effective leadership in modeling principles and practices recognizes that leadership is an emergent, context-specific, and dynamic process (Fairhurst & Grant, 2010). We find that the greatest opportunity for demonstrating both integrity and benevolence in enacting organizational justice does not lie within what we might consider more straightforward practices related to teaching, rather we find the most impact in opportunistically enacting justice.

Within an MBA program, organizational behavior courses provide an opportunity for rich, meaningful dialogue between students about people-related topics within business. As such, the professor has a greater degree of latitude in enacting the forms of justice we address – procedural, interpersonal and informational justice. Below, we humbly offer three examples from our own pedagogical approach in enacting and modeling justice and creating trust in the classroom.

Example 1 – The Check-In

An example of a procedurally just action that we have found effective and even surprising to students, is to stop the lecture or discussion when student participation is low or superficial, and check in with them. In doing so, we are providing students with *voice*, allowing for input from them. We find that sometimes a little prodding is needed, but that eventually students will speak up and explain why they are not participating. Based on student responses, a wide variety of options are available in dealing with the situation.

For example, we have used this opportunity to shift the discussion to other organizational behavior topics that are relevant to what students are thinking about, such as stress management. We have asked students what they feel would be a more value-added activity and in a double dose of procedural justice, have scuttled our own plans for the class session in favor of student-driven learning activities related to the topic to be covered. We caution the reader in that it is important to be mindful of classroom management in choosing to do this, as the goal here is to maintain a productive learning environment while enacting voice; this tactic may require judicious thought under time pressure in order to maintain leadership of the class.

When engagement and learning are flagging, providing voice in this way demonstrates benevolence towards the students, and indeed, students have expressed that this is the case both anecdotally and in course evaluations. Because this in-the-moment change is often surprising to students, we also take the time to discuss what just happened from a process standpoint. In these discussions, we reinforce the idea that justice can be enacted at any time, and in situations where resources are limited. In doing so, we are able to show students that awareness and adaptability in enacting justice opportunistically can have a meaningful impact in building trust with stakeholders. They learn that at the right time, stopping, listening to stakeholders, and making adjustments is a form of opportunistic benevolence that contributes to trust in the leader's attentiveness to employees and the situation in the moment.

Example 2 – The Unexpected Collaboration

We have found this next example surprisingly effective as a means of enacting procedural, interpersonal and informational justice as well as a high-impact learning experience for students. In our MBA organizational behavior course, we have changed the process of reviewing group research projects from a submission-written feedback-correction process to a real-time collaborative review and editing of projects. It is worth noting that while this could be implemented in any course format, we utilize this process in a hybrid course where half of the coursework is carried out online. Groups post their research papers on a platform that is accessible for all group members and the professor to work on the document (e.g., Google Docs). The professor reviews the document ahead of a scheduled meeting, making notes in the document. During the meeting, group members and the professor all work directly in the document, making changes, asking and answering questions, and exchanging ideas and comments. The professor's contributions are formative yet placed directly in the relevant area of content; for example, the professor may provide an example of improved argument by rewording content in the document, but only to the extent needed for students to learn how a valid and logical argument should be constructed.

It is not uncommon for students to be initially uncomfortable at the level of the professor's participation in these sessions. Some have expressed concern that their grade will be lowered as a result of professor contributions to the paper, some come to an assumption that their work is so poor that the professor has to jump in to make up for it, and others simply react to the cognitive dissonance stemming from a violation of an implicit barrier between professor and student when it comes to working on class assignments. Because of this, we recommend setting expectations about what the session will be like ahead of time, and as needed, check in with students and reassure them. We also caution the professor, as participation may drift away from guided collaboration and toward a more directive approach, which may undermine the impact of this learning experience.

Students have specifically noted both anecdotally and in course evaluations, that this is an extremely high-impact learning experience for them. They also express gratitude and surprise that the professor is willing to spend time working with each group separately to ensure they get the most out of the project. This activity has resulted in increased perceptions of professor benevolence and integrity by working in such a personalized manner with student groups. We also discuss the experience itself with students as an example of how, as leaders, modeling justice through active participation with subordinates can quickly build trust in their leadership while at the same time

improving outcomes; students learn that in working side-by-side with key stakeholders, they are not giving anything away.

Example 3 – The Mid-Course Syllabus Change

A final example involves the opportunity to benefit individual students while maintaining fairness by changing the course syllabus after the course has begun. Although many professors like to believe syllabi are best left untouched once class begins, especially in MBA programs where high levels of professionalism are expected, we have learned that some exceptions to this norm can actually demonstrate justice and benevolence, and build student trust in the professor, opening the door for students to learn how to use the psychology of justice and trust in their future careers as business leaders.

We regularly face situations in which MBA students will experience emergencies or crises in their lives or in the lives of their families during the course of a semester. Although many reasons exist, often such emergencies result from the death or illness of, or an accident involving, a loved one. It is worth noting that in our MBA program, a large majority of students are working full time, have families, and are in the "sandwich" generation, characterized by caring for both growing children and aging parents. Nevertheless, if these crises occur around the time of exams or when important assignments are due, it is natural for the professor to be skeptical of the situation presented. The norm in such situations is to take the student's word at face value, and so the question the professor is often faced with is, "*how can I be benevolent to students experiencing crises while still being fair to the rest of the class?*" Unfortunately, and all-too-often, professors will assume that benevolence toward one student necessitates unfairness to the rest of the class and will consider the situation no further, providing little to no support for the student in crisis and effectively eliminating that student's trust in the professor. (We also find that trust in the professor is more broadly damaged with other students and potential future students through word of mouth as a result.)

However, better options exist for professors familiar with the antecedents of trust who are willing to creatively seek ways to simultaneously exercise benevolence and fairness, thus preserving student trust. For example, if a student claims that she or he must attend a funeral and therefore will not be able to take a testing center exam during the allotted time frame, we may take the opportunity to adjust the exam timeframe to accommodate the student in crisis, but in a way that equally benefits the entire class. Shifting an exam date out an additional day or two, for example, is unlikely to undermine learning objectives; rather it may benefit not only the student in crisis but the entire class. In such a manner, the professor is able to clearly demonstrate benevolence towards the student in crisis while simultaneously enacting procedural justice for the rest of the class and maintaining professionalism. In doing so, the relationship between justice and trust can be leveraged while simultaneously demonstrating trustworthiness directly through benevolent action. (Granted, the assumption is that the extension will not somehow provide some students with opportunities to cheat or otherwise gain an unfair advantage.) When appropriate, we have also used the entire situation as an "experiential case study" with the intent to educate students on how they might use the psychology of justice and trust as future business leaders, to help them retain the trust of their key stakeholders. It has been our experience that such learning experiences are not soon forgotten by students.

CREATING A CLIMATE OF TRUST AND DEVELOPING TRUSTWORTHY LEADERS

Thus far, we have argued and provided examples for enacting organizational justice in the classroom, leading to perceptions of professor trustworthiness and providing a practical means for generating trust between MBA students and their professor. We now turn to the process by which these activities generalize to the class as a whole, creating a climate of justice and trust, and developing trustworthy leaders by modeling trustworthy leadership in the classroom.

Social information processing theory (Salancik & Pfeffer, 1978) suggests that individuals influence each other's perceptions through their interactions with each other, the process of which can eventually lead to a shared perception of their environment (O'Reilly & Caldwell, 1985). We believe that the open, intensive peer-to-peer and student-to-professor interactions that are an integral part of an MBA education (Tootoonchi, Lyons, & Hagen, 2002) facilitates social information processing and social learning within MBA programs. Justice scholars have used social information processing to explain the development of shared perceptions about the behavior of an authority figure (justice climate; Liao & Rupp, 2005), as well as the development of shared perceptions about how peers treat each other (peer justice climate; Li, Cropanzano & Molina, 2015).

We suggest that through social information processing of the professor's enactment of procedural, interpersonal and particularly informational justice, students will develop a shared perception of a fair justice climate with regard to the professor-as-leader (Kim, 2019). As students interact in the classroom and experience procedural and interpersonal justice from the professor, they will develop a perception of peer justice climate about the course that will positively influence their interactions with each other (Pecino et al., 2018), including the enactment of justice between themselves.

As the peer justice climate of the class develops and matures, the known empirical relationship between justice and trust predicts that a climate of trust will also develop, in which students begin to model trust and trustworthy behaviors among themselves. Recent research supports this very dynamic in an academic setting. Nelson et al. (2019) demonstrate that justice enacted by an authority figure leads to trust and respect between students in the classroom via collective responsibility and communication - characteristics of exchanges and work in MBA courses (Tootoonchi et al., 2002). These dynamics are also supported by prior work noting that the combination of justice and an environment where ideas are shared and discussed openly is linked to the development of trust (Colquitt & Rodell, 2011).

Consistent modeling of organizational justice, the subsequent creation of a peer-to-peer justice climate, and in turn a climate of trust in the classroom, also provides the opportunity for students' active participation in their own leadership development process. Current views of leadership acknowledge that it is socially constructed (Fairhurst & Grant, 2010), and that leaders learn to lead over time (Hirst, Mann, Bain, Pirola-Merlo, & Richver, 2004). Our view is that the practice of organizational justice in the classroom and the associated outcomes that students realize over the time will help MBA students internalize the value inherent in a justice-based approach to building trust, and that these experiences may inform their future behavior as business leaders (Kayes, 2002).

When an MBA professor engages in organizational justice practices, this behavior may serve as a model for MBA students as well as trigger social information processing, leading the students to view the professor as trustworthy and generating trust in the professor. Collective effort and communication among MBA students contribute to a peer justice climate and a climate of trust, both of which form the basis for a co-constructed definition of leadership that includes fair treatment, trust and trustworthiness. As students reinforce these behaviors between them and over time, they will be more likely to carry forward justice and trust principles for their own use as leaders in their organizations which will help to build the trust of the stakeholders they work with, starting with their own employees.

CONCLUSION

Trust in business executives is declining; business executives already rank near the bottom of professions in terms of honesty and ethical standards. Some evidence suggests that increasing distrust of business leaders may in part be due to the way leadership/organizational behavior is being taught in MBA programs. This paper responds to this problem by proposing a justice-based psychological trust pedagogical platform for teaching organizational behavior coursework in MBA programs. We explain our reasoning via reference to the justice and trust literatures and demonstrate via proposed experiential learning classroom modeling, that a justice-based teaching platform is capable of helping to restore the trust of employees and other stakeholders. Specifically, we argue that as MBA students experience justice-driven trust in the classroom and witness its power as a highly effective leadership tool, they will internalize such trust-based leadership in their own careers, prioritizing justice, ethics, and long-term stakeholder relationships over more short-term interests.

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Factors Affecting the Selection of Online Classes by Graduate Business Students

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ABSTRACT

This study examines the factors affecting the selection of class delivery mode, online vs. face-to-face classes. Using data collected from graduate business students over several years, this study documents the roles of barriers to take F2F classes, motivators of online classes, and individual characteristics. The research findings have implications for instructors, designers, and administrators of the online education.

Keywords: online learning, class delivery mode, motivators, barriers, business education.

INTRODUCTION

Over the past several decades, online learning has gained much popularity in both higher education and professional training (Allen et al., 2016; Chen, Jones, and Moreland, 2013; Richardson et al., 2016). For instance, a recent survey of online learning by Allen et al. (2016) reports that the number of students enrolled in postsecondary institutions who took at least one online class in 2014 was 3.5 times greater than those who did so in 2002. Thus, what causes such changes is the topic of empirical research interest. This provides an impetus for this study.

Accordingly, the primary object of this study is to develop a model to examine the factors related to the selection of class delivery mode, online vs. face-to-face (F2F), with a focus on comparing the magnitude of these factors. For this purpose, this study develops regression models to determine the effects of demographic variables, motivators, and barriers. Thus, this study provides an integrative view on the roles played by each factor.

The second objective of this study is to improve prior studies with a new measure of the dependent variable, the delivery mode selected by students. Previous studies measure mode based on the class taken (online vs. F2F) by students in the semester when the survey was conducted. In contrast, this study measures selection as percentage of online classes out of total classes taken by the time of survey based on observations over several semesters. Thus, this study provides empirical evidence based on much more robust statistical methods such as regression analyses.

PREVIOUS RESEARCH ON FACTORS AFFECTING ONLINE SELECTION

Extant literature has identified a number of situational and institutional barriers that prevent students from taking F2F classes (Dendir, 2016; DiRienzo and Lilly, 2014; Mann and Henneberry, 2012, 2014; Sebastianelli, Swift, and Tamimi, 2015). A list of motivators that facilitate the selection of online classes has also been suggested as the reasons why some students choose online over F2F classes (Chen, Jones, and Moreland, 2013; Fish and Snodgrass, 2015; Kuzma, Kuzma, and Thiewes, 2015).

In addition, previous studies indicate that students' individual characteristics affect students' class selection behavior. Examples of such variables are educational background, gender, age, full-time status, and language skills (Ashong and Commander, 2012; Beqiri, Chase, and Bishka, 2010; Mann and Henneberry, 2012; Pontes et al., 2010).

RESEARCH METHODOLOGY

Subjects and Data

The subjects of this study are 214 students enrolled in an accounting course, which is a required core of an MBA program offered at a state university located in the southwest US, over the years 2013 to 2018. The survey instrument assesses the students' perceptions of online learning, both motivators and barriers. It contains a total of 20 items, 8 items for barriers of F2F and 12 items measuring motivational factors that facilitate online selection. Using a survey, this study also collects data regarding students' individual characteristics such as undergraduate

major, gender, age, full-time status at work, the number of hours studied, first language, and the number of years residing in the United States.

Table 1 summarizes the distributional characteristics of the subjects. A typical student who participated in this study is younger than 40 years old, studies 4 to 6 hours per week for the course, works full time, is a native speaker of English, and has resided in US longer than ten years. However, the undergraduate degree (non-business vs. business) and the gender (male vs. female) of the students are evenly distributed.

Table 1: Distribution of Subjects (N=214): Frequencies and Percentages

Undergraduate (*UMAJOR*)		
Non-Business	106	49.5%
Business	108	50.5%
Age entering to MBA (*AGE*)		
< 30 years	97	45.3%
30-39	81	37.9%
40-49	27	12.6%
>= 50	9	4.2%
Gender (*GENDER*)		
Male	104	48.6%
Female	110	51.4%
Study Hours (*STUDY*)		
< 3 hours per week	49	22.9%
4-6 hours per week	78	36.4%
7-9 hours per week	51	23.8%
>=10 hours per week	36	16.8%
Work full-time (*FULLTM*)		
Not working	26	12.1%
Part time	22	10.3%
Full time	166	77.6%
Native speakers (*NATIVE*)		
Non-Native of English	94	43.9%
Native Speaker of English	120	56.1%
Residence in US (*INUS*)		
< 5 years in US	21	9.8%
5-10 years in US	33	15.4%
>= 10 years in US	160	74.8%

Dependent Variable

The dependent variable is the likelihood of selecting online classes, operationalized as the percentage of online classes out of total classes taken toward the MBA program by the time of survey. Table 2 shows the distribution of the dependent variable. One notable finding is that a significant number of students have taken 100% online courses (91 out of 214, or 42.5%), but the students who have taken 100% F2F courses was smaller (15 out of 214, or 7.0%).

Table 2: Dependent Variable: Percentage of Online Class Taken: N=214

0% - 20%	**29 (15)**	13.5% (7.0%)
21% - 40%	**35**	16.4%
41% - 60%	**32**	15.0%
61% - 80%	**17**	7.9%
81% -100%	**101 (91)**	47.2% (42.5%)

Note: Numbers in two parentheses are the subjects with 0% and 100%, respectively.

Independent Variables

For independent variables, this study employed composite measures of situational barriers (four items) and institutional barriers (four items) that prevent students from taking F2F class. Similarly, this study used two composite measures of the satisfying motivators of online learning (nine items) and dis-satisfying motivators of F2F (three items). Table 3 summarizes the measurements of the independent variables. The table also shows the means of each of the items used to develop composite measure of motivators and barriers.

Table 3: Independent Variables: Descriptions, Measurements, and Distribution

Variables	Descriptions	Data Range	Mean
Situational Barriers of F2F (SBAR)			
WORK	Cannot take F2F due to work commitments	1 (SD) to 5 (SA)	4.266
FAMILY	Cannot take F2F due to family commitments	1 (SD) to 5 (SA)	4.150
LOCATN	Cannot take F2F due to location of class	1 (SD) to 5 (SA)	3.271
TRANSP	Cannot take F2F due to distance to campus	1 (SD) to 5 (SA)	2.701
Institutional Barriers of F2F (IBAR)			
FULL	F2F not available because the class was full	1 (SD) to 5 (SA)	1.836
TIME	F2F not available at convenient time	1 (SD) to 5 (SA)	2.107
SITE	F2F not available in convenient site	1 (SD) to 5 (SA)	2.308
TERM	F2F not available in convenient terms	1 (SD) to 5 (SA)	2.238
Dis-satisfiers of F2F (DMOT)			
S2I	Interaction with instructor not important	1 (SD) to 5 (SA)	2.645
S2S	Interaction with students not important	1 (SD) to 5 (SA)	2.701
DISCUSS	Class discussion not important	1 (SD) to 5 (SA)	2.481
Satisfiers of Online (SMOT)			
FDBACK	Getting more detailed feedback in online	1 (SD) to 5 (SA)	2.435
ORGAND	More organized in online	1 (SD) to 5 (SA)	2.724
PRINTED	Uses printed material in online	1 (SD) to 5 (SA)	2.748
WRITTEN	Uses written than verbal work in online	1 (SD) to 5 (SA)	2.757
LEARN	Learn more in online	1 (SD) to 5 (SA)	2.678
GRADE	Getting a better grade in online	1 (SD) to 5 (SA)	2.762
NEWWAY	New way of learning	1 (SD) to 5 (SA)	2.963
CONVT	More convenient in online	1 (SD) to 5 (SA)	3.178
RESPON	Getting more responses in online	1 (SD) to 5 (SA)	2.710

Note: SD (Strongly disagree), SA (Strongly agree)

FINDINGS AND DISCUSSIONS

Effects of Individual Group Factors

Table 4 reports the results from linear regression analyses for the sample. Overall, the regression models with a single group factor (*IND*, *MOT*, and *BAR*) and multiple group factors (*ALL*) are all statistically significant.

*Individual Factors (IND)***:** The model with *IND* was statistically significant at the .01 level with a F-value of 3.09. The R^2 of this model was 0.0951. Of seven individual characteristics, only two variables (*STUDY* and *FULLTM)* are statistically significant at a .05 level, which is relatively weak. The positive sign of the *STUDY* indicates students who have longer time committed to study are likely to take "more" online classes. Similarly, the positive sign of the *FULLTM* indicates that those students who work full-time are more likely to take "more" online classes.

*Motivators (MOT)***:** The model with *MOT* was statistically significant with a F-value of 21.47. The R^2 of the model was 0.1691, which is larger than the *IND* model. With respect to the types of motivators, the results indicated that both the satisfying motivators (*SMOT*) and dis-satisfying motivators (*DMOT)* are significant, thus providing support that the motivators have had an impact on students' decisions to take "more" online classes.

Barriers (BAR): The regression model with the *BAR* was also statistically significant with a F-value of 44.79. The R^2 of the model was 0.3899, which was much greater than the regression models with *IND* or *MOT*. Such results indicate that barriers are the most significant determinants. The composite measure of the *SBAR* was statistically significant, thus supporting the existence of situational barriers (*SBAR*). This study also found that institutional barriers (*IBAR)* is statistically significant. The negative sign of *IBAR* indicates that the higher the institutional barriers, the 'more' likely students would take online classes.

Relative Importance of Individual Group Factors

To summarize the results from single group factors, the best single group factor model was the M3 (or *BAR*), followed by M2 (or *MOT*) and M1 (or *IND)*. The M4 (*ALL*) model that contains all group factors was statistically significant at .001 with a F-value of 11.74.

Overall, the multi-factor model performed better than the other three single group factor models (M1, M2, and M3). The R^2 of the model M4 was 0.3899. It indicates that both the barriers (*IBAR* and *SBAR*) and one motivator (*SMOT*) are significant predictors of class selection, thus, consistent with the results from single factor models. One interesting finding, however, is that two individual characteristics (*STUDY* and *FULLTM*) and the dis-satisfying motivator (*DMOT)* failed to achieve significance in the *ALL* model. One viable explanation is that these variables are somehow confounded with other variables such as *IBAR* and *SBAR*, which were the two most significant predictors of the class selection.

Table 4: Results of Linear Regression Analysis

	M1: *IND*	**M2: *MOT***	**M3: *BAR***	**M4: *ALL***
Intercept	0.152	0.154	0.101	-0.376**
UMAJOR	0.051			-0.022
GENDER	0.011			0.008
AGE	0.021			0.041
STUDY	0.052*			0.020
FULLTM	0.075*			0.032
NATIVE	0.087			0.067
#INUS	0.048			0.030
SMOT		0.013***		0.008**
DMOT		0.025***		0.011
IBAR			-0.013**	-0.013***
SBAR			0.039***	0.030***
F Value	3,09**	21.47***	44.79***	11.74***
R^2	0.0951	0.1691	0.2980	0.3899

Note: * <.05; ** <.01; *** <.001

CONCLUSIONS

This study contributes to the extant literature as it offers explanations as to the reason why some students are likely to take a greater percentage of online classes. Using data collected from 214 MBA students over a recent six-year period, this study documented the existence of the three group factors affecting students' selection of online classes. They are barriers to F2F instructions, motivators of online learning, and students' individual characteristics. For instance, this study confirmed that the barriers of F2F, both situational and institutional, still played dominant roles in students' selection. This study also found that the motivators of online are the second most significant factor in students' selection of online classes. The results confirm that the satisfying motivators (*SMOT*), but not the dis-satisfying motivators of F2F (*DMOT*), have contributed to the popularity of online classes.

This study also contributes to the extant literature on the relative importance of each group of factors affecting online selection. With respect to the relative performance of the single factor models, the *BAR* model explained the most variance with R^2 of 0.2980. The model with the next highest R^2 was the *MOT* model. The R^2 of the *IND* model was the lowest, 0.1691, but was statistically significant at the .01 level. In short, the order of the relative importance was the *BAR*, followed by the *MOT* and the *IND*.

Another contribution of this study rests on the fact that this study developed and utilized the continuous scales of the dependent variable, class selection behavior, which is a robust measure relative to the widely used dichotomous measure, online vs. F2F. With the use of the new measure, this study provided empirical evidence with a robust inferential statistics from regression analysis.

One implication from this study is that it may be a good time to offer a hybrid model of class delivery as it can maximize the benefits of both F2F and online classes (Ahmed, 2010; Auster, 2016; Fadol, Aldamen, and Saadullah, 2018) as the majority of students still prefers F2F classes to online. Findings on the existence and the relative importance of the various factors affecting students' selection behavior of class delivery mode have relevance to instructors, designers, and administrators who make various important decisions regarding online learning (Richardson et al., 2016).

This study, however, has a few limitations. The most important limitation of this study is the generalizability of the findings from this study to other institutional contexts such as the discipline, degree program, geographic location, private vs. public, program goals, and target student population. In addition, it is possible that students' perceptions of online learning and their class selection behavior would have changed over the sample periods; thus, caution is required in interpreting and generalizing the empirical findings from this study.

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Teaching R to Undergraduate Business Students

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ABSTRACT

When developing a curriculum on business analytics, along with *what* is being taught, *how* it is being taught is important, especially regarding choosing the right analytical tool. This article offers a pedagogical example of using R in a business analytics course with undergraduate students. This teaching case outlines the methods that address the steep learning curve of R and analyzes student feedback on the learning experience. Based on positive student responses, the article suggests that R is a viable option to use to teach business analytics to undergraduate students.

Keywords: R, business analytics, data analytics, business education, business pedagogy

INTRODUCTION

In recent years, business becomes a primary field that is applying a large set of data from varied sources in its practices, ranging from predictive analytics for targeting and product recommendation algorithms for cross-selling purposes, to prescriptive analytics for optimizing a supply chain (McAfee, Brynjolfsson, Davenport, Patil, and Barton, 2012). Thus, teaching the analytics of big data becomes undoubtedly an important priority when building curricula for both undergraduate and graduate business programs. However, teaching data analytics is not new in the business curriculum. Management information system, business statistics, management science, data mining, and database marketing have been courses commonly offered in many business curricula for more than several decades. These courses have taught statistical methods (e.g., t-test, regressions, and cluster analysis), which are still popular for the current data analytics, with software programs (e.g., *Excel*, *SPSS*, and *SAS*) that have being widely used by data scientists and academic researchers (Teer, Teer, and Kruck, 2007). However, innovations in processing big data, such as *MapReduce* (Dean and Ghemawat, 2008) and business demands for top-notch algorisms as in the case of the *Netflix* challenge (Bennett and Lanning, 2007), have created new needs for more powerful and suitable tools. Thus, the traditional programs have released a series of updated versions, and many of the new commercial packages, such as *RapidMiner*, *JMP*, and *IBM Watson Analytics*, have gained popularity in the community of data scientists. Another notable trend for analytics programs is the rise of free open-source programs, which include *R* and *Python*.

Considering the wide array of options, adopting the right tool to teach data analytics (how it is being taught) has become a critical component for effective teaching data analytics, as much as deciding the right topics to teach (what is being taught) (Basturk, 2005; Strasser and Ozgur, 1995). However, few studies on business education have examined the teaching methods and responses of undergraduate students to a particular computer program for precise pedagogical guidance when developing data analytics courses in the business curriculum. The present study aims to remedy this deficit as it reports on a case on the instruction of a business analytics using R. It both delineates the course design and analyzes the responses of undergraduate business students regarding their experiences learning R.

AN OVERVIEW OF R

R is an open-source programming language and software platform that specializes in statistical computing. Teaching R offers several distinctive benefits over the commercial programs frequently used for teaching business statistics. First, as shown in surveys of data scientists (Piatetsky, 2016; 2018), R has been one of the most widely used analytical software in data sciences. Thus, learning R is directly beneficial for students who are pursuing the field of data analytics. Second, unlike other commercial packages (e.g., SAS, SPSS), students can easily download R from websites and use it for free without any functional limitations. Thus, they can readily work on all types of data projects in any organization without having to purchase a commercial software program. This advantage is especially beneficial for those graduates who have a job in low-budget environments, including start-up businesses or small local companies. Third, any user of R can easily access up-to-date packages and R codes for a particular use developed and shared by other data scientists. In fact, the biggest strength of R is its free archive of R packages, the Comprehensive R Archive Network (CRAN). It has become a valuable place for data scientists to go to acquire and

share analytics packages for a variety of projects (Fox and Leanage, 2016). In 2017, CRAN sites had more than 10,000 packages of R codes developed by hundreds of active developers of those codes (Smith, 2017).

Despite all these benefits, the biggest hurdle for adopting R in undergraduate classes is that it requires students to learn computer programming—not a common task for most undergraduate students outside of computer science disciplines. Teaching command line-based programming produces significant challenges for instructors, and learning it may also create anxiety for students who feel intimidate (Chang, 2005; Connolly, Murphy, and Moore, 2009). A previous teaching case of R in an undergraduate course of business analytics also reported a steep learning curve (Hill and Kline, 2014). Considering the existence of statistics anxiety among business students, requiring programming for statistical analyses may be an overwhelming task (Hsu, Wang, and Chiu, 2009). Thus, in most business curricula, R has been used primarily in graduate classes on management science (Mamonov, Misra, and Jain, 2015). However, focusing on its distinctive benefits, a group of business professors (e.g., Bilbrey, 2017; Turner, 2017) has been teaching R in undergraduate courses on business analytics and searching for effective teaching methods to reduce student anxieties of learning R. For example, using a graphical user interface, such as *R Commander* and *R Studio*, which are friendlier when programming, can be an option to help reduce the level of student programming anxiety (Fox, 2004).

As presented above, the advantages and disadvantages of teaching R have been addressed. Still, factual knowledge on the methods of teaching R and the responses of undergraduate business students who are learning R remains sparse. As a result, despite the growing popularity and particular advantages of R, little guidance as yet exists for adopting R as the proper tool to use in business courses related to data analytics.

COURSE DESCRIPTION AND TEACHING METHOD

The course examined in the present study was titled "Big Data and Business Analytics" and offered as an elective course for all business majors at an AACSB-accredited business school located in Southeast United States. The purpose of the course was to introduce fundamental concepts of big data and to teach analytical techniques to draw meaningful information from big data for business decision-making.

Course Design

Because all students in the class were in the business program, the course content (e.g., case examples and practices) was oriented toward business contexts. Likewise, the teaching topics and statistics chosen for the course were directly relevant to business practices. Specifically, the course covered regression, decision tree, clustering, market-basket analysis, A/B testing, and text analytics. There were two guest speakers, and during the 16-week semester, the students took three tests and one final exam.

The textbook for R was selected by considering two criteria. First, it needed to be written within business contexts. Second, the level of analytics should be appropriate for undergraduate business students. Based on the author's observations, most of the R textbooks target professional data scientists, readers with considerable computer programming experience, or graduate students in quantitative research fields. After careful examination, *Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data* (Dietrich, 2015) was adopted. This book presents data analytics using R and business examples and applications, and it describes the statistical concepts and R programming in an understandable manner for undergraduate business students. It also provides online resources that include R scripts for each statistical method and datasets for each case included in the textbook. In addition to the R textbook, this course also required a second textbook, *Data Science for Business: What You Need to Know about Data Mining and Data-analytic Thinking* (Provost, and Fawcett, 2013), that covered the conceptual and theoretical parts of the course.

Teaching R

On the first day of teaching R, students downloaded the latest version of R program from the R-project site to each computer. In each class, as necessary, the R packages for a particular statistical method (e.g., *rpart* for teaching decision trees) were downloaded and installed (see Table 1 for the R packages used to teach each topic). The class used the textbook datasets from the publisher's website. In several cases, the instructor edited original datasets to make the context more relevant to business practices. For instance, the textbook dataset used student grades (i.e., English, math, and science scores) based on 100 points in presenting *k*-means clustering. In the present class, the numbers were altered to 7-point scales and presented as brand satisfaction scores on quality, price, and service. The

instructor also changed several values in some datasets to induce the statistical significance in order to lead discussions for business-related ideas. Along with the dataset, the instructor distributed a file that contained the command line of R scripts with the variables to program a particular statistical method covered in each class. For instance, the manual to demonstrate a decision tree contained the following codes including commands, symbols, and variables in the model:

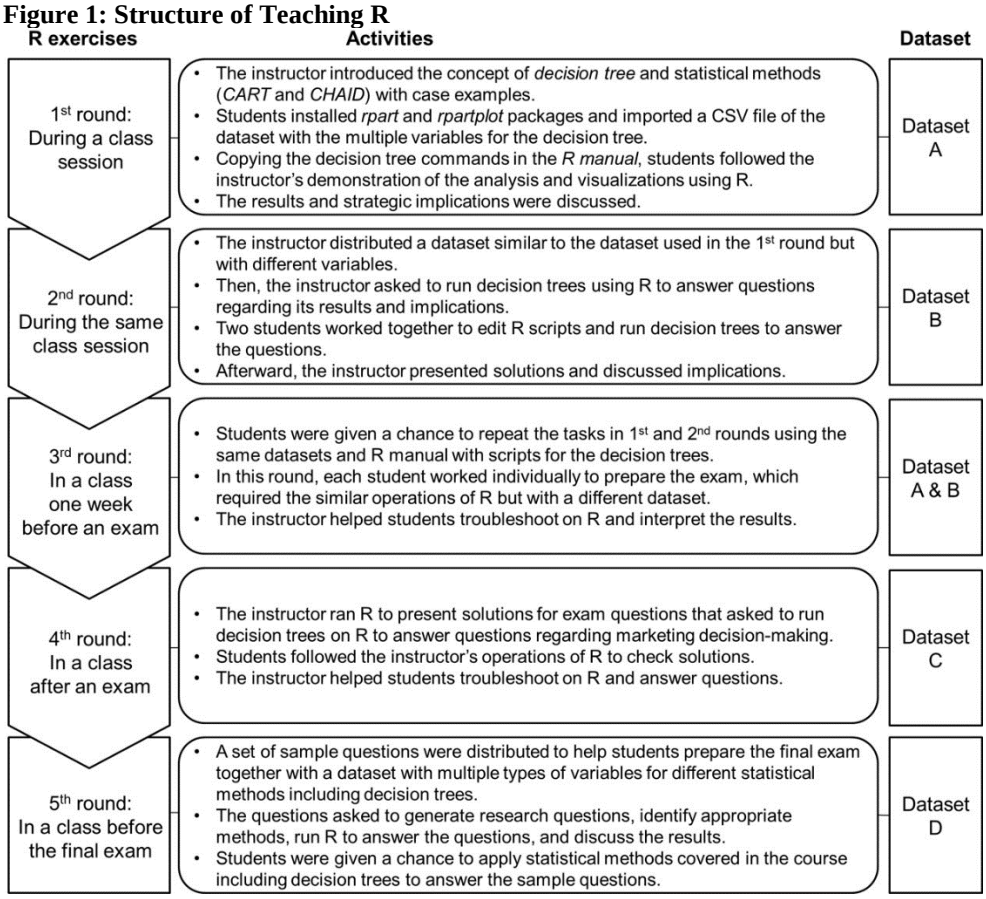
```
DecisionTree1 <- rpart(subscribed ~ age + job + marital + education + default + balance + housing + loan + contact + poutcome, method="class", data=bank, control=rpart.control (minsplit=20))

rpart.plot(DecisionTree1, type=4, extra=106, varlen=0, faclen=6)
```

During the first half of each 75-minute class, the instructor introduced each statistical technique and overviewed the manual explaining the codes in the command line. Students then used these scripts to follow the instructor's demonstration of a statistical method. Afterwards, discussions of the results and their implications followed. In the present course, special attention was paid to reduce student anxiety about computer programming as well as overcome the steep learning curve of R as observed in a previous teaching case on an undergraduate course on business analytics (Hill and Kline, 2014). For these purposes, the present course focused on providing students with repetitive opportunities to deal with multiple tasks involving different datasets to exercise R programming for each statistical method. Therefore, in the second part of each class, the instructor distributed a document with three to five exercise questions together with a dataset that was different, but similar, to the previous one for demonstration. The questions asked students to solve business problems by using R for the statistical techniques just covered. For instance, a question about the decision tree asked students to run a decision tree model using R and identify an appropriate target group among multiple nodes. Importantly, for these exercises, two students worked together to answer the questions, and such cooperative learning was expected to facilitate the process and provide mutual benefits to both students (Johnson and Johnson, 1994). Then the instructor demonstrated the R programming to the students to answer the questions. After learning two or three statistical methods, and before taking the exam on those, there were sessions to revisit those methods and students repeated the same R programming individually to ensure competency.

Three exams during the semester provided another opportunity to run the R programming. Together with questions asking statistical concepts and knowledge (e.g., "What is the type of dependent variable in logistic regression?"), five to seven items asked to conduct specific analyses with R to answer questions (e.g., "With the given set of variables, run logistic regression with R. Then identify which factors are statistically significant."). In the class after each exam, the instructor operated R and reviewed all exam questions demonstrating statistical analyses, and students followed the demonstrations using the R program. In addition, before the final exam, a class session let students practice all the statistical methods covered during the semester. The given dataset for this session had multiple categorical and numeric variables that were applicable to each statistical analysis taught throughout the semester. Students worked individually and operated R to try multiple statistical methods to draw meaningful information from the given dataset. In the final exam, students received another dataset similar to the one in the previous session with varied types of variables. They were asked to review the variables in the dataset and generate three research questions (or hypotheses) regarding decision-making on business strategy. They then had to identify appropriate statistical methods to answer the questions, run R for the statistical methods, interpret the results, and make strategic suggestions.

In sum, students gained experience in operating R and analyzing five different datasets for each statistical method. Figure 1 illustrates this structured process for the repetitive practices of R by using the example of teaching decision trees.

Figure 1: Structure of Teaching R



STUDENT FEEDBACK

In the last class, all students in the course (N = 26) completed an online survey. The responses remained anonymous to keep them confidential and objective. Among respondents, seventeen students were marketing majors, and there were six students in management, two in finance, and one in accounting. There were the equal number of female (n = 13) and male (n = 13) students in either their junior (n = 5) or senior (n = 21) years, ranging from 21 to 27 years old (M = 21.7, SD = 1.32). They had taken a business statistics course that covered descriptive statistics, hypothesis testing, and basic statistical methods (e.g., t-test, ANOVA, and linear regression). They had also taken a computer course that taught the basics of Excel and Access. Six students took a course on computer programming where they had a chance to learn basics of the *Java* programming language. Two of them had used *Python*. Three students had heard about R before taking the present course, but none had ever learned it.

Satisfaction with Learning R

The overall course satisfaction was positive in a measure that applied the Net Promoter Score (NPS) (Reichheld, 2003) which asked "Would you recommend this course to a friend" (ranging from 0 not at all likely to 10 extremely likely) (M = 8.38, SD = 1.43). Students also showed positive responses to the following question that asked specifically about their satisfaction with the R learning experience: "Would you recommend learning R to a friend" (M = 7.19, SD = 2.14). A strong positive correlation existed between the overall satisfaction of the course and student satisfaction with learning R (r = .58, p < .01). In particular, six students with previous programming experience (i.e., Java/JavaScript) (M = 8.83, SD = 1.94) expressed higher satisfaction with learning R than the remaining 20 students who had no previous programming experience (M = 6.53, SD = 1.89) ($t(24) = 2.47$, $p < .05$).

For further investigation of both positive and negative student experiences when learning R, the author adopted the approaches used for the NPS analysis and separated the students into three groups based on their rating of learning R: *Promoters* (9-10 rating), *Passives* (7-8 rating), and *Detractors* (0-6 rating). Eight of the 26 students were Promoters; they were satisfied and extremely likely to recommend learning R to their friends. The six Passives were

only passively satisfied. The remaining twelve students were Detractors and extremely unlikely to recommend learning R. In particular, of the six students with previous experience in programming, five were Promoters, and only one was a Detractor. The following question asked the reason for the recommendation likelihood, and the Promoters highlighted the benefits of learning R for their future careers and its relevancy to the current practices of business analytics. The Detractors were mostly skeptical about their future uses of R. Table 1 presents examples of the verbatim comments received from both the Promoters and the Detractors.

Table 1: Comments on the Likelihood of Recommending Learning R to Peer Students

Group	Verbatim Comments
Promoters (9-10 rating)	• It is a valuable asset in today's job market. • It is a free open-source software so implementing it at work won't require heavy expenses. • I think it's a really informative tool, while we didn't get super deep into R, I felt like I am very competent with the program and will be putting it in my list of skills on my resume. • For someone entering the data analytics field, I think it helps to set me apart from other potential candidates, as well as give me an edge when completing tasks. • It is great to know as many companies want to hire marketers with some sort of background in data analytics. I recommend it because data analytics is becoming fundamental in business world.
Detractors (0-6 rating)	• I think not many people would understand what it is unless you are in a field that directly uses it. • Other than this class, I do not image a future situation in which this program will be relevant. • I would tell my friends to learn a different language instead of R. • I would only recommend it if someone was interested in data analytics. It would also be more difficult without the codes in front of me. • A lot of companies will offer training programs in their software which may be more user friendly than R.

Experience of Learning R

In a question that asked about the difficulty of learning R (ranging from 0 extremely easy to 10 extremely difficult), the students reported an average level of difficulty (M = 5.24, SD = 2.22). It is noteworthy that this difficulty level for learning R was not significantly correlated with either overall course satisfaction or satisfaction with learning R. In addition, the differences in NPS grouping and programming experience were not significant.

In the following question, students provided three words or phrases to complete the given sentence: "Learning R was _____." The two most frequent words offered were "challenging" (9) and "interesting" (8). Then, positive words dominated the rest of the responses including "easy" (4), "helpful" (4), "useful" (4), "fun" (3), and "rewarding" (3) with a few exceptions that included "difficult" (3). Figure 2 shows the word cloud based on these word frequencies.

Figure 2: Word cloud on the Learning R Experience

Additional questions in the survey revealed that only 13 out of 26 students bought both required textbooks and five students did not purchase any of the required textbooks. Only nine students installed R and used it on their home computers.

DISCUSSION

In the undergraduate business class used for the present study, a group of students showed appreciation for learning R. They recognized the growing importance of learning tools to analyze data in many current business fields, and they understood the advantages of learning R to advance their personal career development. In particular, most students with previous experience in computer programming strongly advocated learning R. However, the other group of students retained a skeptical view toward learning R. Several of these students thought there would be only a few cases where they would need to use R in the business field.

In the present course, instructing undergraduate business students on R went smoothly, although pedagogical studies in computer science (e.g., Chang, 2005) have reported computer anxiety particularly regarding command line-based programming. The repetition method used in the present course to reduce students' anxiety seemed to positively affect the learning experience of R in that these students described that process as "interesting," "fun," and even "easy." However, the survey results showed a lack of extra student effort to learn and practice R outside the classroom. Learning computer languages requires a considerable amount of time due to iterative trials and errors, and that may be an unfamiliar learning environment for many business students. Therefore, future studies might suggest innovative methods that will encourage business students to invest their own time and further effort into learning R and other programming languages.

Several limitations should be noted when adopting the pedagogical approach in the present study to other courses. First of all, the sample size of the current study (26 students in a single section of the course) is too small to generalize the findings of the student survey. The other issue regarding the sampling involves the characteristics of the class and the student demographics. The course of the present study was an elective for juniors and seniors that could attract students with pre-existing interests in data analytics who had already taken statistics and computer courses. The level of student motivation and class environment would be different if the present course were offered as a core course or for freshmen and sophomores. Thus, additional studies with larger sample sizes as well as different student bodies are required to validate the survey findings of the present study.

Second, there was no chance in this instance of systematic follow-up to track actual learning outcomes. As a result, there exists scant information on whether the students are using R for their projects in other classes or even after graduation. However based on information obtained via personal feedback from two students revealed that upon graduation one student went on to a master program majoring in business analytics and the other started to work in data analytics. Both students reported that learning R was helpful for gaining both admission and a job offer, and they were using R frequently in their studies and projects.

Third, the majority of the present course dealt with data analysis with clean fictitious datasets that did not require the tasks of data preparation (a.k.a. data wrangling or data munging). However, in the actual practice of data science (especially with big data), data preparation and cleaning are the essential and most time-consuming parts (Lohr, 2014). Considering this weakness of the present course, it is recommended that future courses incorporate real-world raw datasets with outliers and missing values to enhance learning of actual practices of data analytics (Neumann, and Neumann, 2013).

Lastly, there exist other programming languages comparable to R with bringing similar benefits to teach. Especially, *Python*, another open-source programming language, has been gaining popularity as the general-purpose language with a simpler coding compared to R with a specific advantage of statistical analysis (Piatetsky, 2018). Future research adopting the teaching methods presented in the present paper but using Python instead of R and comparing student responses may produce information useful for business educators to select a tool to teach undergraduate courses on data analytics.

CONCLUSIONS

Teaching undergraduate business students the methods and skills they can use to draw meaningful information from a large dataset is becoming an essential aspect of business education. To teach data analytics successfully, selecting the right tool to analyze data is as important as choosing the right topics of statistical techniques. The present study preliminarily concluded that R can be a viable tool for teaching data analytics to undergraduate business students. In general, students in a data analytics course in the present study expressed positive responses toward learning and using R. They saw learning R as challenging, but also as an interesting experience. In designing the course, special attention was given to providing ample opportunities to practice R programming. The students repeated R programming for the same statistical techniques multiple times, dealing with different datasets. This structured process through repetitive exercises seems to have reduced any possible anxiety toward computer programming and indeed enabled the students to have a positive learning experience.

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Moving to the Cloud - Integrating a Real-Life Case to Teaching QuickBooks Online

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ABSTRACT

This paper illustrates a new pedagogical approach in teaching QuickBooks Online (QBO) to undergraduate students in an Accounting Information System (AIS) course. This new approach is centered around integrating Systems Understanding Aid (SUA) into the curriculum of teaching QBO, and assists the instructor in fostering active student learning. The new pedagogical approach was compared with the traditional pedagogical approach that was employed in teaching Access and Excel in the same AIS class. The results of the comparison showed the effectiveness of the new approach.

Key words: QuickBooks Online, Systems Understanding Aid, active learning

INTRODUCTION

Courses on Accounting Information Systems (AIS) are a key component of the undergraduate accounting curriculum. Learning software packages such as QuickBooks is at the core of AIS courses but also the more challenging part for many students. The disconnection between lecture-based in-classroom instruction and student learning outcomes that gear toward mastering the functions of software packages calls for new teaching methods and new student learning activities. The recent migration of QuickBooks Desktop to QuickBooks Online (QBO) only amplifies the disconnection.

This disconnection is challenging to most accounting students with various cognitive learning styles. For example, most students could benefit from using real-life cases and examples in their attempts to learn to record various accounting transactions, but few such materials are available to instructors and students. This paper introduces the pedagogical approach of integrating Systems Understanding Aid (SUA) (Arens and Ward, 2016) into teaching QBO. This paper also compares the student learning results of two different instructional approaches: teaching QBO with integrated SUA and teaching Excel and Access with traditional lectures and exercises. The rest of the paper is organized as the following parts: literature review, research design, how to integrate SUA into QBO, and results and discussions.

LITERATURE REVIEW

The importance of accounting students' skills and competencies in AIS has long been recognized by educators and practitioners. Both the American Institute of Certified Public Accountants (AICPA) competency framework and the Association to Advance Collegiate Schools of Business (AACSB) accreditation standards emphasize information technology skills of accounting students. The *AICPA Pre-Certification Core Competency Framework* (AICPA, 2018) promotes a skills-based curriculum that teaches accounting competencies, professional competencies, and business competencies. Technology and tools are identified as one of the accounting competencies. AACSB 2018 standards for accounting accreditation (AACSB, 2018) identifies A5 'information technology skills, agility and knowledge for accounting graduates.' A5 in the 2018 accounting standards is a continuation and update to A7 'information technology skills and knowledge for accounting graduates' in the 2013 accounting standard. In the 2018 accounting standards, AACSB suggests part of the basis for judgment of meeting A5 as 'student experiences integrate real-world business strategies… information systems and processes, and data management and data analytics tools' (AACSB, 2018, P.27).

Difficulties in teaching and learning in AIS courses at the undergraduate level include the following. First, the AIS course is relatively independent from other accounting courses, especially financial accounting courses. Second, the content and delivery methods of AIS course vary significantly across institutions and instructors, which hinders the accumulation and formation of knowledge and experience in teaching AIS. This point is echoed by Behn et al.

(2012) in their call for more developing and sharing of accounting curriculum and learning resources. Third, the AIS course is a hybrid of traditional accounting content and information technology, which requires a broad base of course readiness of students.

The difficulties of teaching AIS courses are aggravated by insufficient research in this area. Apostolou, Dorminey, Hassell, and Rebele (2014) identified 29 empirical research papers on AIS in accounting education journals from 1983 to 2013. Only five empirical articles were identified in six accounting education journals in the twenty-year period of 1997 through 2016, as reviewed by Apostolou, Dorminey, Hassell, and Rebele (2017), except for the special issue on AIS education in the Journal of Accounting Education in 2014.

The topic of teaching AIS content deserves more attention from accounting education researchers. The pathways Commission on Accounting Higher Education was created and entrusted by the American Accounting Association (AAA) and the AICPA to develop recommendations for improving accounting higher education (Behn et al., 2012). Recommendation 4 calls for developing and sharing curriculum models and learning resources to sustain a robust curriculum.

QuickBooks is the most used accounting software package by small and medium-sized businesses in the U.S. (Premuroso and Kirkham, 2013). QuickBooks textbooks are used by many colleges and universities to teach AIS (Lambert and Bee, 2015). Intuit, the developer and marketer of QuickBooks, is swiftly moving QuickBooks Desktop (QuickBooks Pro/Premier) to QBO. According to Intuit, 3 out of 4 customers get more work done with QBO vs QuickBooks Pro (Intuit, n.d.). AIS curriculum must evolve as the industry is moving to the cloud. There is, however, no existing textbook on QBO and teaching materials are very limited.

RESEARCH DESIGN

This research was based on a quasi-experimental research design. Three major content areas were taught in an AIS course: QBO, Excel and Access. Student self-reported learning results were compared on two pedagogical approaches: the new approach of integrating SUA into QBO (the experiment group) and the traditional approach of teaching Excel and Access (the control group). Students' pre (before learning the content) and post (after learning the content) attitudes and perceptions were also reported and analyzed.

Learning context and student characteristics

The AIS course is a 300-level undergraduate course taught at a private doctoral university in the mid-Atlantic region. The university has a student population of about 5,000. The AIS course is a required course for accounting major students, and open to all business majors. For the spring 2018 semester, the course had two sections of 60 students enrolled, with 30% females and 70% males. Among the 60 students, 83% were accounting majors and 17% were other business majors. The instructor spent half of the semester on QBO, a quarter on Excel, and a quarter on Access. The parts of Excel and Access were taught using traditional pedagogical methods of lecturing and practicing. The pedagogical approach towards QBO was summarized in the next section.

Integrating SUA into QBO

Three options of using real-life data in QBO are: 1) using QBO test drive (https://qbo.intuit.com/redir/testdrive); 2) using the setting of a new start-up business; 3) using SUA as the setting of a currently running business. From the perspective of teaching and learning QBO, QBO test drive and the setting of a new start-up business have significant inherent flaws; using SUA is the most suitable option but does require the instructor's extra work in preparation and execution.

Data already exists in QBO test drive and does not need to be re-invented. The QBO test drive, however, is not intended for the purpose of classroom teaching. Instead, QBO test drive is designed for prospective users to get familiar with the new cloud environment with demonstration files without making a mess in the client's real account. The unsurmountable drawback is that QBO test drive cleans all modified data every few minutes. This feature makes the topics such as finishing a year-end adjustment or an annual report impossible.

Using the mock data of a start-up business in teaching QBO is not an optimal option, because it does not provide sufficient data with the same breadth and depth of a data set of a currently running business as in SUA.
From a practical perspective, accounting students are less likely to work in a start-up company than in an on-going

existing operation after graduation. Similarly, accounting graduates working in accounting firms will help more existing business than start-ups. If accounting graduates work for a company or a client who is undergoing the transformation from paper-based accounting system or a traditional computer-based accounting system to a cloud-based accounting system such as QBO, most likely the transformation is for an existing company.

To move SUA data into the cloud and to teach QBO by using SUA data are the better way to teach QBO in an AIS class. SUA is a widely used tool kit in accounting education. It provides realistic hands-on learning experience to students. To integrate the SUA data into QBO teaching requires the instructor to make innovative arrangements and solve some practical issues, because SUA traditionally is based on manual accounting and QBO is based on a pure online environment. The following steps were taken to join the two parts together.

First, the instructor created a Pro-Advisor advanced account for herself in QBO so that she could have access to students' QBO accounts. QBO provided one-year free trial to students; and the free trial was sufficient for students' learning purposes. The free trial account, however, was not adequate for the instructor because it does not carry the privilege to access other users' accounts. The instructor finished the QBO training and received the QBO Certification as a Pro-Advisor of QBO. After the students set up their own accounts on QBO, they sent an invitation link to the instructor. As a Pro-Advisor, the instructor accepted students' invitation and took the students as her clients. Now the instructor can access students' QBO account as a remote accountant.

Second, the instructor worked with her students to set up the chart of accounts correctly in QBO. In QBO, users needed to choose Category Type and Detail Type. For the most part, it was a straight forward transplantation from SUA to QBO. The students were required to use their judgement and accounting knowledge. In the Warrant Sports Supply case in SUA, for example, students needed to fill in the correct path for each account. There were also special cases that required the instructor's attention. One such example was *30500 Purchases* in SUA. The students might treat it as an asset account, but in fact it was used as an expense account in QBO. Since it was also related to inventory, students had to choose "Supplies & Materials" in detail type. This was one example that QBO was linked to financial accounting knowledge, and students had the opportunity to make decisions in a real-life accounting setting.

Third, the instructor helped the students put the dollar numbers of the accounts from SUA into QBO. Although the number inputting was mostly mechanical, two types of accounts deserved special attention. The first was the beginning balance/balance forward provided by the general ledgers in SUA for all the accounts on 10/01/201X. To input balance forward numbers for the cash account in QBO, the key was the credit entry, which balanced off the debit entry. The ending credit entry of "Opening Balance Equity" should always be zero. The receivables/payables accounts were another type of accounts requiring special treatment. QBO required customers' name when a user inputted balance forward amounts for receivable accounts. In this case, general ledger of accounts receivable alone was not sufficient. The instructor needed to retrieve more information from SUA's subsidiary accounts receivable list.

After the initial setup of accounts and account numbers in QBO (10/01/201X), the instructor helped students with the ongoing operations of the following months after October 201X. SUA did not provide details of cash transactions in October, so cash transactions in October were treated as balance forward in QBO. After the input, the ending balance could be checked in trial balance to make sure it was the same as in SUA. Accounts Receivable (A/R) account was another special case worthy of mentioning. The instructor helped identify which vendor was related to the change of accounts receivable balance, because October transactions in Sales or Cash Receipts Journal were not available. One way to do it was to put all the previous A/R transactions on Oct. 31 in QBO to simplify the data retrieve. For the journal entries of the accounts of Purchases, Cash Reimbursement, Sales, and Cash Receipts in November and December, more data were retrieved from SUA.

Teaching and Learning QBO with SUA

At the beginning of the semester, the instructor did a questionnaire survey of the students to understand students' background, perceptions of the course, and their self-assessed abilities and difficulties in related topics. Although 83% of the students were accounting majors, only 45% students had any experience in real-life accounting process from jobs or internships. About 38% students claimed to know how to use some accounting software, and among those students, the average of their self-assessed ability of using accounting software was 2.56 on a 1-5 Likert-type scale with 1=not good at all and 5=extremely good. When asked how good they were at learning a new accounting

software package, the average responses from the students were 3.71(1-5 Likert-type scale, 1= not good at all and 5=extremely good). Students regarded learning accounting software as very important. The average of responses to the question "how important it is to learn to use accounting software in an AIS course" was 4.36 on a 1-5 Likert-type scale with 1=not important at all and 5=extremely important. When asked how important they thought it was to learn to use accounting software in an AIS course, students responded with a mean score of 4.30.

Part of the pre-test questionnaire was comprised of open-ended questions. The answers were analyzed by the IBM SPSS Text Analytics for Surveys software package. The main themes of the answers were extracted and summarized. When asked what the challenges and difficulties in this course would be, 29% of the students were concerned about learning a new software package and 40% of the students were concerned that they were not good at financial accounting. About 45% students indicated that the biggest help they expected to get from the instructor was the availability of the instructor to assist them.

Based on the results of the pre-test, the instructor designed two approaches toward teaching the different content areas. When teaching Access and Excel, the instructor employed the traditional pedagogical approach. The instructor used classroom lectures, assisted with PowerPoint slides and example demonstrations. The students then had the opportunity to work on examples and exercise questions. The student learning outcomes were tested by quizzes and exams. This approach served as the control group.

When teaching QBO, the instructor integrated SUA to the teaching and learning and transferred students' learning experience through a non-traditional pedagogical approach. This approach served as the experiment group. Three main characteristics distinguished the experiment group from the control group. First, the non-traditional pedagogical approach connected financial accounting knowledge with learning QBO throughout the whole section. This approach jointed learned knowledge with learning new knowledge. Second, the instructor acted more as a facilitator than a teacher in students' learning process (Major and Palmer, 2006). Because the instructor was a Pro-Advisor of QBO and took the students as her clients, she had real-time access to all students' activities. This mechanism made the instructor always available to help the students and avoided the situation where the students had to wait to show their work to the instructor. Students were co-learners with the instructor, and they assumed more responsibility for their learning. Third, part of the approach was to pair students up and let them check and assess each other's work. One student acted as the "auditor" to check another student's homework and gave feedback. If there were discrepancies, the audited student reworked the homework until both sides agreed. Student peer assessment encouraged higher order thinking (Bostock, 2006), promoted student autonomy, and boosted collaboration and corporation between students. To address concerns about the potential downsides of student peer assessment (Liu and Carless, 2006), the instructor graded the homework after both the auditor and audited student agreed that the homework was ready for submission. The auditor student also received a grade for his or her performance in checking the other student's work.

RESULTS AND DISCUSSIONS

At the end of the semester, a post-test was administrated with the same students. Student attitudes were consistent in the pre-test and the post-test, with no statistically significant change. When asked how important they thought AIS was in the accounting curriculum, students responded with a mean score of 3.83 in the post-test. Students responded with a mean score of 4.15 to the question of how important it was to learn to use accounting software in an AIS course.

The non-traditional pedagogical approach was more effective than the traditional pedagogical approach. Student learning outcomes were summarized as follows. Student self-reported abilities on using QBO increased from a mean score of 2.04 to 4.30. Student self-reported abilities on using Excel increased from a mean score of 3.52 to 3.88. Student self-reported abilities on using Access increased from 2.40 to 3.98. All three increases were statistically significant. The results are summarized in Table 1.

Table 1: T-Test of Pre-Test and Post-Test Student Abilities of QBO, Access and Excel

Subject	Mean Score Pre-Test	Mean Score Post-Test	T-Test	Significance
QBO	2.04	4.30	-19.84	<0.01
Access	2.04	3.98	-11.89	<0.01
Excel	3.52	3.88	-2.59	=0.01

A one-way ANOVA analysis of students' abilities on QBO, Access and Excel in the pre-test indicated that there was significant difference among the three areas (Table 2). A post hoc analysis of multiple comparisons showed that there was significant difference between QBO and Excel, but not between QBO and Access (Table 3).

Table 2: One-Way ANOVA of Student Abilities of QBO, Access and Excel in the Pre-Test

	Sum of Squares	Degree of freedom	Mean Square	F-value	Significance
Between groups	77.77	2	9.48	66.00	<0.01
Within groups	99.56	169	0.48		
Total	177.32	171			

Table 3: Post Hoc Analysis of Multiple Comparisons of Pre-Test Student Abilities

	Mean Difference	Standard Error	Significance
QBO-Excel	-1.37	0.14	<0.01
QBO-Access	0.07	0.14	Not significant

A second one-way ANOVA analysis of students' abilities on QBO, Access and Excel in the post-test indicated that there was significant difference among the three areas (Table 4). A post hoc analysis of multiple comparisons showed that there was significant difference between QBO and Excel, and between QBO and Access (Table 5). Students' abilities in QBO were significantly higher than those in Excel and in Access.

Table 4: One-Way ANOVA of Post-Test Student Abilities of QBO, Access and Excel

	Sum of Squares	Degree of freedom	Mean Square	F-value	Significance
Between groups	4.81	2	2.41	4.86	<0.01
Within groups	72.76	147	0.50		
Total		149			

Table 5: Post Hoc Analysis of Multiple Comparisons of Post-Test Student Abilities

	Mean Difference	Standard Error	Significance
QBO-Excel	0.42	0.14	<0.01
QBO-Access	0.32	0.14	0.05

Student's self-assessment of their abilities of using QBO reported greater improvement than those of Access and Excel. This result provided support for the effectiveness of the non-traditional pedagogical approach. Students' comments showed evidence of higher-level learning in the QBO section. Students' comments in open-ended questions in the post-test were analyzed by the IBM SPSS Text Analytics for Surveys software package. About 30% of the students suggested that the connection between SUA and QBO was the most challenging part of the class. Most of the students stated that they successfully surmounted the difficulty by hands-on learning and extensive help from the instructor.

Engaging students in active learning activities is generally more effective in teaching complicated subject content to students. We propose the strategy of integrating the SUA module as a real-life case with a non-traditional pedagogical approach. Compared with the traditional pedagogical approach that was applied to teach Excel and Access, the proposed new approach was more effective.

To teach QBO by integrating SUA in a non-traditional pedagogical approach requires three unique sets of competencies and commit from the instructor, which could limit the application of the approach. First, the instructor needs to master the subject area, obtaining and maintaining the Pro-Advisor status of QBO. Second, the instructor needs to possess the pedagogical content knowledge to implement the alternative approach. For example, in the areas of student-centered teaching, and student peer assessment. Third, this approach requires the instructor to spend more time on communicating with students. The cloud environment makes real-time communication possible, and demands more prompt and in-depth responses from the instructor.

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Mind the Gap: Approaches to Gaining Important Job Skills

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ABSTRACT

Prospective employers were asked to rate skills they considered most important for job candidates to possess. Students were asked to identify the skills employers thought were most important. This study found a gap between the employers' and students' responses. A number of activities were suggested to minimize this gap so that students understand the skills employers perceive as important and better prepare them for the job market.

Keywords: job skills, co-curricular activities, curriculum design

INTRODUCTION

The hiring process is basically a matchmaking process. On the one end, employers are looking for certain skills; on the other end, prospective employees possess certain skills – one objective of successful hiring is to match these two sets of skills. Although specific technical skills vary from one job to another, some skills are desirable regardless of the job. Students cannot prepare themselves for the job market without a good understanding of these skills. Several attempts have been made over the years to understand skills employers want in their job candidates. Yet, a survey by the American Association of Colleges and Universities found that nine out of ten employers assessed recent college graduates as poorly prepared in areas such as critical thinking, communication, and problem solving (Belkin, 2015). There is probably no better time to learn about and hone these skills than during college. In this paper, we attempt to understand the gaps that exist between the importance of these skills as perceived by employers and students. Next, we identify activities that students can undertake to reduce this gap and improve on the skills the market demands.

LITERATURE REVIEW

Researchers have attempted to understand important skills needed in the workplace for a long time. Some of these skills are technical in nature and very job specific. Others are skills expected or needed regardless of the type of job, such as soft skills. Soft skills are people skills and personal attributes that one possesses (Robles, 2012). Posner (1981) had recruiters rate the importance of a list of applicant characteristics. Subsequently, students and faculty were asked to rate how important they felt these characteristics would be to recruiters. The applicant characteristics were then categorized into three groups according to importance: most important, intermediate importance, and least important. All three respondents (recruiters, students, and faculty) agreed that communication ability was the most important applicant characteristic. Kaplan (1985) surveyed human resource managers and senior level business students about the importance of different characteristics for college graduates seeking entry-level positions. There were some general agreements about factors such as academic major and work experience. However, the students had a very limited understanding of what human resource managers considered to be important and failed to realize the importance of basic qualities such as initiative, emotional maturity, and high personal standards. Carnevale et al. (1990) grouped the essential skills employers want into seven categories: (a) foundational—learning to learn; (b) basic competency—reading, writing, and computation; (c) communication; (d) adaptability; (e) developmental; (f) group effectiveness; and (g) influencing skills. The authors alluded to the lack of rigor in the American educational system as the root cause for entry level employees not having some of these essential skills. Based on a survey of employers, Harun et al. (2017) listed important employability skills for engineering and technology graduates, including teamwork, critical thinking, oral and written communication skills, and interpersonal skills among other skills.

Based on feedback from business executives, Robles (2012) identified the top ten soft skills employers want. They included integrity, communication, courtesy, responsibility, social skills, positive attitude, professionalism, flexibility, teamwork, and work ethic. The author observed that business executives considered soft skills to be important attributes in job applicants and noted that efforts to develop soft skills should be viewed as an investment. In the context of a knowledge economy and high-performance work systems, Carnevale et al. (2013) listed skills and abilities desired by employers which include: (1) Basic skills (reading, writing, and mathematics); (2) Foundation skills (knowing how to learn); (3) Communication skills (listening and oral communication); (4) Adaptability

(problem solving and creative thinking); (5) Group effectiveness (interpersonal skills, negotiation, and teamwork); (6) Influence (organizational effectiveness and leadership); (7) Personal management (self-esteem and motivation/goal setting); (8) Attitude (cognitive style) and (9) Applied skills (occupational and professional competencies). The authors point out that these competencies are multi-dimensional and interact with each other, and the authors emphasize the need for infrastructure at the public and private levels to make citizens career ready.

In this brief review of literature, it is evident that both academics and practitioners have made many attempts to understand important skills job candidates need. A number of studies compared the importance of these skills as perceived by the employers and the students to highlight the gap that exists. A few studies indicate how students may be able to reduce this gap. However, the literature provides little direction as to how to quantify this gap and relate it to activities students can participate in to help them close this gap and be better prepared for the job market. The present study attempts to fill in this void in the literature.

DATA COLLECTION

The National Association of Colleges and Employers (NACE) has conducted an annual survey to understand what employers and job candidates want from each other since the early 1990s. St. Cloud State University (SCSU) conducts the Minnesota College Job Outlook Survey to understand what employers who participate in the campus job fairs want from job candidates. Although this survey is patterned after the NACE survey, over the years it has been changed to reflect issues considered most important for the Midwest employers. The data collected by the Minnesota College Job Outlook Survey in 2015 are used for the present research. After eliminating surveys with missing values, 86 employer responses were found to be useful. These respondents represented a diverse assortment of public and private sector organizations including business services, retail, healthcare, education, financial services, telecommunications, government, technology, the military, manufacturing, non-profit/human services, and restaurant/hospitality.

In the Minnesota College Job Outlook Survey, the employers are asked to rate the skills that are most important for entry level job candidates to possess. For the present research, that question was modified and students (mostly juniors and seniors) were asked what skills they thought employers felt were most important for job candidates to possess (Table 1 lists survey items/skills). The student survey was conducted during the academic year 2015-2016 in upper division courses in the SCSU Herberger Business school. Participation was voluntary and anonymous. Useable student responses were 218 after eliminating incomplete surveys. About 89% of the respondents were juniors or seniors. The students were 53% female (a few students did not identify gender). Self-reported GPAs ranged from 2.2 to 4.0 with a mean of 3.12. Students could select multiple identity categories and about 84% selected Caucasian, 4% Asian, 2% Black, 2% Hispanic, and the rest either selected Other or did not respond. The instructions on both surveys (employers and students) were to rate each skill on a 1-to-5 "Not at all important" to "Extremely important" scale.

METHODOLOGY, DATA ANALYSIS, AND RESULTS

The Independent Samples t-test was used to compare the means of employers' and the students' responses. This test requires the assumption of homogeneity of variance. Levene's test for equality of variances was performed for this purpose before comparing the differences in mean responses between students and employers. The pooled sample standard deviation was used to calculate the t-test statistic if Levene's test indicated that the variances were equal. On the other hand, the Welch t-test statistic was used if Levene's test indicated that the variances were not equal. Table 1 shows the results of the Independent Samples t-test where skills are listed in descending order of employers' mean responses. The top five skills as rated by the employers were Honesty/integrity, Communication (verbal and written), Strong work ethic, Interpersonal skills (relates well to others), and Motivation/initiative. The mean of employers' and students' responses differed significantly ($p \leq 0.01$) for four of these five skills, as indicated in Table 1. (Note: The nonparametric Mann-Whitney U Test is suggested to ensure robustness of the results when the dependent variable is not continuous. Therefore, this test was run; the results were consistent with those shown in Table 1. This serves as sensitivity analysis of the results reported in Table 1.) The mean response for Flexibility/adaptability was significantly different at $p \leq 0.05$ level but did not make the top five list. Three differences in mean responses namely, Strong work ethic, Interpersonal skills (relates well to others), and Motivation/initiative, were found to be significant even after using a Bonferroni correction to guard against an increased likelihood of Type I error associated with multiple comparisons.

It is interesting to note that although Honesty/integrity was rated second highest by the students, the employers' mean response was significantly different; employers rated this skill as even more important than students thought. The result of Communication (verbal and written) skill was surprising. For a long time we, the faculty members, have been hearing from prospective employers that our graduates lack in both verbal and written communication skills, yet mean responses of students and employers did not differ significantly. In fact, students rated this skill the highest, and students' ratings were very close to employers' ratings, as depicted by the mean difference. Perhaps attempts by faculty and career center announcements/activities emphasizing the importance of communication skills is paying off and word is finally getting to students.

Table 1: Skills Most Important for Job Candidates to Possess
(Variables are listed in descending order of the mean value of employers' response)

What skills do you think employers feel are most important for [job] candidates to possess? Please rate each on a scale of 1 to 5, with 1 = Not at all important and 5 = Extremely important.					
Skill	Student		Employer		Mean Difference
	Mean	sd	Mean	sd	
Honesty/integrity	4.69	0.61	4.85	0.42	-0.16**
Communication (verbal and written)	4.77	0.46	4.79	0.44	-0.02
Strong work ethic	4.50	0.63	4.76	0.51	-0.26**
Interpersonal skills (relates well to others)	4.34	0.70	4.59	0.56	-0.25**
Motivation/initiative	4.30	0.75	4.57	0.60	-0.27**
Teamwork skills (works well with others)	4.53	0.65	4.47	0.68	0.07
Professionalism/etiquette	4.26	0.71	4.36	0.80	-0.10
Ability to acquire learning	4.34	0.68	4.29	0.84	0.05
Flexibility/adaptability	4.04	0.77	4.26	0.72	-0.21*
Organizational skills	3.97	0.78	4.03	0.74	-0.07
Leadership skills	4.17	0.77	4.00	0.87	0.17
Think analytically	3.82	0.75	3.90	0.83	-0.07
Utilize technology	3.93	0.71	3.77	0.82	0.16
** $p \leq 0.01$; * $p \leq 0.05$					

Next, this study focuses on understanding how students can mitigate the gap between their understandings of skill importance and those of the employers. This is achieved in the following steps:
(1) Quantifying the gap.
(2) Identifying activities students can perform to close the gap.
(3) Assessing efficacy of these activities on closing the gap.

(1) Quantifying the gap
Taking the means of employers' responses as ideal levels of importance for the skills, an ideal profile of top five skills was constructed with the following levels/ratings: Honesty/integrity = 4.85, Communication (verbal and written) = 4.79, Strong work ethic = 4.76, Interpersonal skills (relates well to others) = 4.59, and Motivation/initiative = 4.57. Following Venkatraman (1989) and Venkatraman and Prescott (1990), the gap (which the cited authors call 'misfit') in rating difference (RATINGDIFF) between the employers and the students was calculated as follows:

$$\text{RATINGDIFF}_i = \sum_{k=1}^{n} (X_k - X_{ik})^2$$

where,
RATINGDIFF_i = the gap between mean rating of the employers and the rating of a student *i* across top five skills
X_k = mean employers' rating of skill k
X_{ik} = rating of skill k by student i
For this study, *k* varies from 1 to 5 (i.e., n = 5; top five skills) and *i* varies from 1 to 218 (number of students)

More specifically, for this study, $RATINGDIFF_i$ is calculated as follows:

$RATINGDIFF_i = (4.85 - HONINT_i)^2 + (4.79 - COMM_i)^2 + (4.76 - WKETH_i)^2 + (4.59 - INTERP_i)^2 + (4.57 - MOTIN_i)^2$

Where,
$HONINT_i$ = rating of the 'Honesty/integrity' skill by student *i*
$COMM_i$ = rating of the 'Communication (verbal and written)' skill by student *i*
$WKETH_i$ = rating of the 'Strong work ethic' skill by student *i*
$INTERP_i$ = rating of the 'Interpersonal skills (relates well to others)' skill by student *i*
$MOTIN_i$ = rating of the 'Motivation/initiative' skill by student *i*

The higher the value of $RATINGDIFF_i$, the higher the cumulative gap between a student's ratings and the means of employers' ratings across the top five skills. In other words, a higher value of $RATINGDIFF_i$ indicates that a student *i* lacks understanding of the importance of the top five skills as perceived by employers. But, understanding which skills are deemed to be most important by the employers is essential to making a job candidate marketable. Therefore, some approaches to reduce the gap are discussed next.

(2) Identifying activities students can perform to close the gap
Students can close the gap (RATINGDIFF) by understanding which skills employers value most. Hence, an attempt was made to identify activities where students get the opportunity to learn these skills during their time in college. These activities are listed below.

Internships
Internships are probably one of the best ways to learn the skills employers want as students try to make sense of different stakeholders' expectations in a professional work environment. While interning, students may hone many skills through their everyday interactions with the employers. Thus, internships give students opportunities to learn and nurture important job-related skills employers desire as well as norms, values, and cultural expectations in business environments. Many times, students keep in touch with the mentors they worked with long after the internship has ended. This gives students people from whom to seek advice when confronted with difficult career related situations. The following question was posed to the students surveyed: Have you completed an internship with an organization for at least a semester (Fall/Spring/Summer) and received at least three credits towards your degree program? Yes/No. The variable was coded as INTERN = 1 indicating 'No' and INTERN = 2 indicating 'Yes.'

Although internships are one of the best ways to gain work experience and to get to know what employers want, they are not readily available to many students for many reasons. Some factors are a limited number of internship opportunities, difficulty fitting in an internship during junior or senior years, payment offered by employers not being competitive, and adding a regular or a summer semester for an internship, which extends the time in college. Many universities, including ours, require that a student return to campus for one full semester after completing an internship. That is, internships cannot be completed in the semester that a student is graduating. All of these, and many other factors, make it difficult for students avail themselves of internship opportunities. So, an attempt was made to identify activities available in or around the university campus that are not as time consuming or demanding as an internship, yet give students opportunities to learn skills that employers consider important. These activities are organized into four sets as follows:

1. Work experiences
Many students work in different capacities on or off campus throughout their college years. This not only provides financial support for their educational cost but also lets students learn valuable skills and responsibilities. The following question was posed to the students surveyed: Have you worked for at least 16 or more hours per week (2 days a week) on average for two semesters? Yes/No. The variable was coded as WORKEXP = 1 indicating 'No' and WORKEXP = 2 indicating 'Yes.'

2. Community engagement

These activities involve engagement with non-profit organizations or for-profit businesses in the community for a limited time period. Students get the opportunity to work under the supervision of an employee of an organization/business and thereby can learn some of the same skills that their future employers would expect from them. The following question was posed to the students surveyed: Have you worked for 40 or more hours in the past in at least one of the following situations? (a) Took an active role as a leading member in a community service learning project, (b) Completed job shadowing in an organization/business, or (c) Volunteered your time for a non-profit organization where you were responsible for managing a project (or a part) and reporting the progress to a permanent staff holding a leading position. Yes/No. The variable was coded as COMMENG = 1 indicating 'No' and COMMENG = 2 indicating 'Yes.'

3. Professional association/chapter

Professional associations and their affiliated student chapters provide excellent opportunities for students to understand employers' expectations and develop professional relationships with them. Professional associations and societies such as the Society for Advancement of Management (SAM), the American Marketing Association (AMA), the Society for Human Resource Management (SHRM), the Association for Supply Chain Management (ASCM/APICS) and others have been serving this purpose for a long time. Although students are encouraged and sometimes incentivized to get involved in activities of these organizations, students' participation in these organizations is not uniform. While some take active roles in one or more of these associations/societies, others merely show up to one or two meetings; still others do not bother to get to know about these organizations at all. To understand students' level of involvement, the following question was posed to the students surveyed: Have you served in a leadership position (e.g., as an officer and not just as a general member) for one or more professional society/organization/student chapter with at least 40 hours spent on performing responsibilities (in addition to the activities performed by general members) of the organization (e.g., arranging/coordinating/chaperoning guest speakers, resident executive for a day, plant/facility tours, and others) in the past? Yes/No. The variable was coded as PROFSOC = 1 indicating 'No' and PROFSOC = 2 indicating 'Yes.'

4. Placement services

University campuses offer many opportunities to match students with prospective employers. Career and placement centers hold several events/activities throughout the year to foster connections between students and prospective employers. These events allow students to learn about employers' skills expectations and to develop these skills while learning from their own mistakes. These activities are held often and delivered in short duration and, hence, students can participate in them relatively easily. Students can make themselves aware of the skills employers' desire by participating in these events/activities. To gage students' level of participation in these activities, the following question was posed to the students surveyed: Have you participated in at least four of the following (or similar) activities: Mock interview, resume writing, job fair prep, Huskies job and internship fair, Career day, Minnesota education job fair, Diversity job fair, Government and non-profit career fair? Yes/No. The variable was coded as CARCTR = 1 indicating 'No' and CARCTR = 2 indicating 'Yes.' Obviously, the above four sets of activities do not represent an exhaustive list, but they are the most common activities our students have access to.

(3) Assessing efficacy of these activities on closing the gap (RATINGDIFF)

The efficacy of the activities on closing the gap (RATINGDIFF) was assessed by regression analysis. Internship and four activity sets were regressed on RATINGDIFF in Model 1 as shown below:

$$RATINGDIFF_i = \beta_0 + \beta_1 INTERN_i + \beta_2 WORKEXP_i + \beta_3 COMMENG_i + \beta_4 PROFSOC_i + \beta_5 CARCTR_i + \varepsilon_i \quad (1)$$

The results of Model 1 are shown in Table 2. INTERN was negatively related to RATINGDIFF and was highly significant ($p \leq 0.01$). All four activity sets were negatively related to RATINGDIFF, but none of those relationships was statistically significant (note: PROFSOC had a *p*-value was 0.074).

Next, all four activity sets were combined by adding them. That is, activity sets 1-4 combined = ACTCOMD = WORKEXP + COMMENG + PROFSOC + CARCTR. Internship and activity sets 1-4 combined (ACTCOMD) were then regressed on RATINGDIFF in Model 2 as shown below:

$$RATINGDIFF_i = \beta_0 + \beta_1 INTERN_i + \beta_2 ACTCOMD_i + \varepsilon_i \quad (2)$$

The results of Model 2 are shown in Table 2. INTERN was negatively related to RATINGDIFF and was still highly significant ($p \leq 0.01$). The activity sets 1-4 combined variable (ACTCOMD) was negatively related to RATINGDIFF, and this relationship was highly statistically significant ($p \leq 0.01$). It is important to note that previously (Model 1) none of the individual activity sets was statistically significant. Results from Model 1 and Model 2 suggest that an internship is the best way to close the gap (RATINGDIFF) between students' understanding of important skills and those of the employers'. Additionally, the results suggest that although an individual activity set is not significantly related to the gap, when combined, these four activity sets together have a synergistic effect which improves students' understanding about which skills are most important (as employers perceived) for job candidates to possess.

Table 2: Estimation of the Regression Models (Dependent variable: RATINGDIFF)

	Model 1: Test for Effect of Internship and individual activity set	Model 2: Test for Effect of Internship and four activity set combined
Intercept	6.65**	6.65**
INTERN	- 1.58**	- 1.56**
WORKEXP	- 0.37	
COMMENG	- 0.53	
PROFSOC	- 0.63	
CARCTR	- 0.57	
ACTCOMD		- 0.54**
	F=6.51** *Adj.* R^2=0.11	*F*=16.37** *Adj.* R^2=0.12
** $p \leq 0.01$		

DISCUSSION AND CONCLUSION

Table 1 shows which skills employers consider most important for job candidates to possess and to what extent students can identify these skills accurately. Knowing which skills employers desire is important for students, but they also need to know which skills employers think students need to improve upon. In order to understand this issue better, employers were asked: What skills do you think new college graduates most need to improve upon? Please rate each on a scale of 1 to 5, with 1 = Not at all important and 5 = Extremely important. Table 3 shows the top five rated responses where skills are listed in descending order of employers' mean responses (the mean rating for the fifth and the sixth top rated skills were the same and, hence, six skills are listed).

Table 3: Skills New College Graduates Most Need to Improve Upon
(Variables are listed in descending order of the mean value of employers' response)

What skills do you think new college graduates most need to improve upon? Please rate each on a scale of 1 to 5, with 1 = Not at all important and 5 = Extremely important.		
Skill	Mean	sd
Strong work ethic	4.28	0.84
Communication (verbal and written)	4.15	0.83
Motivation/initiative	4.00	0.95
Professionalism/etiquette	3.83	0.96
Flexibility/adaptability	3.66	1.04
Interpersonal skills (relates well to others)	3.66	0.97

The following observations are made by taking together the results of Table 1 and Table 3. The student rating on possessing 'Professionalism/etiquette' skill was similar to that of the employer rating, which implies that employers and students did not differ on the importance of this skill, but employers thought that new college graduates needed

to improve upon this skill. Both employers and students perceived possessing 'Communication (verbal and written)' skill as highly important, but new college graduates need to improve upon this skill, according to the employers. More interestingly, for four skills (Strong work ethic, Interpersonal skills (relates well to others), Motivation/initiative, and Flexibility/adaptability), students rated these skills to be less important than employers rated these skills, and these differences in ratings were statistically significant. That is, students failed to realize how important the employers considered these skills to be. Moreover, the employers also thought that new college graduates needed to improve upon all four of these skills.

Findings from this study can provide valuable inputs to prepare students for the job market. The skills, for which the mean employers' ratings differed significantly from the students' ratings, need to be communicated to the students so they are aware of the gap. Next, students need to be encouraged to intern in their field of interest as internships have been shown to reduce the gap. According to the Chronicle of Higher Education (2012) survey, employers considered internship experience as the most important attribute in evaluating graduates for hire. The result of this study provides support for this practice. Academia needs to reexamine curriculum in light of how degree programs are preparing students for the demands of the workplace (Ritter et al., 2018). College curriculum may require students to intern for a semester or a summer, ideally during their junior or senior years. College career/placement centers can play a vital role in setting up internship programs with for-profit businesses and non-profit organizations. Increasingly, universities have to work with limited resources and, as a result, career/placement centers, in many educational institutions, have reduced services they provide. If colleges intend to provide opportunities for students to help them grow professionally and secure jobs they aspire to, then investments in building student-employer relationships are worth making. It takes a lot of effort from all parties involved (student, faculty, company, the university career center, and others) to set-up an internship arrangement, and many colleges may not have enough resources to make internships a requirement in the curriculum. The results of this study indicate that activities included in four activity sets, when combined, can play an important synergistic role to reduce the gap if internships are not something that students can avail. Thus, the best course of action on students' part would be to intern with companies if possible, but the activities discussed in this study should not be ignored, and students should be encouraged to avail themselves of as many of these activities as possible throughout their college years.

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Employability Skills Needed by Business Education Graduates as Perceived by Business Teachers and Employers of Labour in Two Southwestern Nigerian States

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ABSTRACT

The national crisis of graduate unemployment has brought the issue of employability skill acquisition to the front burner of national discourse, with employers of labor insisting that most graduates are unemployable. The study therefore sought to identify employability skills needed by business education graduates as perceived by employers of labor and business education teachers in two southern Nigerian states. The researcher employed descriptive survey design. The study population consisted of 81business educators, 46 human resources managers of public limited liability companies and 46 human resource managers of government-owned corporations or statutory companies with headquarters or major offices in the study states. No sample was drawn as the entire population was studied. Three research questions and one hypothesis guided the study. The instrument for data collection was a two-section researcher-designed questionnaire. The first section sought demographic information on the respondents; these were used for the test of hypothesis. The second section, structured on the 4-point rating scale pattern, consisted of 36 questions designed to elicit responses on the formulated research questions. The instrument was validated by three experts while the reliability test, using the test-retest method, yielded a reliability coefficient of 0.83. The research questions were analyzed with mean ratings and standard deviation while the null hypothesis was tested at 0.05 level of significance with One-Way ANOVA. The results showed that the listed technical, interpersonal and communication skills were either strongly needed or needed. The test of hypothesis showed significant difference in the mean ratings of business educators and employers of labor in the private sector on the employability skills needed by business education students for gainful employment. The study therefore concluded that in addition to technical skills, interpersonal and communication skills are indispensable for employability. The study subsequently recommended the injection of employability skill items into all contents of business education curriculum. The study further recommended the involvement of the private sector in the development of business education program curriculums.

Key words: Employability skills, business educators employers of labor, Southwestern Nigeria.

INTRODUCTION

The abiding crisis of graduate unemployment has brought the twin issues of employment and employability to the front burner of national discourse in recent years. Universities and polytechnics in Nigeria and much of the developing world continue to churn out millions of fresh graduates annually even as old ones wander the length and breadth of their countries searching for non-existing jobs. In spite of the dearth of vacancies and glut of applicants, multinational corporations continually complain that they have been unable to fill some vacancies with Nigerian graduates because, they claim, many Nigerian graduates are unemployable. Michael Omolayole, a foremost Nigerian Human Resource Management expert painted the scenario graphically::

> The Nigerian unemployment situation is a paradox which should be of concern to the tertiary institutions. The universities are training students for unavailable jobs. There is no synergy between the need of the public service and industry and the training interest of the institutions. Admission seems to be based on the institutions' financial needs rather than on the national manpower demand. That, however, is only one half of the problem. Even those graduates studying courses needed by the industry and multi-national organizations often turn out to be misfits. Graduates with good classes of degree often speak atrocious English and cannot communicate effectively in any language. Then, there is the problem of attitude. Right from the floor of the interview, many graduates present themselves as potential menace to the organization. There are many things Nigerian graduates need to learn but are not learning. Institutions should Begin to teach employability skills (Omolayole, 2014:3).

What are employability skills and why are they so important?

PREVIOUS RESEARCH

Employability has been described as the relative chances of gaining and maintaining different types of employment (Imeokpana & Ediagbonya, 2012).. It covers the need for individuals to obtain credentials, knowledge and social status (Olaleye, 2010, Toland, 2011). Employability depends on whether an applicant is able to fulfill requirements for specific jobs and also how one stands relative to others within the hierarchy of job seekers (Brown & Hasketh, 2012). Imeokparia and Ediagbonya (2012) perceives employability from the angle of the labor market and opine that the labor market is an arrangement which brings employers of labor and job seekers together. In his opinion, a job seeker needs certain skills which will determine his relative standing in the labor market. Employability therefore incorporates the dual aspects of demand and supply of labor. Employability skills refer to a group of important skills instilled in each individual in order to be a member of a productive workforce. It refers to a person's capacity for gaining and maintaining employment. This implies that for individuals, employability depends on the knowledge, skills and ability they possess; the way they present these assets to employers and the context - for instance, personal circumstances and the labor market environment within which they seek to work (Kazilan, Hamzah & Baker, 2011). Employability skills can therefore be seen as those set of skills required of an individual to gain and maintain employment, and to function effectively in the world of work as an employee.

In Nigeria, Business education is perceived as an aspect of education which prepares an individual for educational engagement in fields like accounting, office technology and management, business administration and business teacher education (Ademiluyi, 2007). To Robinson and Garton (2008), it also refers to those business programs and courses taught ordinarily at secondary school levels. Osuala (1992) perceives business education as an essential part of the preparation of youths for life and living. Njoku (2006) describes Business Education as an educational program that equips an individual with functional and suitable skills, knowledge, attitudes and values that would enable him/her to operate in the environment in which he/she finds herself. The Njoku definition suggests that employability in built into the Business Education offering.

Agumuo and Agboola (2017) believe that employability skills include those skills and actions that enable workers to get along with their fellow workers and superiors and to make sound critical decisions. The American Secretary Commission for Achieving Necessary skills (SCANS) identified fundamental skills and workplace competencies needed for employability and effective functioning in the workplace. These include basic skills, thinking, personal qualities, resources, interpersonal information and system technology skills (SCANS, 2001).

The skills stated above are very relevant to business education, which according to Imeokparia and Ediagbonya (2012) is concerned with the development of appropriate knowledge, attitudes, skills and understanding required to fit into a chosen occupation. Some skills are particularly germane to business education graduates. These include secretarial, accounting and marketing skills. These technical skills, among others, determine the business educator's relevance in the world of work. However, interpersonal skills and communication skills may be equally important for the business graduate to thrive in the contemporary world of work.

In the context of this study, the term 'employers of labor' refers to human resources managers, who are often tasked with the functions of recruitment, selection, training and personnel management in both public and private organizations. 'Business education graduates' refers only to holders of university degrees or polytechnic Higher National Diploma in business education who are registered with the Association of Business Educators of Nigeria (ABEN). Southwestern Nigeria consists of six states located in south-western part of the Nigerian federation.

Statement of the Problem

The intractability of global unemployment crisis demands that greater attention be paid to the quality and content of the training being given to the Nigerian undergraduate. For business courses especially, the pervasiveness of graduate unemployment is particularly embarrassing because business graduates are expected to have all the knowledge and skills needed not only for paid employment, but also for self employment, entrepreneurship and corporate leadership. The fact that thousands of business graduates continue to wallow in unemployment and underemployment suggests that the quality and content of the programs should be continually reviewed.

Employers of labor consistently complain that Nigerian graduates are unemployable. Nigeria-based multinational organizations, especially, habitually source certain categories of personnel from neighboring African countries on the ground that Nigerian graduates lack certain skills which are indispensable to corporate health and growth. Even the government-owned Nigerian National Petroleum Company recently reported that nearly 90 percent of applicants failed its employment tests. What are those employability skills which Nigerian graduates lack? The concern of this study is to identify skills needed by Nigerian graduates of business education, as perceived by employers of labor in Oyo and Osun states of Southwestern Nigeria.

Objective of the Study

The objective of the study was to identify employability skills needed by business education graduates as perceived by employers of labor in Oyo and Osun States.

Specifically, the study sought to determine:

1. The technical skills needed for employability by business education graduates as perceived by employers of labour in Oyo and Osun States.
2. The communication skills needed by business education graduates as perceived by employers of labour in Oyo and Osun States.
3. The interpersonal skills and attitudes needed by business education graduates as perceived by employers of labor in Oyo and Osun States.

Research Questions

The following research questions guided the study: In the opinion of employers of labor in Oyo and Osun states of southwestern Nigeria, what employability skills are needed by employers of labor in the areas of

1. Technical skills
2. Communication skills
3. Interpersonal relationships skills

Hypothesis

There is no significant difference in the mean ratings of business educators, private sector and public sector employers of labor on employability skills needed by business education graduates in southwestern Nigeria..

RESEARCH DESIGN

The researcher adopted the descriptive survey research design. Descriptive survey is ideal whenever opinions, perceptions and attitudes are being sought (Agboola, 2016). The study was conducted in Oyo and Osun States located in South-western Nigeria. The study population consisted of business educators in universities and other tertiary institutions in both states, registered with the Association of Business Educators of Nigeria and the and human resources managers of public limited liability companies and government owned corporations with headquarters or regional offices in either Oyo or Osun State. The business educators numbered 81, while private and public sector human resource managers numbered 46 each. Since the population was neither too large nor too dispersed, the entire population was studied; no sample was drawn, in consonance with the opinion of Agboola that whenever possible, it is ideal to study the entire population.

Data Collection

The instrument for data collection was a two-section researcher-designed questionnaire. The first section sought demographic information on the respondents; these were used for the test of hypothesis. The second section, structured on the 4-point rating scale pattern, consisted of 36 questions designed to elicit responses on the formulated research questions. The items were placed on the 4-point rating scale of Strongly needed (SN) = 4, Needed (N) = 3, Barely Needed (BN) = 2, and Not Needed (NN) = 1. The instrument was validated by three experts while the reliability test, using the test-retest method, yielded a reliability coefficient of 0.83.

The instrument was administered with the assistance of three research assistants. The instrument was administered on 81 business educators, 46 public sector and 46 private sector HRMs, totaling 173. One hundred and fifty five questionnaire copies, completed by 40 public-sector, 43 private-sector HRMs and 72 business educators, were returned correctly completed and usable for analysis. For the analysis of data collected, mean ratings and standard deviation were used to answer the research questions, while the null hypothesis was tested at 0.05 level of

significance with One Way Analysis of Variance. For the research questions, items with scores ranging between 0.00 and 1.49 were rated as not needed, items with scores between 1.50 and 2.49 were rated as barely needed, those with scores ranging from 2.50 and 3.49 were regarded as needed, while items with scores above 3.49 were rated as Strongly needed. For the test of hypotheses, if the probability value was less than or equal to the fixed probability value (0.05), the null hypothesis was to be rejected, but if otherwise, the hypothesis was to be accepted.

Results

Research Question 1: In the opinion of employers of labor in Oyo and Osun state what employability skills are needed by employers of labour in the area of Technical skills

Table 1: **Respondents' Ratings of Technical, Interpersonal and Communication Skills Needed for Employability by Business Education Graduates**

Serial No.	Item (Skill)	Classification	Mean	SD	Remarks
1.	Reliability	IP	3.88	0.54	Strongly Needed
2.	Customer satisfaction	IP	3.85	0.61	Strongly Needed
3.	Integrity	IP	3.85	0.64	Strongly Needed
4.	Business Management	Tech	3.84	0.56	Strongly Needed
5.	Marketing	IP	3.84	0.56	Strongly Needed
6.	Negotiation	IP	3.83	0..66	Strongly Needed
7.	Speaking	Comm	3.81	0.88	Strongly Needed
8.	Listening	Comm	3.78	0.68	Strongly Needed
9.	Accounting	Tech	3.77	0.75	Strongly Needed
10.	Information technology	Tech	3.77	0.66	Strongly Needed
11.	Self confidence	IP	3.74	0.67	Strongly Needed
12.	Decision making	IP	3.73	0.55	Strongly Needed
13.	Group membership	IP	3.73	0.55	Strongly Needed
14.	Leadership	Tech	3.71	0.73	Strongly Needed
15.	Information sourcing	Comm	3.71	0.63	Strongly Needed
16.	Friendliness	IP	3.68	0.68	Strongly Needed
17.	Electronic Communication	Comm	3.66	0.84	Strongly Needed
18.	Research	Comm	3.63	0.71	Strongly Needed
19.	Willingness to learn	IP	3.63	0.85	Strongly Needed
20.	Text messaging	Comm	3.61	0.81	Strongly Needed
21.	Presentation	Tech	3.58	0.73	Strongly Needed
22.	Time management	IP	3.55	0.73	Strongly Needed
23.	Empathy	IP	3.55	0.73	Strongly Needed
24.	E-mailing	Comm	3.55	0.76	Strongly Needed
25.	Writing	Comm	3.55	0.76	Strongly Needed
26.	Auditing	Tech	3.53	0.81	Strongly Needed
27.	Reception	Comm	3.52	0.79	Strongly Needed
28.	Entrepreneurship	Tech	3.51	0.82	Strongly Needed
29.	Numeracy	Tech	3.51	0.81	Strongly Needed
30.	Organisational communication	Comm	3.44	0.87	Needed
31.	Office Management	Tech	3.44	0.56	Needed
32.	Non verbal communication	Comm	3.42	0.79	Needed
33.	Teaching	Tech	3.38	0.93	Needed
34.	Self criticism	IP	3.37	0.91	Needed
35.	Meeting management	Tech	3.33	0.78	Needed
36.	Electronic Group chat	Comm	3.33	0.81	Needed

Table 1 shows that out of the 36 items listed, 12 each are classified under technical skills (Tech), Interpersonal skills (IP) and Communication skills (Comm). The table also shows at a glance that 29 of the listed items were rated as strongly needed while only seven were rated as Needed.. No item was rated below the Needed category. The skills and attributes with the highest ratings include reliability, integrity, costumer satisfaction and business management. Others include marketing, negotiation, negotiation, listening and speaking skills. Out of the technical skills rated as needed by business education graduates for employability, marketing and business management skills are rated highest (Mean: 3.84), followed by accounting and ICT skills (Mean: 3.77), leadership skill (Mean: 3.71), presentation (Mean: 3.58), auditing (Mean: 3.53), numeracy (Mean: 3.51), entrepreneurship (Mean: 3.51) among others. Nine out of the 12 items were rated as strongly needed while three were rated as needed.

Out of the 12 items in the interpersonal skills cluster, 11 were rated as strongly needed while only one was rated as needed. The strongly needed attributes and skills include reliability (Mean: 3.88), integrity and customer satisfaction skill (Mean: 3.85), negotiation (Mean: 3.83) and decision making skills (Mean: 3.73), group membership skills (Mean: 3.73), self confidence (Mean: 3.74) friendliness (Mean: 3.68), willingness to learn (Mean: 3.63), time management skill (Mean: 3.55) and empathy (Mean: 3.55). Only self criticism was not rated as sstrongly needed.

Out of the items in the communication cluster, nine were assessed as strongly needed while only three were rated as needed. No item was rated below the Needed category. Speaking, listening and information sourcing skills were the most highly rated communication skills with mean scores of 3.81, 3.78 and 3.71 respectively. Other highly rated communication skills include electronic communication, text messaging, emailing, research, writing and reception skills with mean ratings ranging from 3.52 to 3.61. The communication skills rated as Needed are organizational communication, non verbal communication and group chat skills which rated 3.44, 3.42 and 3.33 respectively.

Overall, the standard deviation scores ranged from 0.54 to 0.91 which shows that the responses clustered around the mean.

Test of hypothesis

There is no significant difference in the mean ratings of business educators, private sector and public sector employers of labor on employability skills needed by business education graduates in southwestern Nigeria..

Table 2: One-Way Analysis of Variance on Respondents' Ratings of Employability skills needed by business education graduates

Source	DF	Sum of Squares	Mean squares	F-cal	p-value	Decision
Between Groups	2	13496.594	6748.296	30.221	0.000	Significant
Within Groups	153	114065.68	223.221			
Total	155	127562.27				

Source: Field Study, 2017 Significant ($p<0.05$)

The result on table 4 shows the ANOVA statistical analysis of the responses of business subject teachers, and employers of labor (human resources managers) in public and private sectors on employability skills needed by business graduates in two states in southwestern Nigeria. The result shows the following values: Fcal: 30.221; DF: 2/155; P-value: 0.000. As the p-value of 0.000 is less than the significant level of 0.05, (i.e. 0.000 < 0.05 confidence level), the null hypothesis of no significant difference was rejected. This implies that a significant difference was found in the mean ratings of respondents on employability skills needed by business educators. The Scheffe test statistic was further employed to locate the point of difference. All the mean scores of the three groups were compared to locate the point of significant difference. There was a significant difference between business educators and private sector employers of labor on employability skills needed by business education graduates in Oyo and Osun states of Nigeria**.** The areas of differences are highlighted below

Table 3: Analysis of Items Showing Significant Differences among the Three Respondent Groups on Employability Skills Needed by Business Education Graduates

No	Items	GROUP MEANS			Difference
	Skills/Qualities	Business Educators (A)	HRMs Private (B)	HRMs Public (C)	(B-A)
1	Information technology	3.58	4.00	3.88	0.42
2	Group membership	3.64	3.90	3.64	0.26
3	Friendliness	3.61	3.88	3.61	0.27
4	Electronic Communication	3.53	3.86	3.64	0.33
5	Willingness to learn	3.32	3.82	3.53	0.5
6	Presentation	3.33	3.95	3.67	0.62
7	Time management	3.41	3.87	3.56	0.46
8	E-mailing	3.41	3.87	3.56	0.46
9	Auditing	3.36	3.83	3.66	0.47
10	Reception	3.35	3.82	3.66	0.47
11	Entrepreneurship	3.14	3.74	3.30	0.6
12	Numeracy	3.32	3.88	3.51	0.56
13	Organisational communication	3.36	3.71	3.32	0.35
14	Office Management	3.27	3.87	3.46	0.6
15	Non verbal communication	3.30	3.58	3.46	0.23
16	Self criticism	3.23	3.70	3.33	0.47
17	Meeting management	3.14	3.74	3.30	0.6
18	Electronic Group chat	3.14	3.74	3.30	0.6
	Average Difference				**0.459**

Table 3 shows more detailed analysis of the skills showing significant differences among the groups, especially between Business educators and private sector human resources managers. The 18 items have mean differences ranging from 0.23 and 0.62. These include presentation skill (Mean: 0.62), Entrepreneurship, Office Management, Meeting management and electronic group chat (Mean difference: 0.6), numeracy (Mean difference: 0.56);auditing, reception and self criticism skills; (Mean difference: 0.47) among others. Seven of the items with perceptible differences are technical skills, five are interpersonal skills, while six are communication skills. The average mean difference between the two groups (Business educators and private sector human resources managers) is 0.459. Private sector human resources managers consistently have higher mean ratings for the listed skills than either business educators or public sector human resources managers. A closer look at the table shows that the mean ratings of business educators are close to those of public sector human resources managers, while the ratings of private sector human resources managers are similarly fairly close to those of public sector human resources managers. The major disparities exist - and only on 18 items - between business educators and private sector employers of labor.

DISCUSSION

The result of the first research question shows the technical skills which, in the respondents' ratings, are needed by business education graduates to achieve, maintain and thrive in paid employment. Necessary technical skills include marketing, management, ICT skills. Leadership, accounting, numeracy and entrepreneurship skills were also highly rated by the respondents. These skills are traditional business competencies; the very essence of business knowledge and skills. Balogun (2016) listed essential business skills as including, marketing, accounting, management, leadership and numeracy skills. It, therefore, is not surprising that business educators and employers of labor alike rated these skills as very important. However, while private sector human resource managers rated *all* technical skills as highly needed, public sector human resources managers and business educators did not achieve that uniformity of opinion. The inclusion of ICT skills among germane employability skills attest to the increasing importance of information and communication technology in contemporary management activities in Nigeria.

The result of the second research question shows that interpersonal skills are indispensable in acquiring, sustaining and achieving self actualization in paid employment. Important interpersonal skills include reliability, capacity to satisfy customers, negotiation skills, self confidence, friendliness, timeliness, willingness to learn, among others. This finding supports Imeokparia and Ediogbonya (2012) who posited that while technical skill can get one a job, one cannot rise too high unless one has relevant interpersonal skills. Okoli and Azih (2015) opined that interpersonal skills or soft skills are very important for employability especially in the Nigerian context. Okoro (2015) stated that Nigerian employers are easily put off by dishonesty, lack of respect, lack of courtesy, undue aggression, arrogance, diffidence among others. Ademiluyi (2014) asserted that interpersonal or soft skills should be embedded in the training of business students because they may be even more important to employability and entrepreneurship success than technical skills.

The findings in respect of the third research question show respondents' ratings of the importance of communication skills to employability of business education graduates. Speaking, listening, information sourcing and electronic communication skills are among the skills highly valued by business educators and employers of labor.. The finding supports those of Ohiweri (2009), Udofia, Ekpo, Nsa and Akpan (2012) who claimed that for the greatest success in employment and business, communication skills must be acquired and mastered as indispensable complements to other skills.

The problem, apparently, is not that these other skills are not being taught, but they are not being emphasized. The emphasis in Nigerian academia has consistently been on the acquisition of technical skills. "Seek first expertise in your profession and all other things shall be added onto it' has been the silent mantra of teachers and professionals. Only a few teachers and academies have directly connected professional success with the acquisition of soft skills like communication and interpersonal skills. As a result the nation is inundated with technically competent graduates with limited interpersonal and communication skills.

Ademiluyi (2014) has asserted that soft skills should be coupled and taught with technical skills. Teachers of management, accounting and ICT should teach as embedded portions of the technical curriculum, the importance of integrity; for instance, using ICT skills for legitimate purposes only; the importance of courtesy, culture and integrity. The current system of treating each of these as separate, barely related items has succeeded in decoupling employability skills from technical skills.

The result of the test of hypothesis shows that teachers differ perceptibly from employers of labor, especially those in the private sector, on employability skills needed by graduates of business education. The result in Table 3 highlights the areas of difference. While private sector employers of labor rated all 36 items listed in Table 1 as highly needed, public sector employers of labor believe that seven items are *needed* (not highly needed) while business educators believe that 14 of the items are only *needed*. This difference, albeit only between *needed* and *highly needed* illustrates an important nuance in emphasis between the academia and the labor market. The Nigerian private sector is forever complaining about the quality of business graduates produced by Nigerian academia (Omolayole, 2014). The results suggest that private sector employers of labor remain dissatisfied with the level of emphasis being laid on the impartation of certain skills and attitudes by Nigerian business education faculties. Many of those competencies and qualities which educators hitherto presumed to be peripheral to the demand of industry may actually have to be listed with core employability skills. The result of the study shows that private sector employers want business faculties to emphatically impart all requisite employability skills and qualities. They seem to be saying: "Don't leave out anything; teach them everything. All employability skills are highly needed."

The result further established that there is inadequate synergy between the academia and industry on business education curriculum design and implementation. It shows the academia has not laid the right emphasis on the acquisition of employability skills by students of business education. Agomuo and Agboola (2017) complained about Nigerian universities' penchant to draw business programmes' curriculums without adequately involving business and industry. This explains the apparent disconnect between business educators and employers of labour on employability skills.

CONCLUSIONS

The study identified technical, interpersonal and communication skills needed for employability in Oyo and Osun states of southwestern Nigeria. To achieve long-term success in paid employment, business education graduates

must master all the relevant business skills like marketing, accounting, auditing, management, marketing , leadership and numeracy. In addition they must prove themselves to be reliable, capable of satisfying customers, friendly, willing to learn among others. Finally, business graduates should be competent in communication skills. They must have capacity to discuss, argue, negotiate, listen and use information technology. In the southwestern Nigeria environment, employees are expected to be respectful, honest, courteous, devoid of undue aggression, arrogance. And guile. Yet they are expected to be competent and confident. Any business graduate who lacks these sublime skills and personality attributes is unlikely to last and thrive in the most profitable employment situations.

RECOMMENDATIONS

1. Business schools and faculties should begin to emphasize the impartation of employability skills. In teaching every business subject or course, teachers must go beyond the impartation of the technical aspects to emphasize employability skills as the culmination of professional competence.

2. Business subjects curriculum designers should enrich business education curricula with large doses of interpersonal skill offerings, emphasizing integrity, courtesy, and confident projection of competence. In southwestern Nigeria, these are highly valued attributes which can enhance the value of technical competencies.

3. Attention should be paid to the importance of communication skills, right from elementary school level. Communication, especially in English has reportedly been the bane of Nigerian graduates. Attention should be continually paid to all aspects of communication, including non verbal communication. Inability to project or communicate competence is potentially a fatal limitation to employability prospects.

4. Business faculties should more closely involve employers of labor and captain of industry in the design of course curricular. This would enable curriculum to reflect, in content and depth, the true need of industry.

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Teaching Personal Resilience in the College or University Classroom

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ABSTRACT

College or university classrooms have the potential to produce valuable outcomes beyond those specified in the learning objectives for a particular course. For example, personal resilience is one such outcome that has achieved significant attention in the literature. Personal resilience is the ability to bounce back, learn from, and move forward after negative experiences. This article explores the experiential interventions that two university instructors use with undergraduate business students to increase the students' resilience. The classroom interventions are grounded in a proposed teleological process model of resilience development that includes six causal processes that help students to reframe challenges they face, become more inured to individual and team failure, give and receive rich feedback, provide peer feedback, seek the attention of valued, high-reputation others, and accept increasingly difficult challenges throughout the semester.

Keywords: resilience, higher education, experiential, teleological process model, college or university students, faculty support, classroom resilience interventions

INTRODUCTION

Personal resilience has been defined as "an individual's ability to bounce back [and] learn from, and move forward after[,] a failure or setback (Walker, Luechtefeld, & Long Walker, 2019, p. 215). There is significant unappreciated potential for students to develop personal resilience in the college or university classroom. This potential may be revealed through careful attention to the educational interventions that intersect with students' capacity to handle stress, setbacks, and other life challenges. Specific educational interventions may contribute to the development of personal resilience college or university students by presenting situations and experiences that trigger growth in students' self-perceptions of their abilities, as well as other outcomes. These outcomes include increases in well-being (Hamilton, 2006), thriving (Carver, 1998), reaching potential (Alva, 1991), and flourishing (Seligman, 2011).

This article explores interventions in two different undergraduate business management classrooms in a medium-sized Midwestern university that led to increased resilience among most students in those classrooms. The authors first offer a summary of the literature supporting interventions to build resilience among students in college or university classrooms. The authors then discuss six causal processes that underlie the pursuit of resilience in this context. Next, the authors ground the causal processes in a preliminary teleological process model for developing course criteria designed to increase student resilience in the college or university classroom. Last, the authors share specific interventions based on the teleological process model that they have used to help students to develop resilience.

THE BASES OF CLASSROOM INTERVENTIONS TO BUILD STUDENT RESILIENCE

During the past decade, the study of resilience has emerged as a favorite topic among business and research leaders (Walker et al., 2019). In the 1970s, the formal study of resilience sought to "understand and prevent the development of psychopathology" (Masten, 2011, p. 493). After that, behavioral scientists identified high-risk populations that had experienced trauma and found that some people readily maintained their mental health, while others quickly succumbed to mental illness (Masten, 2011). In the late 1980s, researchers learned that certain social and contextual factors enabled some individuals to "inoculate" themselves against the adverse effects of trauma (Rutter, 1987). In recent years, scholars have studied the combined effects of culture, family, community, and other factors in the development of personal resilience (Masten, 2014). The current focus is on ways to stimulate the development of resilience, in both at-risk and general populations (Walker et al., 2019, p. 216).

As the authors have noted previously, "[t]he literature suggests that resilience can be learned" (Walker et al., 2019, p. 222). There are no *haves* or *have-nots* when it comes to the presence or development of resilience (Masten, 2001).

The research also reveals that specific college or university classroom interventions may enhance students' resilience (Walker et al., 2019).

For example, the college or university experience comes at a time of significant change in students' lives, when they are likely to be more open to new experiences than other periods of their lives (Walker et al., 2019, p. 217). Demands for change and intensive learning such as those that are present during college or university years represent prime opportunities for resilience growth (Toth & Cicchetti, 1999). Likewise, emerging adulthood (including years spent pursuing higher education) provides a window for developmental growth (Masten, Obradovic´, & Burt, 2006; Schulenberg, Sameroff, & Cicchetti, 2004).

Students in colleges and universities experience "the need to think in new ways to solve novel problems" (Walker et al., 2019, p. 223). They are facing new situations that are outside their range of previous experience (Yeager & Dweck, 2012). College or university classrooms can be places where students "find meaningful challenges and opportunities that will foster growth in substantive knowledge and wisdom, as well as personal resilience" (Walker et al., 2019, p. 223). This includes "personal change resilience" (Walker, 2015, p. 3) or "the ability to bounce back, to step forward, [and] to 'embrace the energy of change and turn it to the benefit' of self and others" (Walker et al., 2019, p. 223, citing Walker, 2015, p. 3).

SIX CAUSAL PROCESSES TO ENHANCE RESILIENCE THROUGH CLASSROOM EXPERIENTIAL ACTIVITIES

In Walker et al. (2019), the authors describe six causal processes that they used as part of two undergraduate Management department courses, which are grounded in a preliminary teleological model (Van de Ven & Poole, 1995) of resilience development. The model contemplates the students' movement from young adulthood and higher education to full adulthood, careers, and family life (Walker et al., 2019, p. 216). The causal processes are outlined below, followed by a detailed explanation of the teleological model.

First Causal Process: Providing Scaffolding Reflection to Enable Students to Reframe and Create New Personal Narratives

This causal process entails providing students with a framework for developing reflective insights about incidents in their lives, particularly about challenging and ambiguous circumstances. It is designed to "promote reframing and the development of new narratives of those events and one's own locus of control and efficacy" (Walker et al., 2019, p. 229).

Seligman (1972) posited that scaffolding metacognitions could support the development of personal resilience. He noted that uncontrollable negative life challenges could "produce passivity in the face of trauma, inability to learn that responding is effective, and emotional stress in animals and possibly depression in [people]" (Seligman, 1972, p. 407). Researchers later termed this set of outcomes learned helplessness (Nolen-Hoeksema, Girgus, & Seligman, 1986). The use of scaffolding reflections may aid in the prevention or mitigation of learned helplessness and other forms of passivity in the face of difficult trials.

As Walker et al. (2019) observed,

Scaffolding is a well-respected educational process that requires student-instructor interaction, working at the edges of student skills, and the removal of instructional supports as students gain skills (Wood & Wood, 1996). Scaffolding promotes resilience by providing a process so that students can engage in cognitive reflections, examining and rethinking how an event can be interpreted. Activities included in scaffolding provide support to the student via documentation that will assist the novice with the completion of the task or goal, guidance such as hints or observations that the learner is off track, psychological support such as encouragement or feedback on students' performance. (p. 217)

Thus, the use of scaffolding in the college or university classroom may enable students to develop resilience by enhancing their ability to efficiently and positively influence classroom (and eventually, real-life) outcomes. Scaffolding often is provided by discussions that explore how students may overcome challenges they have faced (or will face) during a classroom exercise. For example, when scaffolding is in use, the instructor may advise

students "that other students ('just like them') have successfully completed the [exercise] and that they have the opportunity to repeat the [exercise] to learn to be more effective when facing future challenges" (Walker et al., 2019, p. 218).

Second Causal Process: Designing Classroom Failures to Inoculate Students and Desensitize Them to Future Failures

This causal process entails building designed opportunities for failure into classroom activities. Instructors "create intentional failures that serve to 'inoculate' [students] with 'mental toughness' so that they know how to manage the trauma of [challengiing future] experiences" (Walker et al., 2019, p. 229).

Classroom activities that include built-in failures often are beyond the students' abilities or experiences and frequently "lead students to experience a vacuum of competence" (Walker et al., 2019, p. 219). These activities encourage students to persist in the face of failure, and to bounce back—and move forward—from temporary setbacks. In these settings, "[f]ailures become steppingstones to increased resilience. Students develop mental toughness and become ready for the next 'failure'" (Walker et al., 2019, p. 219).

Third Causal Process: Providing Rich Feedback to Enhance Student Learning and Growth

The third causal process requires instructors to create a feedback-rich environment that allows students to learn from their mistakes *and* successes and to accelerate their personal growth (Walker et al., 2019, p. 219). At its core, this causal process is about students learning and growing from their classroom experiences.

Repetitive classroom exercises are ideal because students make choices numerous times, and instructors help students learn what did and did not work during each exercise. In this setting, the timing and quality of feedback are critical. Timely and high-quality feedback promote faster student learning (Walker et al., 2019, p. 219). One way to structure rich feedback is to engage students in a rapid cycle of studying the exercise, generating ideas, choosing a course of action, and accepting feedback, thereby helping students to learn and grow incrementally (Walker et al., 2019, p. 219).

Providing personalized and balanced feedback to students also is essential, because they "are pushed to realize where their weaknesses are, which skills they need to develop[, and] also what aspects of their professional practice they have mastered appropriately" (Sahakian et al.., 2015, p. 9). One approach to this form of feedback is "'in-briefing', which combines the best of debriefing, including setting ground rules and allowing the expression of emotions **(**Sahakian et al., 2015), "with the elements of providing feedback in the moment, just in time, and personalizing the input for each team or individual" (Walker et al., 2019, p. 220).

Fourth Causal Process: Providing Peer Support to Increase Students' Motivation to Act

This causal process involves students providing peer support to each other, under the watchful eye of the instructor. Peer support may take the form of offering encouragement, embracing accountability, and sharing ideas, information, or knowledge resources (Solomon, 2004). Classroom peer-support activities aim to motivate, encourage, guide, reassure, and educate students, and to clarify personal and team goals and decisions through dialogue (Solomon, 2004; Walker et al., 2019, p. 230).

Peer feedback in the college or university classroom should be adapted to each students' emotional, social, and intellectual development and general well-being (Walker et al., 2019, p. 220). In other words, instructors help students on how to provide useful, relevant feedback that is tailored to the capacities and temperament of each individual or team. To provide effective peer feedback, students should know and understand each other and their relative strengths and weaknesses. To assist in the peer feedback process, instructors (and others) teach students about how to provide advice, encouragement, information, and support (Solomon, 2004) to each other. In turn, these actions help to strengthen the students' school-related social support systems and may increase their resilience in the face of classroom-based and other challenges (Walker et al., 2019, p. 220).

Fifth Causal Process: Directing Attention by High-Reputation Mentors to Build Students' Capacity for Effective Action

The fifth causal process involves the use of guides or mentors to provide direct attention to students at crucial times during a classroom exercise (Walker et al., 2019, p. 221; Bandura, 1973, 1977, 1986). In this valued, high-reputation role, the instructor (or other individuals) engages in social modeling that helps students to learn a variety of useful skills (Bandura & Walters, 1963). According to Rosenthal and Zimmerman (1978), the four steps of this process are: first, attention by "an individual who is valued by the observer" (Walker et al., 2019, p. 221) ; second, supporting an individual's retention of what they "have seen the model doing in the form of, mental images or verbal descriptions" (Walker et al., 2019, p. 221); third, providing practice opportunities for the individual to "imitate the action . . ., even if it is only imagined practice" (Walker et al., 2019, p. 221); and last, sustaining an individual's motivation. "If outcomes based on following the model are also perceived as valuable, [the individual] will be more likely to repeat that behavior because it has personal relevance" (Walker et al., 2019, p. 221, citing Rosenthal & Zimmerman, 1978).

Bandura's (1973, 1977, 1986) theory predicts that students will pay attention to the advice, coaching, and behaviors of their valued, high-reputation guides or mentors because the students believe those persons will help them to be productive and successful in their classroom activities (Walker et al., 2019, p. 221). The net result is that, through use of advice, coaching, and behavioral modeling, the guides or mentors help students to succeed in their classroom exercises and set students up for success in their later work lives (Walker et al., 2019, p. 221).

Sixth Causal Process: Using Increasingly Difficult Challenges to Enable Students to Acquire New Knowledge and Skills

The last causal process in the authors' preliminary teleological resilience model envisions that instructors will provide students with successively more challenging experiences in the classroom (Walker et al., 2019, p. 221). In turn, these experiences "ensure that the students are gaining new knowledge and developing new skills" (Walker et al., 2019, p. 217).

This causal process envisions instructors providing increasingly difficult challenges to students throughout their courses. The goal of this causal process is to encourage "students [to] see challenges as 'desirable difficulties', not as unwanted obstacles but as things that produce growth'" (Walker et al., 2019, p., 221, citing N. Voge, personal communication, November 19, 2018). By supplying students with a surplus of information and a wide range of decision possibilities, instructors encourage students to "work harder for their knowledge and thus retain it better. [In the process,] students . . . discover that they are capable of learning at a higher level than they may have thought possible, with better retention" (Walker et al., 2019, p, 221, citing Bjork & Bjork, 2015).

In this causal process, instructors require students to engage individually and as teams with the classroom interventions, in an atmosphere that expects students to be highly engaged in all aspects of each intervention. Instructors are then free "'to look over students' shoulders (Gadsby, 2012), and give just-in-time support to help them solve the current difficulty, move ahead in their learning, and gain the confidence to tackle even more difficult tasks" (Walker et al., 2019, p. 221).

As classroom interventions proceed, students encounter more ambiguity as the instructor introduces increasingly multifaceted components and relationships among individuals and peers on teams become more complex (Walker et al., 2019, p. 222). Together, these causal processes integrate to help students to learn and grow in ways that prepare them to be resilient in the face of a challenging, ever-changing, and unpredictable future, regardless of their career and life choices.

RESILIENCE DEVELOPMENT IN THE COLLEGE OR UNIVERSITY CLASSROOM: A PRELIMINARY TELEOLOGICAL PROCESS MODEL

Recently, the authors proposed a teleological process model of resilience development in the context of two university classroom simulations (Walker et al., 2019). As they have noted:

A teleological process model "views development as a cycle of goal formulation, implementation, evaluation, and modification of goals . . . based on what was learned by the entity" (Van de Ven & Poole, 1995, p. 520). During this

process, individuals formulate goals, implement actions to achieve them, evaluate outcomes and discover sources of dissatisfaction, and then make modifications based on the search for solutions and interactions with others. (Walker et al., 2019, p. 224)

The authors' personal resilience teleological process model is grounded in four basic elements and the six causal relationships described above. The basic teleological model involves the students' formulation of individual and team goals, followed by their implementation and evaluation of the goals (the latter of which may include a certain degree of dissatisfaction on the part of the students). Last, students modify their goals as they search for understanding and interact with other students and teams. This basic process is cyclical and continues throughout any given classroom intervention (Walker et al., 2019). See Figure 1 below, which depicts the authors' Teleological Process Model of Resilience Development.

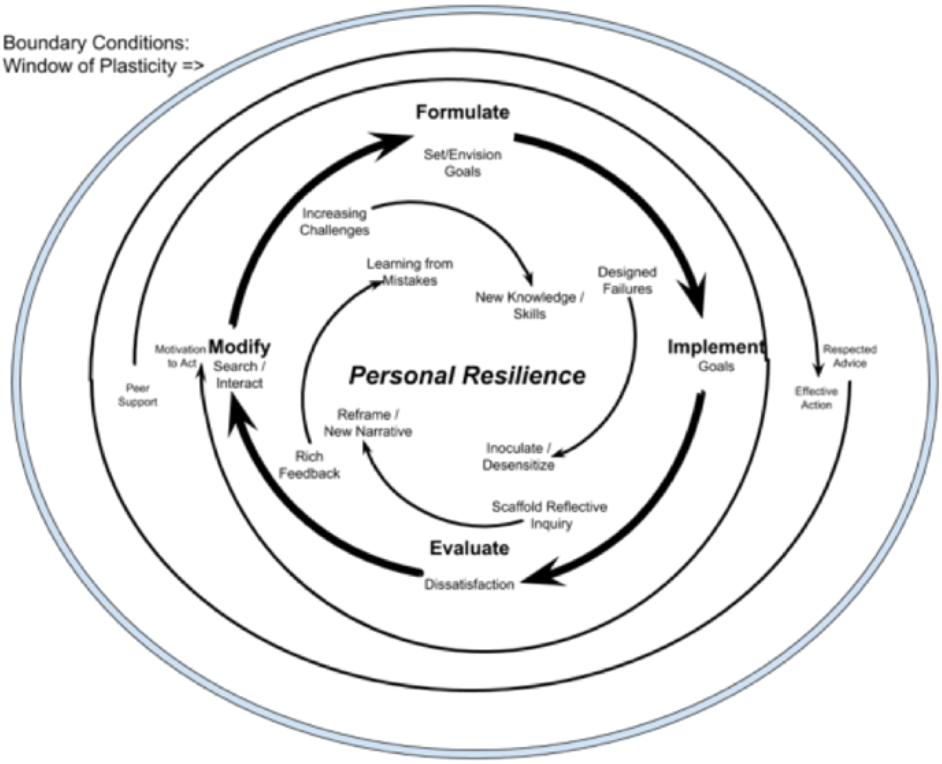

Figure 1: Teleological Process Model of Resilience Development. Reprinted from "Creating Pathways to Personal Resilience Through Classroom Simulations," by L. R. Walker, R. Luechtefeld, and J. A. Long Walker, 2019, *Simulation & Gaming, 50*(2), 225. Copyright 2019 by Authors. Reprinted with permission.

Next, the elements of the basic teleological model interact with, and are influenced by, the six causal processes that the authors outlined above. The authors have posited that

four of these causal [processes] (scaffolding reflection, designed failures, feedback-rich environment, and increasing challenges) are each more active during a specific part of the process, while two other causal relationships (peer support and directed attention by a valued [guide or mentor] . . . are generally active during the entire process. (Walker et al., 2019, p. 224)

The teleological process model assumes that all of the basic elements and causal processes occur within certain boundary conditions, which the authors have named "'windows of plasticity'" (Walker et al., 2019, p. 222). This concept is grounded in evidence that "there are times when individuals are more open to intervention and positive change than at other times" (Walker et al., 2019, p. 222, citing Karatsoreos & McEwen, 2013, and McEwen, Gray &

Nasca, 2015)). Other researchers have referred to this concept as "windows of opportunity for intervention" (Masten, 2015, p. 189).

Walker et al. (2019) have opined that the years during which college or university students engage in rigorous courses of study are times

when so-called "developmental windows" (Karatsoreos & McEwen, 2013, p. 344) are more likely to be present, wherein one is more open to influence, intervention or redirection. Such a window of plasticity is likely a part of the self-selected period of learning and application of new concepts that is inherent in the college or university experience. (p. 222)

In this context, the phrase "windows of plasticity" means the relative flexibility of the beliefs, attitudes, and behaviors, and openness to learning, among college and university students (Walker et al., 2019, p. 222). This situation creates a unique opportunity for instructors to design and deliver courses that aim to teach students to become more resilient.

The authors' preliminary Teleological Process Model of Resilience Development includes the four basic elements, the six causal processes, and the boundary conditions, is illustrated in Figure 1 above (Walker et al., 2019). Van de Ven and Poole (1995) have stated that "teleological models incorporate the systems theory assumption of equifinality (i.e., there are several equally effective ways to achieve a goal)" (p. 516). The broad array of resilience-related classroom interventions the authors used appear to be equally effective ways to increase resilience in their students. This is a prime example of the system theory of equifinality in the college or university classroom context (Walker et al., 2019, p. 223).

Walker et al. (2019) have provided some evidence that supports the efficacy of this teleological view of resilience development among college or university students. In their study, the authors used a series of classroom interventions aligned with the above teleological model. The authors used the validated Connor-Davidson Resilience Scale (CD-RISC) 10 (Campbell-Sills & Stein, 2007) pre-test and post-test instrument to measure students' resilience scores at the beginning and end of each course.

The authors hypothesized that: one, students' resilience would increase between the beginning and end of their *eXperience-Based* (XB) and Capstone courses (described below); and two, that the cumulative effects of the XB and Capstone courses would yield higher end resilience scores in the Capstone course as compared to the end resilience scores in the XB course. The study results partially supported the first hypothesis but did not support the second hypothesis to a statistically significant degree. Specifically, the resilience scores of all Capstone and female XB students increased significantly, while the XB male students' resilience scores decreased slightly (but not to a statistically significant degree) (Walker et al., 2019).

In the remainder of this article, the authors outline their classroom settings and course descriptions. Then they elaborate on the specific interventions that they used to produce an increase in resilience in their students.

CLASSROOM SETTINGS AND COURSE DESCRIPTIONS

Using the teleological process model outlined in Figure 1 and the causal processes described above, the authors designed and executed classroom interventions that aim to increase their students' resilience. The setting for these interventions is a Management department of a moderately sized university in the Midwestern United States. The Management department faculty members in this university are deeply committed to experiential education that produces "graduates who take [the] initiative and are able to independently make informed choices about aspects of their jobs" (Walker et al., 2019, p. 225).

Management department faculty encourage students to take two courses in the following sequence: Students first complete an *eXperience-Based* (XB) course (Walker et al., 2019, p. 226, 228, citing Putzel, 2007). Next, the students complete a strategic management Capstone course, which includes the completion of the Capstone strategic management simulation developed by the Capsim corporation. In these courses, instructors focus on "real-world dynamics, where processes to achieve outcomes are not well defined at the beginning of the course" (Walker et al., 2019, p. 226).

The XB course is "an open management simulation in which students direct their own *Classroom as Organization* by setting learning goals, and managing and evaluating one another" (Walker et al., 2019, p. 226). In the XB course, students create a classroom-as-organization using a handbook that describes how the organization should function. The students lead and manage the organization and themselves, after "the instructor delegates key organizational and course responsibilities to students in differentiated roles" (Walker et al., 2019, p. 228). The instructor is not directly involved in the leadership or management of the organization; instead, the instructor observes the students and, when needed, acts as a coach and senior manager (in other words, a valued, high-reputation mentor) (Walker et al., 2019, p. 226).

The Capstone course includes a six-week online Capsim Capstone simulation. During the simulation, students are placed in groups to act as executive management teams and compete with other teams and individuals in the class (Walker et al., 2019, p. 226). The teams (and individuals) complete a series of rounds that require a wide range of business decisions. Business outcomes and simulation (and course) grades are based, in part, on the decisions that students make individually and as teams during the simulation. The simulation environment is very ambiguous, dynamic, challenging, and competitive (Walker et al., 2019, p. 226). During the simulation, students keep track of their intended business strategies, their actual decisions, and the impact of those decisions on their competitive market position; in turn, they use this information to guide their future decisions and business strategies (Walker et al., 2019, p. 226).

Both courses involve periodic in-briefing, "which combines the best of debriefing, including setting ground rules and allowing the expression of emotions (Sahakian et al., 2015), with the elements of providing feedback in the moment, just in time, and personalizing the input for each team or individual"(Walker et al., 2019, p. 220). In both courses, the instructor offers coaching, encouragement, and behavioral modeling. The instructor often asks Socratic questions and directs students to knowledge and other resources to prompt them to make better decisions (Walker et al., 2019, p. 226).

INTERVENTIONS TO ENHANCE STUDENT RESILIENCE IN THE COLLEGE OR UNIVERSITY CLASSROOM

Following is an elaboration of key interventions (experiential activities) to enhance student resilience that the authors have used their XB and Capstone courses. These interventions are addressed in less detail in Walker et al. (2019). The interventions outlined in this article are aligned with the six causal processes in the authors' preliminary Teleological Process Model of Resilience Development, set forth above and in Walker et al.(2019).

Causal Process 1. Provide Scaffolding Reflection Opportunities to help students to gain insights through reflection about events in the course. Focus on alternative ways of seeing challenging and ambiguous circumstances "to promote reframing and the development of new narratives and more positive views of one's locus of control [and] self-efficacy" (Walker et al., 2019, p. 229).

Intervention one

Teaching students to consider mistakes as desirable is an essential component of scaffolding their reflective insights on the course. Instructors advise students that the most important outcomes of the course relate to the mistakes students make and how they respond to those mistakes. Instructors encourage students "to make as many mistakes as possible in the course as early as they can" (Walker et al., 2019, p. 229). Students learn that "[t]hey will only fail by making mistakes that they do not correct" (Walker et al., 2019, p. 229). They also learn "that the most common mistake is to do nothing and continue to do nothing and that the second most common mistake is to do only what they are told to do (and to continue to do so)" (Walker et al., 2019, p. 229).

Intervention two

In a business leadership simulation, the instructor provides students (individually and in teams) unlimited opportunities to pursue self-chosen strategies and to process their decisions to see results immediately. The instructor also provides students guidelines to measure the success of their efforts. Students compare their actions and results to those of other students and teams. Ancillary materials and videos provide instruction on correct business principles and provide comparative tools to guide student decisions. The instructor requires students periodically to present their reasoning and approach to the class and to describe the impact and how they will apply

what they have experienced to consequent learning. The instructor also requires students to think through their decision-making processes and to describe how the challenges and actions apply to personal success principles in their intended careers. Last, the completion of this intervention invites students to reflect on their decisions and results throughout the course. This reflection exercise is designed to help students form better approaches for interactions with their future managers, peers, and customers, which will help them become more effective and confident professionals before and after graduation.

Intervention three
The instructor requires students to write a reflective paragraph on the reasoning they used to plan action in what turned out to be a problematic situation where they received a negative evaluation from other members of their team. As a follow-on assignment, the instructor requires students to develop an alternative perspective on the situation, which interprets the situation in a more charitable light. For example, students may initially interpret their team member as lazy, but their second assignment might help the evaluator to interpret their team member as facing challenges of which the rest of the team is unaware. In this exercise, students then describe what their actions would have been using the more charitable interpretation and evaluate the potential for different outcomes between the two lines of reasoning.

Causal Process 2. Design Opportunities for Failure as part of the learning process. When students realize that they can survive these small failures, they can be "inoculated" with "mental toughness" (Walker et al., 2019, p. 229). In turn, they will "become desensitized to lower level challenges and grow in capacity to manage the trauma of future setbacks" (Walker et al., 2019, p. 229).

Intervention one
In this example, students grapple with leadership cases of such complexity and ambiguity that most students fail with their initial efforts (Walker et al., 2019, p. 229). Even when the students begin to master the tasks, the leadership case exercises are designed so that there is only one winner for each case (that is, all the others fail) (Walker et al., 2019, p. 229). The tasks also increase in difficulty and complexity as the cases unfold, thereby increasing the likelihood of student failure. The instructor reassures students that failure is typical at this stage of their development and that they will eventually succeed if they persist. Students are thus encouraged to continue their efforts even in the face of failure and eventually to learn to meet expectations. In some cases, the instructor provides students with other tasks wherein they will succeed.

Intervention two
The course is designed so that required evaluations use forced-choice peer-ranking of fellow team or class members with no ties allowed (Walker et al., 2019, p. 229). This approach means that some individuals or groups will be at the bottom of the ranking (that is, they will experience failure) (Walker et al., 2019, p. 229). A discussion of the relative nature of evaluations (for example, even the best sports team in the world has a worst player) and tying final grades to overall team or individual performance helps students to learn that a perceived failure is merely an opportunity to learn. Students also learn that long-term success is still possible even if they are the worst student in a particular classroom exercise.

Causal Process 3. Create a Feedback-rich Environment that enables students to learn from their successes and mistakes (Walker et al., 2019, p. 230).

Intervention one
Team leaders, instructors, and peers share feedback with students as close to immediately after the evaluated behavior as possible. Feedback is expected to be detailed and rooted in observable data (for example, "not being a good team player" is not observable, whereas "being fifteen minutes late to every meeting" is observable). Every student in the class receives formal feedback each week through the evaluation process. The results of faculty, team leader, and peer evaluations and rankings are posted publicly so that students can ask evaluators about reasons behind their evaluations. Thus, the feedback is two-way and is based on the principle that evaluators need feedback on the evaluations they make of others, to ensure that the evaluations are accurate and meaningful. Additional feedback on presentations and other activities also occurs, both in writing and orally. Students involved in group activities "spend at least an hour each week preparing and delivering feedback to other students" (Walker et al., 2019, p. 230). The reasons, and underlying rationale, for this feedback are available to all students in the course and are open for challenge and critique.

Intervention two
Individual and team results in competitive activities are displayed immediately and universally in a way that all students see the feedback simultaneously. Teams also fill out formal evaluations after each major team deliverable (minimum every five weeks) based on established criteria for each team member's qualitative (things such as teamwork, dependability, and communication) and quantitative (things such as profit, margin, and customer satisfaction) contributions. Feedback is both formal (a team composite using instruments that are filled out confidentially) and informal (undocumented team required and optional feedback that occurs inside and outside the classroom). Final scores for grading purposes are an amalgamation of instructor and peer assessments. Results are analyzed using over two dozen objective business measures (Walker et al., 2019, p. 230). Students can assess decision impact and progress multiple times (as often as they desire) during the process of the experiential interventions. They receive frequent feedback from many sources, including student leaders and peers, instructors, computer models, and worldwide competitors.

Causal Process 4. Provide Venues for Peer Support "via information [and] knowledge resources, encouragement, [and] a sense of belonging and accountability . . . so that students look to their student team as a support group" (Walker et al., 2019, p. 230). Peer support helps to sustain student "motivation to act by providing drivers (hope, fear, and a sense of duty) and enablers (increasing abilities gained from peers), [and] clarifying goals and the path to those goals through dialogue" (Walker et al., 2019, p. 230).

Intervention one
Peer support expectations, skills, and opportunities are designed into the class process that requires students to work in teams that stay intact for the entire semester. The instructor also follows seven steps in forming teams to foster students' commitment to their peers:

1. The instructor assigns students to teams providing as broad a mix of skills and experience as possible so that each student is needed and can make a meaningful contribution.
2. Team members are allowed to switch teams during a short (nine-day) time window at the beginning of the semester after defined "due diligence" criteria are met. This tactic encourages voluntary student participation as opposed to students feeling "stuck" with their assigned teammates.
3. The instructor limits team size to two to five individuals so that each student has a visible role in influencing decisions and performing meaningful work.
4. The instructor guides students to create and share personal expectations when working in teams based on past negative and positive team experiences.
5. Students decide on the priority criteria that they will use in guiding their team process.
6. Students commit to communication norms, especially how to resolve conflicts or lack of performance (such as meeting deadlines or quality standards) and are trained as needed.
7. The instructor requires teams to periodically check in with each other to assess how they are achieving their communication, decision-making, and work quality goals and objectives.

Last, the instructor actively observes team functioning and recommends improvements where needed *after* students learn the principles of high-performing business teams.

Intervention two
Students directly evaluate their peers on the extent that their peers have helped other individuals and teams in the course (Walker et al., 2019, p. 230). Also, designing differentiated roles, where each student needs to do a part of a job to make the whole class function, means that there are functional dependencies that encourage peer support. These differentiated roles can include tasks specifically designed to improve peer relations. These roles also may include having some students be accountable for evaluating and maintaining a positive team climate by scheduling informal team-building activities into the team calendar or noticing when other team members are struggling and providing them with compassionate assistance.

Causal Process 5. Have a Valued, "High-Reputation" Mentor (i.e., trained instructor, professor, student, or another person) **Direct Attention** to critical aspects of the expected class performance to guide individuals and teams toward more effective actions and outcomes.

Intervention one
In this example, the instructor identifies emergent student experts in particular skill and knowledge areas and has them coach other students. The instructor also institutes a formal structure of expectations and trains individuals to fulfill the demands of their roles. Students may volunteer or are elected by the team to different positions and receive real-world titles such as CEO, VP of Marketing, or HR Director. They participate in brief informal training about their classroom tasks and are instructed to go back to their team and train other students. New elections or stepping down from one's position are allowed. The instructor, serving as a valued, high-reputation mentor, ensures that teams are self-directing by giving clear instructions on expected deliverables and by providing ample information and role modeling about how to do each job. Team leaders, in turn, hold their classmates accountable to perform their parts of individual and team tasks, by providing direction and role modeling on how to successfully achieve their assigned tasks.

Intervention two
The instructor has weekly out-of-class meetings with students who elect or choose to act as "course leaders" (or "department heads") to discuss problems and issues raised by both the instructor and the students (Walker et al., 2019, p. 231). Students are willing to do this because they are working to make the whole class succeed, not just themselves (see Causal Process 2, Intervention two, above), and helping other students means that their grades will improve. During these meetings, the instructor raises issues and suggests potential solutions. The focus is on improving student learning in the course as a whole, through focused attention by both the instructor and student course leaders who have the respect of other students.

Causal Process 6. Provide Increasingly Difficult Challenges "at the edge of student capabilities, to propel [them] to gain new knowledge and develop new skills" (Walker et al., 2019, p. 231). The more options students have in the classroom as they face increasingly difficult classroom interventions, the more likely they will choose to work diligently to enhance and grow their current knowledge, understanding, skills, and abilities.

Intervention one
In this scenario, the instructor closely monitors how students are performing and challenges them to greater and greater efforts. The instructor provides students with increasingly difficult and ambiguous tasks as the students master earlier levels of difficulty and ambiguity. The coursework is designed so one classroom experience builds upon another and becomes more complex, unpredictable, and challenging as the semester progresses (Walker et al., 2019, p. 231). The instructor rewards superior efforts *and* results, while introducing new concepts and activities that are just beyond the students' current abilities. The instructor also provides examples from more experienced students that are calibrated to display quality work product that is at or just beyond the students' current capabilities.

Intervention two
The instructor sequences course activities so that students can begin by implementing basic or routine tasks (e.g., memorizing foundational information, and scheduling and selecting topics) and then moving to more intellectually, psychologically, or socially challenging tasks (e.g., providing candid constructive feedback to peers, or developing systems, processes, or procedures that incorporate course learning) (Walker et al., 2019, p. 231). A tightly scheduled progression through these tasks means that some students will be left behind while others will feel the course is moving too slowly. This process challenges students who are behind to catch up, either on their own, or with instructor, team leader, or peer support. It also challenges students who complete their work quickly to offer to help their slower classmates.

DISCUSSION

As the authors have noted above, the preliminary Teleological Process Model of Resilience Development invokes the systems theory assumption of equifinality, meaning that there are many paths to the same end (Walker et al., 2019, p. 223, citing Van de Ven & Poole, 1995). Hence, the classroom interventions outlined in this article are only representative and are not exhaustive. Rather, the interventions describe potential paths that college and university instructors could use to guide their students toward greater personal resilience. The authors intend that the interventions be adapted or reworked for different classrooms that aim to increase the personal resilience of students in those classrooms. Further, the authors encourage instructors who are not familiar with the specific interventions outlined in this article to consult with their peers, obtain training in specific techniques (e.g., embedding classroom

scaffolding or coaching into course design), and conduct their own review of the resilience literature to determine which, if any, of these interventions might be useful in their particular classrooms and institutions.

While still more research is required to validate the authors' teleological process model, the theoretical basis is well rooted in the literature, and there is emerging empirical evidence that courses incorporating the six causal processes can increase student resilience (Walker et al., 2019). Although it may be more problematic to implement some of the described interventions in some situations (e.g., differentiating roles and having the performance of the class as a whole contribute to individual student grades is reasonable only when students can significantly impact overall class performance), it seems likely that attention to even some of the causal processes has the potential to increase student resilience in the college or university classroom.

There is also the potential that, without adequate groundwork and meaning-management, some implementations of the causal process-related interventions could have negative repercussions. For example, in one author's experience, forced-choice ranking, with no ties allowed, as a means of peer evaluation was strongly resisted at one institution by students with no experience with such a system, while it was accepted as *de rigueur* at another institution, where it was part of the organizational culture. Thoughtfully designed and well-executed implementation of the causal processes and their associated interventions in college or university classrooms, combined with an explanation to the students (and others) of the reasons for specific course attributes relating to personal resilience, can go a long way to promoting the acceptance and use of these concepts and to ensuring success in increasing student resilience.

CONCLUSION

Designing and delivering courses that leverage the causal processes embedded in the authors' preliminary Teleological Process Model for Resilience Development could produce outcomes that go well beyond the traditional learning objectives in a particular area of study in a college or university. By carefully designing course interventions, educators can work to meet the growth and career needs of the "whole student", thus helping students to develop the capabilities, skills, and character traits that they will need in abundance throughout their lives. Personal resilience is one such outcome. Although it is rarely addressed as a college or university course outcome, interventions grounded in personal resilience could contribute to student success long after most students have forgotten traditional course outcomes. Educators rightly are concerned about the long-term success of their students. To increase the likelihood of that success, the authors advocate including in college or university courses content and interventions that help students to develop the "ability to bounce back, learn . . . , and move forward" (Walker et al., 2019, p. 215) when they encounter life's inevitable challenges, disappointments, and setbacks. Using thoughtful and repetitive college or university classroom interventions to assess and enhance student resilience is one way that college and university faculty can prepare their students for lifelong success.

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Soft Skill Development in a Total Enterprise Simulation

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ABSTRACT

Many undergraduate business programs contain a capstone course that is built around a total enterprise simulation that makes use of the "hard skills" learned in coursework. Although these simulations always involve group teamwork, they rarely purposely build into the semester design an appreciation of the "soft skills" that are also necessary to become effective managers. This paper describes a set of organizational behavior activities that were "piggy-backed" onto a simulation. Aspects of group performance, group dynamics, and member satisfaction, as well as personal growth activities were some of the target areas this enrichment package covered.

Keywords: Simulation, capstone course, soft skills organizational behavior, group dynamics

INTRODUCTION

Many undergraduate business programs contain a capstone course which is built around a total enterprise simulation. Its purpose is to integrate students' knowledge from the individual courses that make up the required business core, so the interdependence of functional decisions becomes more evident. Most of the decision-making in these simulations depend upon a quantitative analysis of the business variables, making use of the "hard skills" learned in students' coursework.

In their seminal study back in 1988, Porter and McKibben stated the need for more emphasis in the curriculum on the development of students' "soft" skills" (i.e., leadership /interpersonal skills). This has been an issue for a long time, and yet Schools of Business have not made soft skills inclusion a priority. This is in spite of the fact real-world managers are more interested in soft skills. In fact, they think soft skills to be more important to the business organization (Hulsart, 2002).

The phrase "soft skills" refers to the skills which characterize relationships with other people, or which are about how an individual approaches life and work. Other phrases that are commonly used are: people skills, interpersonal skills, social skills, or transferable skills (Skills You Need, 2017). The problem is there is less training in soft skills because they are often undervalued. Organizations assume that everyone has developed these skills as something to be picked up in daily life.

Although these simulations always involve group teamwork, they rarely purposely build into the semester design an appreciation of the soft skills that are also necessary to become effective managers.

> *……. management programs are criticized for being unable to develop competent managers. We argued that today's business is very complex and requires managers with sophisticated skills. Experience-based learning is a very fruitful method for teaching management students. Strategy simulations are probably the best tools for giving students the opportunity to experience the learned material through practice. Yet simulations have shortcomings in developing certain managerial skills, especially soft skills. We believe that if human and societal skill elements are added to simulation's decision making, students will have the chance to practice these skills.* (Poisson-de Haro & Turgut, 2012)

This paper addresses this issue by describing a set of group process, personal development, and decision-analysis activities that were run simultaneously (piggy-backed) in an undergraduate total enterprise simulation course to promote more awareness of the soft skills. Although two faculty members were involved in this initial trial of the teaching methodology (the strategy/simulation administrator and an organizational behavior professor), a single faculty member could run most of these examples. Much of the organizational behavior (OB) data were collected online, with periodic visits to the classroom to provide feedback to the entire class regarding their group dynamics, and when necessary work with an individual group. Essentially, the OB professor served as a process-consultant.

The curriculum enrichment activities described are not dependent on a specific simulation. Rather, the paper suggests some of the ways a purposefully planned organizational behavior dimension can be added to any total

business simulation experience where groups of students work together for the entire semester, and decisions are made weekly.

SUGGESTED ACTIVITIES

Many of the activities described below are group process-oriented. They require the teams to analyze their group dynamics, and the way decisions were being made in a systematic fashion. The learning objective is to illustrate to students that taking periodic time-outs from daily decision-making in order to act like process consultants -- examining and discussing what was going on among themselves -- would likely improve group effectiveness and increase member satisfaction. This supplementary work for students took about 15-30 minutes per week.

Decision-making

After three rounds of decisions were made, each company completed a form that listed all the game variables that have required decisions, up to that point. Teams were asked to rank order these decisions based on: 1) the difficulty in making the decision and; 2) how critical was the decision to successful company performance. An in-class discussion with the game's administrator dealt with the following questions: 1) Why are these decisions difficult? 2) Are the difficult decisions necessarily the high impact ones? 3) How was the group's time managed relative to the high impact vs difficult decisions?

Another group questionnaire that was completed after four rounds of decisions focused on the multivariate nature of the groups' information processing. Teams were asked to indicate the percentage weighting given to environmental and business factors in the decision-making process. Responses were recorded in a matrix format where a listing of the available data and major simulation decisions formed a grid. The pattern of entries would allow teams to easily discern which information they were relying upon the most, or if they had been uniformly ignoring other pertinent data.

Examining the Team

Team behavior was examined at the individual level by asking students to rate every two weeks: 1) their level of agreement with their groups' decisions; 2) their level of satisfaction with the group's functioning, and; 3) the extent they felt responsible for their company's performance. This activity took just a couple of minutes with the three questions presented online. If one or more students in a team still indicated a level of dissatisfaction after the first six weeks, they were emailed and asked what were their concerns. Often, it was that their input to the decision-making seemed to be ignored by the emergent leader. Or that someone was not doing their share of the work.

Twice during the semester there was a more in-depth reading of participants' satisfaction with their groups. The online questions focused on how well they perceived their company performing in the simulation, how well they thought the group was working together in terms of interpersonal relations, time management issues, handling of conflicts, timeliness of communications, etc. and most importantly what they would like to change in terms of their company's operation.

The O.B. faculty member met with each group within class time to discuss noted problems, and what the team could do to alleviate them going forward. Adopting this type of course intervention offers the organizational behavior faculty a new type of professional activity: consultant vs instructor. This is especially advantageous for young faculty who have had no business experience, so acting as a "process consultant" and working face-to-face with work-groups to improve their performance is an excellent faculty development activity.

Organizational Structure

After making decisions for two weeks, teams were asked to report on their organizational structure, i.e. how responsibilities were divided among team members. Half-way through the semester, individual team members were asked within one of the online surveys to describe how well their company's structure was facilitating company performance. One issue that arose was how conflicts between functional areas were being handled. The cooperation/coordination/ integration situation was discussed during an in-class visit. The entire class bounced ideas how to deal with this problem. The same questions were asked at the end of the simulation and compared to the earlier responses to help students realize how the power structures in organizations tend to evolve over time.

Simulation Participation
Three times during the semester students were asked to give peer ratings. This entailed a $5000 bonus to be divided among the members of the team based on their contribution to the company. The rater included him/herself in the allocation. This was to identify early on students who are not making the most of the learning experience. The same peer evaluation was done at midterm and at the end of the semester. These evaluations were considered when deciding final grades.

Management Development
Obviously, there are many personal management development instruments one could choose to administer during the semester. It was decided that the easiest way to provide this extra opportunity for personal feedback was with online assessment instruments that are easy to understand, self-scoring, and include an explanation on how to interpret scores.
For this trial semester, "oldies but goodies" were used. The 54-item *FIRO-B* assessment measures interpersonal needs on three scales: Inclusion, Control, and Affection (Introduction, 2011). It is of particular value because it reveals how interpersonal needs drive people's behavior. These may also shape people's ability to build trust, influence others, and create productive relationships. Personal experience had shown the FIRO-B to be easy to complete and for students to understand. Conceptually, they "get" the yin-yang of the results, and how a group will be more harmonious if the members have complementary needs. The results of this scale could be used to explain members' satisfaction with the group and also help explain any of the clashes between team members.

Under the assumption that students' management growth would be enhanced if they had a better understanding of their own leadership style, Hersey and Blanchard's Situational Leadership Self-Assessment was picked to be part of the O.B. package. Once again, it was easy to use, easy to score and students could understand the quadrant dimensions of High and Low Task, and High and Low Relations. It is easy to explain in the scoring instructions how a zero in a quadrant indicates they never consider using that particular style (Hersey-Blanchard, 2016).
Although not used in this run of the simulation, a self-scoring personality assessment is another instrument that might be useful to students. The choice of this activity might depend on what, if anything, is being used in the required O.B. classes. Some assessments, like the Briggs Meyers personality test, are often used as an exercise in the basic O.B. class.

There are many different directions that this aspect of the soft skills can take when providing students with individual feedback. How many instruments to use throughout the semester obviously will be a factor of the time available, the number of students involved, and the faculty members' familiarity with a particular instrument.

Cross-Company Relations
Total enterprise simulations usually allow teams to interact in order to make deals with other companies. Depending on the game, there also could be opportunities for illegal price fixing, reneging on agreements, or attempts to be cutthroat in their decisions. A set of questions early in the semester before any of this happens can be useful. Teams were asked to describe each of the other companies, as well as their own, and to predict how the other companies would describe them. The answers were returned to each company without comment in an email. This established an initial reading of inter-team relationships which admittedly, was very limited at this point of the semester. At the end of the simulation the same questions were asked. By this time there is specific information on how companies "behaved themselves." The debriefing can make for a good discussion of management ethics, and the public relations/image consequences of practicing questionable, competitive tactics.

FINAL COMMENTS

Admittedly, the course described had two faculty members involved. But it was clear that once all the materials were developed, most of the same feedback could have been handled by one faculty member who was committed to both students' hard and soft skill development.
The activities described here are simply illustrations of the type of activities that can be piggy-backed onto the total enterprise simulation course. It was not the author's intention to propose a given set of activities. Rather, it is to encourage faculty who run the simulation course to think about how to provide their students with improved soft skills by superimposing some type of O.B. process to examine the human dynamics during the simulation, rather than just concentrating on market share and bottom-line-results. Your regional employers will certainly appreciate this added emphasis.

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A Tale of Two Courses: Applying Sustainability Principles to the Intermediate Financial Accounting and Auditing Courses

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ABSTRACT

More and more accounting programs are looking for ways to incorporate sustainability topics into their curriculum as a result of an increasing demand for accounting graduates with an understanding of sustainability reporting coupled with new AACSB International accreditation standards that require coverage of such topics. This paper describes use of a case which incorporates economic, environmental, and social sustainability in the intermediate financial accounting and auditing classes via an experiential learning activity that offers an opportunity for team work and role playing. The intermediate accounting version begins with analytics where students evaluate how a proposed new hydro-electric company's debt and equity mix impacts the financials, and then they reevaluate it in light of a potential environmental contingency. In both the audit and intermediate versions, students learn about sustainability reporting and weigh the benefits of a new hydro-electric power plant against the risk of an endangered species going extinct.

Keywords: Analytics, Assurance, Experiential Learning, Financial Reporting, Integrated Reporting, Sustainability.

INTRODUCTION

The majority of publicly traded and Fortune 500 corporations now produce some type of corporate social responsibility report (CSR) or sustainability report, with the percentage of S&P companies issuing sustainability reports increasing from 20% in 2011 to 85% in 2017 (Brown and Kohlbeck, 2017; Governance and Accountability Institute, Inc., 2018; Hart, 2018; Pippin, Weber, Wong, and Bergner, 2016). Many investors consider CSR and sustainability reports in making investing decisions, and that number has been increasing substantially in recent years (EY, 2015; Pippin, Weber, Wong, and Bergner, 2016). As a result, companies are now seeking out assurance and auditing services related to these reports, and employers have started to look for accounting graduates with some familiarity with the topic (Brown and Kohlbeck, 2017; Hart, 2018; Pippin et al., 2016).

Incorporating sustainability into the business school curriculum by weaving it into classes across the curriculum is favored by most business school deans and the AACSB International (AACSB) (Lee, Birkey and Patten, 2017; Painter-Morland et al., 2016; Sisaye, 2013). In fact, the accounting accreditation standards of the AACSB now call for accounting programs to "demonstrate a commitment to address, engage, and respond to current and emerging corporate social responsibility issues (e.g., diversity, sustainable development, environmental sustainability, globalization of economic activity across cultures, global prosperity) through its policies, procedures, curricula, research, and/or outreach activities." (AACSB, 2018, p. 8). Despite the current demand, most colleges and universities have yet to incorporate sustainability into the accounting curriculum (Brown and Kohlbeck, 2017; Hart, 2018; Lee, Birkey and Patten, 2017; Painter-Morland et al., 2016; Pippin et al., 2016). Time and resource constraints make it difficult to build and offer a stand-alone accounting course in sustainability, and a lack of instructional resources on accounting sustainability create an additional challenge (Pippin, Weber, Wong, and Bergner, 2016; Sisaye, 2013). Further, although instructional resources have been growing and sustainability can be incorporated into the accounting curriculum using simple exercises, textbook supplements, and case materials that relate to and build upon material already covered in accounting courses (e.g., Bouten and Hoozée, 2015; Brown and Kohlbeck, 2017; Brown and Veenstra, 2018; Haskin and Burke, 2016; Kraten, 2015; McGuigan, Sin and Kern, 2017; Saravanamuthu, 2015), there still exists a need for more creative and engaging sustainability learning activities.

This paper provides an example of a tool (case) which can help fill the need for course materials that incorporate sustainability into the accounting curriculum. The case features a global multi-national energy corporation that is awarded a massive contract to construct a hydro-electric power plant over a waterfall in an undeveloped area of an

African nation. Although the promise of inexpensive and reliable "green" energy is initially welcomed by the local society, issues such as potential bribery in order to secure the contract and the possible extinction of an endangered species known as the Blue Frog on the construction site provides the context for a role-playing negotiation activity among students. Students must decide if they agree to proceed with the project. If so, will they seek to restrict operations in a manner that upholds the principles of sustainability but that curtails the profitability of the power plant? Furthermore, how will the students' decisions affect the financial statements of the energy corporation? How would students' consideration of sustainability issues impact their risk assessment procedures as an auditor? These are the types of questions that must be addressed in any financial accounting, or auditing course. The remainder of this paper describes the case, provides implementation guidance for instructors along with suggested solutions, and describes evidence of teaching effectiveness. We note that this case represents an extension of the "Save The Blue Frog" case that was featured in a previous issue of the Business Education Innovation Journal (Kraten, 2015). More specifically, this case extends the learning activities of the Kraten (2015) case by featuring customized learning outcomes for two different accounting courses.

THE CASE

Intermediate Accounting II Case

Part 1 Background

Imagine a Western energy company called World Of Water (WOW). This company has secured a contract to develop a hydro-electric power generation plant over a pristine jungle waterfall in an impoverished African nation named Vastaria. WOW plans to create a new energy company to manage the power plant. In exchange for providing its expertise and management of the company, WOW will be granted an initial ownership interest consisting of 75,000 shares of no par common stock. The estimated cost of the new power plant is approximately $50,700,000. WOW hires you as a consultant to recommend the best way to fund this project. The primary funding options WOW is currently considering include a 10 year installment loan, the issuance of common stock to outside investors, or some combination of the loan and stock issuance. WOW asks you to recommend an optimal mix of debt and/or equity financing. The projected financial statements for WOW are provided below (for use in both Part 1 and Part 2).

Part 1 Requirements (Completed individually by each student)

The financial projections spreadsheet utilized to support WOW's decision to proceed with the Vastaria project has been provided to you below (the financial statements are listed first with the assumptions and ratios below the financial statements). Review the spreadsheet and answer the questions that follow. You can review the impact of changing the debt versus equity mix by inputting amounts into the two shaded boxes at the top of the spreadsheet labeled "No Par Common Stock Issued to Outside Investors" and "10 Year Note Payable to Bank" (in the assumptions section). Be sure the sum of the amounts you enter into the two boxes equals $50,700,000. You will see the financial statement numbers and ratios change as you change what you enter in those two boxes. Enter zero in the shaded boxes labeled "Legal Expense" and "Contingent Liabilities."

1. Briefly explain/list the advantages and disadvantages of each of the following alternative financing options from the perspective of WOW: common stock, preferred stock, 10 year installment note, 10 year bond, 10 year zero interest bond and 10 year convertible bond (convertible into common stock).
2. Briefly discuss how the balance sheet, income statement, and cash flow statement are each affected by increasing debt financing (i.e., leverage) and reducing equity financing.
3. Document how and why each of the following ratios are affected by increasing debt financing (i.e., the installment loan) and reducing equity financing (i.e., common stock issued to new investors). Liquidity Ratios: Current ratio, Quick (Acid-test) ratio, Current cash debt coverage. Activity Ratios: Accounts receivable turnover, Asset turnover. Profitability Ratios: Profit margin on sales, Return on assets (ROA), Return on common stockholders' equity (ROE), Basic Earnings per common share (EPS). Coverage Ratios: Debt to total assets, Times interest earned, Cash debt coverage, Book value per share.
4. (a) Indicate what you believe is the optimal mix of equity versus debt financing for WOW. Each can range from $0 to $50,700,000. The total amount cannot exceed $50,700,000 for both alternatives combined.
   (b) Explain below why you believe the mix of financing you indicated above is the optimal mix, citing its impact on the various financial statement accounts, ratios, and other important factors.

		BALANCE SHEET				
ASSETS						
	Current Assets					
	Cash	$ (43,422,083)	$ (34,903,333)	$ (27,634,583)	$ (20,115,833)	$ (12,347,083)
	Accounts Receivable	1,312,500	1,343,750	1,375,000	1,406,250	1,437,500
	Inventory	141,667	141,667	141,667	141,667	141,667
	Total Current Assets	$ (41,967,917)	$ (33,417,917)	$ (26,117,917)	$ (18,567,917)	$ (10,767,917)
	Property, Plant and Equipment (Cost)	50,000,000	50,500,000	51,000,000	51,500,000	52,000,000
	Accumulated Depreciation	(2,500,000)	(5,025,000)	(7,575,000)	(10,150,000)	(12,750,000)
	Total Assets	$ 5,532,083	$ 12,057,083	$ 17,307,083	$ 22,782,083	$ 28,482,083
LIABILITIES & STOCKHOLDERS' EQUITY						
LIABILITIES						
	Current Liabilities					
	Accounts Payable	$ 177,083	$ 177,083	$ 177,083	$ 177,083	$ 177,083
	Current portion of long-term debt	-	-	-	-	-
	Total Current Liabilities	$ 177,083	$ 177,083	$ 177,083	$ 177,083	$ 177,083
	Contingent Liabilities	-	-	-	-	-
	Long Term Debt	-	-	-	-	-
	Total Liabilities	$ 177,083	$ 177,083	$ 177,083	$ 177,083	$ 177,083
STOCKHOLDERS' EQUITY						
	Common Stock	$ -	$ -	$ -	$ -	$ -
	Retained Earnings	5,355,000	11,880,000	17,130,000	22,605,000	28,305,000
	Total Stockholders' Equity	$ 5,355,000	$ 11,880,000	$ 17,130,000	$ 22,605,000	$ 28,305,000
	Total Liabilities & Stockholders' Equity	$ 5,532,083	$ 12,057,083	$ 17,307,083	$ 22,782,083	$ 28,482,083

		INCOME STATEMENT				
	Revenue	$ 10,500,000	$ 10,750,000	$ 11,000,000	$ 11,250,000	$ 11,500,000
	Operating Expenses (other than depreciation and legal)	(1,700,000)	(1,700,000)	(1,700,000)	(1,700,000)	(1,700,000)
	Depreciation Expense	(2,500,000)	(2,525,000)	(2,550,000)	(2,575,000)	(2,600,000)
	Legal Expense	-	-	-	-	-
	Interest Expense	-	-	-	-	-
	Income before taxes	$ 6,300,000	$ 6,525,000	$ 6,750,000	$ 6,975,000	$ 7,200,000
	Income tax expense	(945,000)	(978,750)	(1,012,500)	(1,046,250)	(1,080,000)
	Net Income	$ 5,355,000	$ 6,525,000	$ 6,750,000	$ 6,975,000	$ 7,200,000

		STATEMENT OF CASH FLOWS				
Cash Flows From Operating Activities						
	Net Income	$ 5,355,000	$ 6,525,000	$ 6,750,000	$ 6,975,000	$ 7,200,000
	Adjustments to Reconcile Net Income to Net Cash Provided by Operating Activities:					
	Depreciation Expense	2,500,000	2,525,000	2,550,000	2,575,000	2,600,000
	Change in Accounts Receivable	(1,312,500)	(31,250)	(31,250)	(31,250)	(31,250)
	Change in Inventory	(141,667)	-	-	-	-
	Change in Accounts Payable	177,083	-	-	-	-
	Change in Contingent Liability	-	-	-	-	-
Net Cash Provided by (Used by) Operating Activities		$ 6,577,917	$ 9,018,750	$ 9,268,750	$ 9,518,750	$ 9,768,750
Cash Flows From Investing Activities						
	Capital Expenditures	$ (50,000,000)	$ (500,000)	$ (500,000)	$ (500,000)	$ (500,000)
Net Cash Provided by (Used by) Investing Activities		$ (50,000,000)	$ (500,000)	$ (500,000)	$ (500,000)	$ (500,000)
Cash Flows From Financing Activities						
	Change in Debt	$ -	$ -	$ -	$ -	$ -
	Payment of Cash Dividends	$ -	$ -	$ (1,500,000)	$ (1,500,000)	$ (1,500,000)
	Issuance of Common Stock	-				
Net Cash Provided by (Used by) Financing Activities		$ -	$ -	$ (1,500,000)	$ (1,500,000)	$ (1,500,000)
	Net Increase (Decrease) in Cash	$ (43,422,083)	$ 8,518,750	$ 7,268,750	$ 7,518,750	$ 7,768,750
	Plus Beginning Cash	-	(43,422,083)	(34,903,333)	(27,634,583)	(20,115,833)
	Equals Ending Cash	$ (43,422,083)	$ (34,903,333)	$ (27,634,583)	$ (20,115,833)	$ (12,347,083)

ASSUMPTIONS

Financing Of PP&E

	Dollar Amount	Price Per Share	Number of Shares	% Ownership	Issue Costs
No Par Common Stock Owned by WOW	$ -	$ -	75,000	100.0%	
No Par Common Stock Issued to Outside Investors		$ 400.00	0	0.0%	4.0%
10 Year Note Payable to Bank					
Total Initial Financing	$ -	***Must Equal $50,700,000***			

	Period 1	Period 2	Period 3	Period 4	Period 5
Annual Operating Assumptions					
Revenue	$ 10,500,000	$ 10,750,000	$ 11,000,000	$ 11,250,000	$ 11,500,000
Months of Revenue in Receivables	1.50	1.50	1.50	1.50	1.50
Operating Costs - other than depreciation	$ 1,700,000	$ 1,700,000	$ 1,700,000	$ 1,700,000	$ 1,700,000
Months of Operating Costs in Materials	1.00	1.00	1.00	1.00	1.00
Months of Operating Costs in Payables	1.25	1.25	1.25	1.25	1.25
Legal Expense		$ -	$ -	$ -	$ -
Capital Expenditures	$ 50,000,000	$ 500,000	$ 500,000	$ 500,000	$ 500,000
Useful Life (Average Years)	20	20	20	20	20
Cash Dividends Paid	$ -	$ -	$ 1,500,000	$ 1,500,000	$ 1,500,000
New Borrowings	0	0	0	0	0
Principal Repayments	0	0	0	0	0
Interest Rate (Annual)	5.00%	5.00%	5.00%	5.00%	5.00%
Contingent Liabilities		$ -	$ -	$ -	$ -

RATIOS

LIQUIDITY RATIOS:					
Current ratio	-237.00	-188.71	-147.49	-104.85	-60.81
Quick (Acid-test) ratio	-237.80	-189.51	-148.29	-105.65	-61.61
Current cash debt coverage		50.93	52.34	53.75	55.16
ACTIVITY RATIOS					
Accounts receivable turnover		8.09	8.09	8.09	8.09
Asset turnover		1.22	0.75	0.56	0.45
PROFITABILITY RATIOS					
Profit margin on sales	51.0%	60.7%	61.4%	62.0%	62.6%
Return on assets		74.2%	46.0%	34.8%	28.1%
Return on common stockholders' equity (ROE)		75.7%	46.5%	35.1%	28.3%
Earnings per common share (EPS)	$ 71.40	$ 87.00	$ 90.00	$ 93.00	$ 96.00
COVERAGE RATIOS					
Debt to assets ratio	3.20%	1.47%	1.02%	0.78%	0.62%
Times interest earned	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Cash debt coverage		50.93	52.34	53.75	55.16
Book value per share	$ 71.40	$ 158.40	$ 228.40	$ 301.40	$ 377.40

Part 2 Background

Welcome students! Thank you for supporting our efforts to save the planet. As you may know, the accounting profession is taking a leading role in advancing the cause of sustainability. What do we mean by the word sustainability? There are many definitions of the term, and we are referring to it in terms of the concept of the Triple Bottom Line (TBL). We accountants are bottom line oriented by nature, and the TBL concept encourages our profession to develop metrics and other information that summarize the environmental, social, and economic (or financial) positions of an entity. And when we refer to an entity, we mean any entity. People, families, communities, companies, nations, or the entire world; each must have a long-term "sustainable" strategy for prospering environmentally, socially, and economically. But does that mean that we must sacrifice the most helpless and innocent creatures among us who simply wish to survive? That's the question that we must answer. So how shall we proceed?

Imagine a Western energy company called World Of Water (WOW). This company has secured a contract to develop a hydro-electric power generation plant over a pristine jungle waterfall in an impoverished African nation named Vastaria. At first, everyone is happy. The nation, desperate for an inexpensive and clean source of energy, looks forward to receiving power from the plant. Local jobs will be created to provide it. An artificial reservoir, similar to the Lake Mead Recreation area in the American southwest, will be transformed into an eco-tourism development. And WOW will earn significant profits from constructing and managing the plant.

But before construction commences, some troubling news emerges. Environmentalists discover that an endangered species known as the blue frog resides on the proposed location of the power plant. If WOW proceeds with construction, it may endanger the lives of these creatures, and threaten the extinction of the entire species.

Three individuals come together at WOW headquarters to determine a course of action. One is a representative of BC Capital, the private equity owner of WOW. One is a senior partner of a Big Four Accounting Firm (BFAC) that has been asked, but has not yet accepted, an engagement to assess the situation on behalf of WOW. Another one is Okopipi, the Blue Frog itself. If necessary, BC Capital's representative has the option of calling upon the WOW Chief Executive Officer (CEO), for additional insights. You will be placed in a group of three to four students and will be assigned to one of these roles. Then, by working with your team while employing the tools and techniques of accounting, you will do your best to find a solution to this challenge. Will you save the blue frog? Or will you let it perish? The choice is yours…

Part 2 Requirements (Completed in assigned teams)
Assume that WOW's lawyers have determined that because of the potential negative environmental impact, there is a 71% chance that the new company will be liable for $9,000,000 to $11,000,000 (each amount in the range equally likely). You can examine the impact of the possible contingent liability by inputting the appropriate amounts in the shaded spreadsheet boxes labeled "Legal Expense" and "Contingent Liabilities" in the assumptions section of the financials spreadsheet. Review the spreadsheet and answer the questions that follow.

1. Given the possibility of this environmental contingency, should WOW proceed with the project? Discuss why you believe WOW should or should not continue with the project and any other factors or options WOW should consider given this possible environmental contingency.
2. If WOW continues with the project, indicate what you believe is the optimal mix of equity versus debt financing for WOW given the contingency. Each can range from $0 to $50,700,000. The total amount cannot exceed $50,700,000 for both alternatives combined (use the same shaded boxes you used in Part 1 above).

Briefly explain why you chose the debt to equity mix above. Also, submit your completed Excel spreadsheet.

Part 3 Background
Recall our discussion of sustainability in terms of the TBL:
(1) Planet - the environmental aspect,
(2) People - the social/human aspect, and
(3) Profit - the economic/financial aspect.
If you need a refresher, you may find it useful to review the following website:
https://sustain.wisconsin.edu/sustainability/triple-bottom-line

Part 3 Requirements (Completed in assigned teams)
Your group task is to come up with at least one metric for each of the three TBL categories to measure the sustainability performance of WOW's new hydro-electric energy company over time. Each metric must be a quantitative metric that can be easily measured and verified. Each metric must also be appropriate for this company. The profit/economic metric must relate to maintaining strong revenues or reducing costs in an environmentally and socially friendly manner. For example, Ikea saves more than $1 million per year in waste disposal costs by recycling its waste into the company's products (Ingka Holding B.V., 2018), and Coca Cola has set a goal to more sustainably source its priority product ingredients (The Coca Cola Company, 2018).

Part 4
This part includes an instructor led in-class case debrief and discussion about sustainability accounting reporting standards.

Auditing Case

Background
This is the same background as the one used in Part 2 of the case for the Intermediate Accounting II course above with the exception of the third paragraph. For the auditing course, the third paragraph reads as follows:

But before construction commences, some troubling news emerges. Apparently, someone within WOW made sizable "gratuity" payments to local African officials before those individuals approved the project. There is a chance that those payments may be investigated by authorities as de facto bribes. In addition, environmentalists discover that an endangered species known as the blue frog resides on the proposed location of the power plant. If WOW proceeds with construction, it may endanger the lives of the creatures, and threaten the extinction of the entire species.

Team Requirements
Identify the relevant guidance that can be used by WOW's management to create appropriate sustainability metrics that will help WOW decide how best to proceed.

1. Create appropriate sustainability metrics using the relevant guidance.
2. For these sustainability metrics:
    a. Identify those sustainability metrics that can be audited.
    b. Specify how each of these auditable sustainability metrics may be audited (name specific audit procedures in your response). Be sure to cite specific relevant Public Company Accounting Oversight Board (PCAOB) audit standards.
3. If a specific sustainability metric cannot be audited, can some other type of assurance be provided? If so, specify the other type of assurance service that may be provided. Be sure to cite specific relevant PCAOB attestation standards in your response.
4. Would the consideration of these sustainability metrics impact your assessment of risk during the planning phase of an audit or the planning phase of an attestation engagement? If so, how would consideration of these sustainability metrics impact your assessment of risk?
5. What is your decision? Did you decide to save the blue frog? Or did you decide to let it perish? Explain how you arrived at this decision.

IMPLEMENTATION GUIDANCE AND SUGGESTED SOLUTIONS

Intermediate Accounting II Case Implementation Guidance and Suggested Solutions

The case for a second intermediate accounting course has four parts. The first part of the case, completed by students individually, incorporates analytics designed to give students a deeper understanding of how the mix of debt and equity financing affects the new company's projected financials. The second part of the case, completed in teams, builds upon the first part by requiring the teams to analyze the debt equity mix in conjunction with the potential impact of a sustainability related contingent liability on the financials. As a part of this analysis, they must decide whether the project (i.e., the new company) should proceed. In part three, the student teams learn about the concept of sustainability reporting and are required to come up with some triple bottom line (TBL) related metrics to measure the new company's sustainability performance. Finally, in the fourth part of the case, students are introduced to the integrated reporting framework, as well as the various sustainability reporting standard setting bodies and the standards they have promulgated. This case is designed to be completed in three 50 minute class periods with some work outside of class, however, it can be customized by individual instructors to best meet their course needs. The learning objectives include:

1. Demonstrate an understanding of the advantages and disadvantages of various types of equity versus debt financing.
2. Evaluate the impact of different levels of debt and equity financing on the balance sheet, income statement,

and cash flow statement.

3. Evaluate the impact of different levels of debt and equity financing on liquidity ratios, activity ratios, profitability ratios, and coverage ratios.
4. Develop a basic understanding of sustainability in a business context and the triple bottom line (TBL).
5. Weigh the social and economic benefits of a new hydro-electric power plant against the environmental risk of an endangered species going extinct.
6. Examine the potential impact of an environmental contingency on the financial statements in conjunction with the amount of debt versus equity financing.
7. Develop a basic understanding of sustainability metrics and measures used to assess a company's sustainability efforts.
8. Establish sustainability metrics and quantitative measures of those metrics for each of the TBL areas (i.e., planet, people, and profit) appropriate for a hydro-electric company.
9. Learn about and compare the various organizations that create sustainability standards and the standards they have promulgated to date [i.e., the Sustainability Accounting Standards Board (SASB), the Global Reporting Initiative (GRI), and the International Integrated Reporting Council (IIRC)].

Intermediate Accounting II Case Part 1 Implementation Guidance

The first part of the case is completed by students individually outside of class with the deliverable submitted to the instructor just before the second part of the case is started. A course packet containing background information, an interactive financial spreadsheet, and the required questions should be distributed via email or through a course website roughly a week before students begin the second part of the case in class. The student can complete this part of the case without any assistance from the instructor, but the instructor might also wish to introduce the case in class and discuss the assignment requirements.

A short introduction/background narrative introduces students to a Western energy company called World Of Water (WOW) that has been contracted to develop a hydro-electric power plant in Africa. The student is tasked with helping WOW decide how much of the $50.7 million project cost should be financed with debt versus equity. In the first question, the student is prompted to think about alternative forms of equity and debt financing by listing specific advantages and disadvantages of each. After answering the first question, students should open the Excel spreadsheet provided that includes projected financial statements for the new company over a five-year period along with 13 ratios. There are two shaded boxes at the top of the spreadsheet in the "assumptions" section where the student can input various dollar amounts and then see the impact of changing those amounts on the financial statements and ratios. The spreadsheet also indicates how WOW's ownership percentage changes with the amount of equity issued. Students can use this spreadsheet tool to help them answer the remaining questions.

Intermediate Accounting II Case Part 1 Requirement 1 Suggested Solution

Some of the advantages and disadvantages of each of the following alternative financing options from the perspective of WOW are as follows (not an exhaustive list). The advantages of using common stock and/or preferred stock as a financing mechanism include that there is no need to pay back the amount financed, there is no interest expense (increasing net income) and that there is more solvency due to less leverage. Disadvantages include dilution of WOW's ownership (a disadvantage of common stock only), less control, and a decrease in EPS and ROE. If a 10 year installment note or a 10 year bond is used as financing mechanism, the advantages include that the interest is tax deductible and that there is no dilution of WOW's ownership. Disadvantages include the fact that the principal amount borrowed has to be repaid and that the increase in leverage reduces solvency. If the 10 year bond is a zero interest bond, an additional advantage is that there are no interest payments until the bond matures. An additional disadvantage is that there is a larger payment due at maturity due to imputed interest. If the 10 year bond is a convertible (into common stock) bond, an additional advantage is typically lower interest costs. If converted into common stock, all of the disadvantages of common stock as a method of financing (see above) now become the disadvantages of this convertible bond.

Intermediate Accounting II Case Part 1 Requirement 2 Suggested Solution

The impact of increasing debt financing (i.e., leverage) and reducing equity financing on the financial statements is as follows. Balance Sheet: total assets decrease significantly due to a decline in cash (from payment of principal and interest), total liabilities increase significantly due to an increase in both current liabilities and long-term liabilities, and total stockholders' equity declines due to lower common stock and lower retained earnings. Income Statement: net income decreases significantly with increased debt financing due to the higher interest expense from the loan.

Statement of Cash Flows: due to the decline in net income noted above, net cash provided by operating activities decreases. In other words, operating cash is used to pay interest expense. Net cash used for financing activities increases because cash is used to pay the current portion of the long term debt each year. However, the combined increase in cash each year is lower because of the additional cash used to pay interest and principal on the loan each year.

Intermediate Accounting II Case Part 1 Requirement 3 Suggested Solution
The impact of increasing debt financing (i.e., the installment loan) and reducing equity financing (i.e., common stock issued to new investors) on the liquidity, activity, profitability and coverage ratios is as follows. Liquidity Ratios: The Current ratio and Quick (Acid-test) ratios decrease because there is less cash from payment of principal and interest and higher current liabilities due to the current portion of the long-term debt. Current cash debt coverage also decreases due to higher interest expense that reduces net cash provided by operating activities and also due to the increase in current liabilities. Activity Ratios: Accounts receivable turnover – not applicable. Asset turnover increases due to lower cash from payment of principal and interest. Profitability Ratios: Profit margin on sales decreases due to higher interest expense. ROA decreases initially due to a decrease in both net income and average total assets but then increases in later years because the balance on the loan is lower and net income is higher due to lower interest expense (while less cash is needed to pay interest expense). Despite a decrease in stockholders' equity, ROE increases due to the higher interest expense that reduces net profit. However, the reduced net profit is not enough to offset the significantly lower number of shares, and thus EPS increases. Coverage Ratios: Debt to total assets increases due to the significantly higher debt and lower total assets from decreased cash used for interest and principal payments. Times interest earned decreases due to the lower interest expense in both the numerator and denominator. Cash debt coverage decreases because the higher interest expense reduces cash provided by operating activities and the increased debt increases the average total liabilities. Book value per share decreases because the higher interest expense reduces retained earnings and the increased debt financing reduces the amount of common stock outstanding.

Intermediate Accounting II Case Part 1 Requirement 4 Suggested Solution
Student answers to this part will vary. However, it is important to note that WOW's ownership interest will fall below 50% once the amount of equity issued to outside investors exceeds roughly $29,000,000. In citing the reason they chose a specific debt and equity mix, students should draw upon the key points from the analysis they produced for requirements 1, 2 and 3.

Intermediate Accounting II Case Part 2 Implementation Guidance
The second part of the case is group work and can be completed within one 50 minute class period, but the instructor may wish to allow teams additional time to complete work outside of class. At the beginning of class, the instructor should take about five to ten minutes to randomly assign students to teams of three to four people. In teams of three, students should be assigned to the following roles: (1) a representative of BC Capital, the private equity owner of WOW; (2) a senior partner of the BFAC that has been asked, but that has not yet accepted, an engagement to assess the situation on behalf of WOW; and (3) Okopipi, the Blue Frog. If class size requires a team of four members, a fourth role can be added for the WOW CEO.

Next, the instructor can spend about five to ten minutes introducing the topic of sustainability. This can be done through use of online videos (see, for example, the short PBS video "What is Sustainability?" (PBS, 2014) available at https://www.youtube.com/watch?v=_Yr8oFvY3a0) and "The Triple Bottom Line: the Science of Good Business" (Magnin, undated) available at https://sustainabilityillustrated.com/en/portfolio/triple-bottom-line-the-science-of-good-business). Then, the written narrative, excel spreadsheet, and related questions should be distributed to students. The narrative in this part builds upon the narrative from part 1, introducing sustainability and the TBL into the mix. The benefits of the hydro-electric power plant project are noted as including an inexpensive clean source of energy for a nation in need, the creation of jobs, and the development of an artificial reservoir as part of an eco-tourism attraction. However, a contingent environmental liability is also introduced. If the project moves forward, it may result in the extinction of an endangered species known as the blue frog that currently resides on the land where the plant will be located. The potential liability is quantified as falling within a range of $9-$11 million with a probability of 71%, just above the United States Generally Accepted Accounting Principles (U.S. GAAP) threshold required to accrue a liability (Financial Accounting Standards Board Accounting Standards Codification® or FASB ASC 450).

In completing this part of the case, each team must decide whether to proceed with the power plant project given the environmental contingent liability and determine what the optimal mix of debt and equity financing should be assuming the project does move forward with that contingency. The instructor should encourage students to think about the decisions at hand from the perspective of the role they have been assigned. Students should also use the Excel spreadsheet to evaluate the impact of the contingent liability on the projected financials. It is the same spreadsheet used in the first part of the case, but with two additional boxes for the students to enter the amount of the contingent liability and the loss. Here, students need to draw upon what they previously learned in class regarding contingent liabilities. Under U.S. GAAP (FASB ASC 450), a liability should be accrued because the probability of occurrence is likely (i.e., greater than 70% chance). Given that all amounts in the range are equally likely, the student teams should accrue the lowest amount by inputting it into the spreadsheet. Under the International Financial Reporting Standards (IFRS), a liability should also be accrued because the probability is more likely than not (IFRS Foundation International Accounting Standard or IAS 37), which is interpreted in practice to be a greater than 50% chance. However, the amount accrued is instead the midpoint of the range. Once the students enter the accrual amount on the spreadsheet and select a debt/equity mix, they can analyze the impact on the financials and the ratios.

Intermediate Accounting II Case Part 2 Requirement 1 Suggested Solution
There is no single correct answer to this part of the case. Teams may take any number of positions, depending in part on the influence of each individual character in the role play exercise. Most teams will try to come up with some sort of compromise that mitigates the potential contingent liability and allows WOW to continue with the project. For example, they may want to explore the possibility of relocating the blue frog. However, some teams may decide to simply halt the project or proceed. It is a good idea to encourage the teams to consider alternatives and explore those alternatives in their narrative before settling in on a final answer.

Intermediate Accounting II Case Part 2 Requirements 2 and 3 Suggested Solution
Team answers to this part will vary. However, it is important to note that WOW's ownership interest will fall below 50% once the amount of equity issued to outside investors exceeds roughly $29,000,000. Also, the contingent liability has a large negative impact on the projected financial statements in the early years. In citing why they chose a specific debt and equity mix, teams should examine the key changes in the financial statements and the various ratios over time.

Intermediate Accounting II Case Part 3 Implementation Guidance
The third part of the case is also group work and can be completed within one 50 minute class period, but the instructor may wish to allow teams additional time to complete work outside of class. At the beginning of class, the instructor should allocate roughly 15-20 minutes to expand upon the discussion of the TBL and to introduce the students to metrics that measure a company's sustainability performance. As a part of this discussion, it may be helpful to provide students with examples of corporate sustainability reports and go over the metrics used by those companies (e.g., the Coca Cola Company 2017 Sustainability Report and the Starbuck's 2017 Global Social Impact Report). In the remaining class time, teams should identify at least one metric and one quantitative measure of the metric for each of the TBL items (i.e., planet, people, and profit) for the new hydro-electric company. The instructor should encourage students to be creative, but also have them focus on developing metrics that are both measurable and relevant to a hydro-electric company in Africa.

Intermediate Accounting II Case Part 3 Suggested Solution
There are many possible TBL metrics and quantitative measures of these metrics. Here are some examples. These examples are organized by the categories of the TBL (Planet, People, and Profit) with the quantitative measure of each metric stated in parenthesis following the metric's name. Planet: air emissions (total or absolute pounds or metric tons of CO_2, or SO_2 emissions as a percentage of Megawatt hours (MWh) generated), hazardous waste (pounds or tons of hazardous waste disposed of or tons of waste as a percentage of total revenue) and waste recycled (pounds or tons of waste generated and recycled, or tons of waste generated and recycled as a percentage of revenue). People: charitable contributions (value of charitable contributions as a percentage of revenue), community service (number or percentage of paid employee hours spent volunteering at company sponsored events for the local community and charitable organizations) and local job creation (number of local employees as a percentage of the total number of employees). Profit: number of customers (retail electric customer count at year-end or average number of customers), renewable energy revenue (average retail electric rate and/or total dollar amount and MWh of renewable energy sold) and reduced costs through hiring of local workers (dollar amount saved through use of local workers). Additional guidance and examples can be found from resources such as the Electric Power Research

Institute (EPRI, 2017, 2018), the SASB (2018a, 2018b), and the annual sustainability reports of various utility companies.

Intermediate Accounting II Case Part 4 Implementation Guidance
The fourth part of the case is an instructor led case debriefing as well as an introduction to the sustainability reporting standards and the various organizations that promulgate them. It does not require any deliverable from the students and the instructor can use their discretion to decide how much time to allocate to the discussion. The primary goal in this part of the case is to introduce students to the sustainability reporting standards and the various organizations that promulgate them. The instructor should discuss with students the SASB, the GRI, and the IIRC, as well as the Integrated Reporting (IR) Framework. As a part of this discussion, the instructor may find it helpful in class to visit each organization's website (SASB: https://www.sasb.org, GRI: https://www.globalreporting.org, and IIRC: http://integratedreporting.org). Parallels and differences between these organizations and their standards can be discussed and compared to the FASB, International Accounting Standards Board (IASB), U.S. GAAP and IFRS.

The instructor may also wish to point out the evolution of these standard setting bodies. Today, numerous stakeholders with interests in the economic, environmental, and social well-being of their communities engage in the development of laws, regulations, and policies regarding sustainability. Recovery efforts related to the Deepwater Horizon catastrophe in the Gulf of Mexico, for instance, encompassed the activities of governmental relief organizations, private environmental groups, nonprofit social service agencies, for-profit energy companies, and other entities (Kessler et al., 2017). All of these players also participated in government hearings after the disaster. Partly in response to such high-profile catastrophes, and partly in reaction to the increasing public consciousness of climate change, standard setting bodies have emerged to promulgate relevant accounting guidance. The GRI, based in Europe, defines metrics for approximately three dozen organizational functions. The SASB, based in the United States, develops measurements on an industry-by-industry basis (available on the SASB website). Meanwhile, the United Nations has defined numerous metrics for seventeen Strategic Development Goals that measure economic, environmental, and social progress from the community's point of view (UN, 2018). And the IIRC has developed their own framework (the IR Framework) that can serve as a model for organizing and analyzing all of these measurements (IIRC, 2018).

Auditing Case Implementation Guidance and Suggested Solutions

Auditing Case Implementation Guidance
This version of the case is intended for an undergraduate auditing course and requires students to work in randomly assigned teams of three to four students, Each team member is assigned a stakeholder role within the team. Similar to part two of the case version used in the second Intermediate Accounting course (see Part 2 Background above), student teams are tasked with developing sustainability metrics to measure WOW's sustainability performance. However, this version is set in an audit context where students must consider various sustainability standards when creating the metrics and then evaluate the implications of auditing those metrics. This case can be used concurrently with the Intermediate Accounting II course or independently of that course.

Students are introduced to the standards of the SASB, GRI, and the IIRC, as well as the IR framework to use as guidance in developing their metrics. Once students have developed the appropriate sustainability metrics using the relevant guidance, they are then asked to distinguish between the metrics that can be audited and the metrics that cannot be audited (but for which some other type of assurance may be provided). Next, teams are asked to identify specific audit procedures that they might use to audit the auditable sustainability metrics and to identify if there is some other type of assurance (attestation) service that can be provided for the non-auditable sustainability metrics. In this manner, the case can be used to provide students with an introduction to assurance services other than audits as well as the provision of assurance on non-financial information. This version of the case assignment complements the sustainability cases created by Bouten and Hoozée (2015) and Brown and Kohlbeck (2017) in that it asks students to develop sustainability metrics before considering whether these metrics can be audited and encourages students to also consider whether some other type of assurance service may be appropriate for such metrics. This case is designed to be completed in three 50 minute class periods with some work outside of class, however, it can be customized by individual instructors to best meet their course needs. The learning objectives of this case include:

1. Develop appropriate sustainability metrics using the relevant guidance.
2. Distinguish between those sustainability metrics that can be audited and those sustainability metrics that

cannot be audited.
3. Specify specific audit procedures that may be used to audit the sustainability metrics that can be audited.
4. Specify if another type of assurance (attestation) service can be provided for the sustainability metrics that cannot be audited.
5. Consider how the availability of sustainability metrics may impact risk assessment during the planning phase of an audit engagement or an attestation engagement.

This case can be used toward the end of the term and, as noted, in a first or second undergraduate auditing course to introduce students to types of assurance services other than audits along with providing assurance on non-financial information. Instructors can use this case to accompany the coverage of other assurance services (see, for example, Chapter 25 in Arens, Elder, Beasley and Hogan, 2017). One to two 50 minute class period(s) can be devoted to both an introduction to sustainability and team work on case requirements. Additional time may be given to each team to finish their responses to the case questions outside of class. A third 50 minute class period can then be used as an opportunity to debrief and discuss each team's responses to the case questions which are turned in before or at the beginning of the second class.

Before the beginning of the first class, instructors should take the time to randomly assign students to teams of three to four people. In teams of three, students should also be randomly assigned (in advance) to the following roles: (1) a representative of BC Capital, the private equity owner of WOW; (2) a senior partner of the BFAC that has been asked, but that has not yet accepted, an engagement to assess the situation on behalf of WOW; and (3) Okopipi, the Blue Frog. If class size requires a team of four members, a fourth role can be added for the WOW CEO.

After breaking students up into their teams, the instructor can spend about five to ten minutes introducing the topic of sustainability. One useful website is https://sustainabilityillustrated.com/en/. Specifically, the videos available at this website may be used to provide this introduction: https://sustainabilityillustrated.com/en/sustainability-videos/ (Magnin, undated). Alternatively, the instructor can choose to lecture on the topic for a short period of time. In addition, students may be provided with the link to access the Corporate Sustainability reports for Coca Cola (available at https://www.coca-colacompany.com/sustainability) or some other publicly traded companies. Next, students can be introduced to the standards of the SASB, GRI, IIRC and the IR framework. The instructor may find it helpful to visit each organization's website with students in class (https://www.sasb.org, https://www.globalreporting.org, and http://integratedreporting.org) before they begin working on developing the sustainability metrics. After becoming familiar with the standards, the students should be directed to begin working on the case requirements within their teams using the roles assigned to them. Additional time may be granted to students to complete the assignment outside of class as necessary. Once their responses have been turned in, a second class may then be used to debrief and discuss each team's responses to the case questions.

Although WOW is owned by a private equity company, a private equity company may itself be publicly or privately held. The case intentionally leaves the public or private nature of WOW ambiguous. The instructor may want to specify that WOW is owned by a publicly-held company because the current case requirements ask students to cite specific PCAOB standards. In that case, the instructor may want to provide The Blackstone Group as a real-world example of a publicly held private equity company. Alternatively, the instructor may specify that WOW is privately held so that students can use the American Institute of Certified Public Accountants (AICPA) standards. A third option is for the instructor to choose to leave the ambiguous nature of WOW as is, which is likely to prompt questions from students regarding whether WOW is a publicly-held client of BFAC or a privately-held client of BFAC. Note that if the third option is chosen, more time will likely be needed to complete the case requirements.

Auditing Case Requirements 1, 2 and 3 Suggested Solution

There are a number of sustainability metrics that students can pick. Students can use the publications of the EPRI (for example EPRI, 2017, 2018) and the standards promulgated by the SASB (for example SASB 2018a and SASB 2018b) as guides in choosing sustainability metrics. In general, one may argue that financial sustainability metrics can be audited while non-financial sustainability metrics are more suited to the provision of some other type of assurance (typically some type of attestation) service. However, depending upon the nature of the engagement agreed upon between WOW and BFAC, even the financial sustainability metrics may fall under the non-auditable category. For example, if WOW and BFAC enter into an Agreed-Upon Procedures Engagement (PCAOB AT 201 or AICPA AT-C sec. 215), then BFAC is not going to provide a higher level of assurance (i.e., an audit) for the financial sustainability metrics while providing a lower level of assurance for the non-financial sustainability

metrics. It is only going to provide the lower level of assurance for all of the sustainability metrics inspected. This lower (than an audit) level of assurance can be provided by one of the following type of attestation services (depending upon the nature of the agreement between WOW and BFAC and the publicly held or privately held status of WOW): Attest Engagement (PCAOB AT 101) or Examination Engagement (AICPA AT-C sec. 205, see also AT-C sec. 105) or Agreed-Upon Procedures Engagement (PCAOB AT 201 or AICPA AT-C sec. 215) or Compliance Attestation (PCAOB AT 601 or AICPA AT-C sec. 315) [the PCAOB adopted the old AICPA attestation standards including AT 101, AT 201 and AT 601) as its Interim Standards in 2003].

Here are some examples of sustainability metrics that students can pick. These examples are organized by the categories of the TBL (Planet, People, and Profit) with the answer to the question of whether each metric is auditable or not stated in parenthesis (yes or no) following the metric's name. Planet: air emissions (no) and hazardous waste (no). People: charitable contributions (yes) and community service (no). Profit: number of customers (no) and renewable energy revenue (yes). Assuming that the BFAC provides only one (lower) level of assurance for all of the sustainability metrics, one of the following types of attestation services may be provided: an Attest Engagement (PCAOB AT 101) or Examination Engagement (AICPA AT-C sec. 205) or Agreed-Upon Procedures Engagement (PCAOB AT 201, or AICPA AT-C sec. 215) or Compliance Attestation (PCAOB AT 601, or AICPA AT-C sec. 315). Note that even though charitable contributions (in the People category) and renewable energy revenue (in the Profit category) metrics may be auditable, the BFAC is only going to provide one (lower than an audit) level of assurance for all of the sustainability metrics that the BFAC has been hired to provide assurance upon.

As noted earlier, this case intentionally leaves the public or private nature of WOW ambiguous and instructors have the flexibility of choosing between three options: specifying that WOW is a public company (in which case the PCAOB standards are applicable), specifying that WOW is a private company (in which case the AICPA standard are applicable) or leaving the ambiguous nature of WOW as is (in which case, both the PCAOB and the AICPA standards are applicable). The PCAOB audit standards as well as attestation standards can be found on the PCAOB website. The AICPA audit standards as well as attestation standards can be found on the AICPA website.

Auditing Case Requirement 4 Suggested Solution
In general, consideration of sustainability metrics should impact BFAC's risk assessment during the planning phase of the audit (assuming WOW is already an audit client) or attestation engagement. Essentially, sustainability metrics add an additional dimension to the assessment of risks. Students may conclude that consideration of sustainability metrics increases their assessment of WOW's risks since this additional dimension reflects the impact of WOW's actions on additional stakeholders not considered explicitly by BFAC before. The additional issue of the "de facto bribes" (in the auditing case background provided to students) might also lead students to increase their assessment of WOW's risks.

Auditing Case Requirement 5 Suggested Solution
Student responses to this question may vary. Some students (teams) may conclude that they want to save the blue frog while others may conclude that they want construction to commence on the hydro-electric power generation plant.

EVIDENCE OF TEACHING EFFECTIVENESS

Intermediate Accounting II Case Evidence of Teaching Effectiveness

The case was administered in the last week of classes across two sections of the second intermediate financial accounting course that is part of a three-course sequence, with both sections taught by the same instructor. Students completed an online survey prior to beginning the case and another online survey after completing the case. In order to encourage student participation in the surveys, the value of the final exam was reduced, and students were given three points on their final grade if they completed the surveys. In compliance with Human Experimentation Committee/Institutional Review Board (HEC/IRB) requirements, students were also given the option to opt out of the surveys and maintain the same value on their final exam. Survey responses were received from all 46 students enrolled across both sections of the course for both the pre-case and post-case surveys. The first survey consisted of nine pre-case knowledge self-assessment questions. The second survey included the same nine knowledge self-assessment questions, seven post-case feedback rating questions, two open ended feedback questions, and some

demographic questions. Students responded to the nine pre- and post-case knowledge self-assessment questions and the seven post-case feedback questions using the following seven-point scale: 1 = Strongly Disagree, 2 = Moderately Disagree, 3 = Somewhat Disagree, 4 = Neutral, 5 = Somewhat Agree, 6= Moderately Agree, 7 = Strongly Agree.

The nine pre- and post-case questions used to assess the students' knowledge and learning are presented in Table 1. The Wilcoxon Signed Ranks test was used to compare the paired pre- and post-question responses because the data was not normally distributed. The first three questions about debt and equity related to material that was covered toward the end of the course and before the case was administered. There was an expectation that students would express at least some familiarity with the material before completing the case and a significantly stronger understanding of the material after completing the case. The results were consistent with our expectations. The pre-case median response was 5.0 and the post-case median response was 6.0 for all three questions. The difference between these responses was statistically significant ($p < 0.001$). Similar results were found for the next two general questions related to sustainability. Although sustainability had only previously been mentioned in brief comments during the course prior to the case administration, students may have been exposed to the topic in other courses taken at the university. Thus, it was not unexpected to see that they expressed some general knowledge of the subject before completing the case, with their comfort level increasing after completing the case. The last four questions examined specific sustainability topics students were less likely to be knowledgeable about prior to completion of the case. Consistent with our expectations, students expressed significant increases ($p <0.001$ for all four sets of questions) in their understanding of the material after completing the case. The pre-case median responses ranged from 3.0 to 4.0 across the four questions with the post-case median responses ranging from 6.0 to 7.0.

Table 1: Self-Assessment Results of Student Knowledge and Learning for the Intermediate Accounting II Course (n = 46)

Question	Pre-Case Median	Post-Case Median	Z-Statistic[a]	p-value[b]
I have a good understanding of the comparative advantages and disadvantages of debt versus equity financing.	5.00	6.00	-4.771	<.001
I have a good understanding of the impact of debt versus equity financing on the balance sheet, the income statement, and the statement of cash flows.	5.00	6.00	-3.953	<.001
I have a good understanding of how debt versus equity financing affects all the liquidity ratios, activity ratios, profitability ratios, and coverage ratios discussed in this course.	5.00	6.00	-4.190	<.001
I can identify the major standard setting bodies that define sustainability metrics.	5.00	6.00	-5.005	<.001
I have a good understanding of how sustainability factors impact the financial strength of an organization.	5.00	6.00	-4.743	<.001
I understand how to evaluate various sustainability metrics and select ones that apply to an organization.	4.00	6.00	-5.114	<.001
I understand how to integrate an analysis of sustainability metrics into a corporate financial analysis.	3.00	6.00	-4.798	<.001
I know how to access the Sustainability Accounting Standards Board (SASB) standards.	4.00	7.00	-5.033	<.001
I know how to access the International Integrated Reporting Council (IIRC) International Integrated Reporting Framework.	3.00	6.00	-5.148	<.001

[a]Wilcoxon Signed Ranks Test for non-normal distributions.
[b]Asymp. Sig. (2-tailed) based on negative ranks.

Auditing Case Evidence of Teaching Effectiveness

The case was administered in the last week of classes across two sections of the second undergraduate auditing course that is part of a two-course sequence, with both sections taught by the same instructor. Students completed an

online survey prior to beginning the case and another online survey after completing the case. In compliance with HEC/IRB requirements, students were also given the option to opt out of the surveys. Survey responses were received from all 51 students enrolled across both sections of the course for both the pre-case and post-case surveys. The first survey consisted of ten pre-case knowledge self-assessment questions. The second survey included the same ten knowledge self-assessment questions, seven post-case feedback rating questions, two open ended feedback questions, and some demographic questions. Students responded to the ten pre- and post-case knowledge self-assessment questions and the seven post-case feedback questions using the following seven-point scale: 1 = Strongly Disagree, 2 = Moderately Disagree, 3 = Somewhat Disagree, 4 = Neutral, 5 = Somewhat Agree, 6= Moderately Agree, 7 = Strongly Agree.

The ten pre-case and post-case questions used to assess the students' knowledge and learning are presented in Table 2. The Wilcoxon Signed Ranks test was used to compare the paired pre- and post-question responses because the data was not normally distributed. The first two questions were about accessing and applying the relevant PCAOB auditing standards. There was no significant difference between the median pre-case and post-case responses for these questions. However, this result was not surprising since these students were already familiar with accessing and applying the PCAOB auditing standards from earlier assignments in their first and second undergraduate auditing courses. The next two questions were about accessing and applying the relevant PCAOB attestation standards. The pre-case median response on each of these two questions was 5.0 and the post-case median response was 6.0. Consistent with our expectations, students reported significantly improving upon their ability to access ($p = 0.002$) and apply ($p = 0.065$) the relevant PCAOB attestation standards.

Questions 5 and 6 were about accessing and applying the relevant Sustainability Accounting Standards Board (SASB) standards. The pre-case median response on each of these two questions was 5.0 and the post-case median response was 6.0. Consistent with our expectations, students reported significantly improving upon their ability to access ($p < 0.001$) and apply ($p = 0.004$) the relevant SASB standards. Questions 7 and 8 were about accessing and applying the relevant elements of the IIRC's IR Framework. Consistent with our expectations, there was a significant difference in student responses. Specifically, the pre-case median response on each of these two questions was 5.0 and the post-case median response was 6.0. Thus, students reported significant improvement in their ability to access ($p < 0.001$) and apply ($p = 0.008$) the relevant elements of the IIRC's IR Framework. The last two questions were about identifying and assessing risks of material misstatement using, where relevant, the appropriate PCAOB standards. There was no significant difference between the median pre-case and post-case responses for these questions. Again, this result was not surprising since these students were already familiar with identifying and assessing risks of material misstatement using, where relevant, the appropriate PCAOB standards from earlier assignments in their first and second undergraduate auditing courses.

Table 2: Self-Assessment Results of Student Knowledge and Learning for the Auditing Course (n = 51)

Question	Pre-Case Median	Post-Case Median	Z-Statistic[a]	p-value[b]
I know how to access the Public Company Accounting Oversight Board (PCAOB) auditing standards.	6.00	6.00	-1.373	.170
I can apply the relevant PCAOB auditing standards to questions that arise from a specific set of circumstances.	5.00	6.00	-0.523	.601
I know how to access the Public Company Accounting Oversight Board (PCAOB) attestation standards.	5.00	6.00	-3.046	.002
I can apply the relevant PCAOB attestation standards to questions that arise from a specific set of circumstances.	5.00	6.00	-1.847	.065
I know how to access the Sustainability Accounting Standards Board (SASB) standards.	5.00	6.00	-4.112	<.001
I can apply the relevant SASB standards to questions that arise from a specific set of circumstances.	5.00	6.00	-2.914	.004
I know how to access the International Integrated Reporting Council (IIRC) International Integrated Reporting Framework.	5.00	6.00	-4.213	<.001
I can apply the IIRC International Integrated Reporting Framework to questions that arise from a specific set of circumstances.	5.00	6.00	-2.655	.008
I have a good understanding of identifying and assessing risks of material misstatement.	6.00	6.00	-1.157	.247
I can apply the PCAOB standards on identifying and assessing risks of material misstatement to questions that arise from a specific set of circumstances.	5.00	6.00	-1.425	.154

[a]Wilcoxon Signed Ranks Test for non-normal distributions.
[b]Asymp. Sig. (2-tailed) based on negative ranks.

Additional Feedback from Students Regarding their Learning Experience in the Two Courses

In addition to the self-assessment questions, in each of the two courses, we asked students to provide feedback on the value of the learning experience by providing ratings to some post-case feedback questions. Students responded to these post-case feedback questions using the same seven-point scale as the one used for the pre- and post-case knowledge self-assessment questions: 1 = Strongly Disagree, 2 = Moderately Disagree, 3 = Somewhat Disagree, 4 = Neutral, 5 = Somewhat Agree, 6= Moderately Agree, 7 = Strongly Agree. Results (untabulated) indicate that the median responses to those questions ranged from 5.0 to 7.0, indicating the students generally agreed with the statements such as "The case provided a tangible and valuable learning experience for me" and "Sustainability is an important issue that students should learn about and discuss in the classroom".

CONCLUSION

This paper describes a case that can be used in the Intermediate Accounting II course as well as the Auditing course in an undergraduate degree program in Accounting. The case provides instructors with an opportunity to incorporate principles of sustainability into each of these two courses. A comparison of pre-case and post-case median scores on survey questions that includes student self-assessments of their knowledge and learning indicates that student's knowledge increased regarding sustainability metrics and their use in accounting and attestation. Additional feedback from students indicated that they found the case to be valuable learning experience. As such, the case can be used to promote more engaging classroom activities that facilitate learning.

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Excel files for use with the case can be obtained by contacting the lead author.

Solution Scholars: An Interdisciplinary Student Consulting Model

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ABSTRACT

Solution Scholars is a collaborative program of a mid-sized, metropolitan, regional university and the local branch of the state's Small Business Development Center. The purpose of Solution Scholars is to provide student-delivered consulting services to inform its clients' strategic decision-making. The program utilizes both graduate and undergraduate students, with the graduate students serving as managers for the undergraduates. Solution Scholars recognizes the importance of an interdisciplinary approach to solving challenges new ventures and small businesses face, providing multiple pedagogical benefits for students, as well as help with strategic growth decisions for its clients. Significant opportunities exist to expand Solution Scholars to enhance the benefits of experiential learning, and to increase the scope and depth of client deliverables.

Keywords: student consulting, community-university partnerships, experiential learning, project-based learning, interdisciplinary learning

INTRODUCTION

The benefits of experiential learning (EL) to students through engagement in real-world activities are widely recognized, positioning it as a critical element in higher education pedagogy (Tavanti and Wilp, 2018; Kosnik, Tingle, and Blanton, 2013). There are numerous classifications of EL, such as active learning, problem-based learning, and project-based learning (Godfrey, 1999). One approach that can benefit multiple constituencies is student consulting, which is often categorized as project-based learning. As noted by Garrido-Lopez, Hillon, Cagle, and Wright (2018), the benefits to students from project-based learning are numerous, such as a deeper understanding of one's self and socio-cultural awareness (Marsick and O'Neil, 1999, Weinstein, 1997), and improved professional and interpersonal skills (Hillon, Cai-Hillon, and Brammer, 2012). Project-based learning also benefits employers as the skills students acquire through this pedagogical technique meet their needs as well. For example, critical skills for college graduates identified by employers include self-management, team working, customer awareness, problem solving, and communication (Hynes, Costin, and Birdthistle, 2011). These types of skills are not acquired through the linear process of learning that is the basis of traditional classroom techniques, but rather, result from the multiple processes engaged through social interaction with all parties involved in the learning situation (Easterby-Smith and Araujo, 1999).

Another potential benefit of project-based learning that is not as widely recognized or evaluated, is the information provided to the client or community partner who serves as the recipient of the students' project-based efforts (Garrido-Lopez et al., 2018, Wolf, 2010). Considering the increasing relevance of university-based community engagement (Driscoll, 2006), it is important to also consider the experience and benefits received by the project-based learning community partner. Effective and sustainable university/community partnerships are essential for successful project-based student learning experiences (Kenworthy-U'Ren (2008). Indeed, a successful student consulting learning experience requires the co-creation of value by all parties involved, including the client, the students, and the instructor (Garrido-Lopez et a., 2018, Cook & Belliveau, 2005).

This study addresses the needs of multiple constituents in project-based learning by providing an example of a successful student-delivered consulting service – Solution Scholars, the result of a collaborative partnership between a regional university and the local branch of the state's Small Business Development Center (SBDC). After reviewing the experiential learning literature, with an emphasis on student consulting, a full description of the Solution Scholars program is provided. The benefits to the students, local businesses and economy, the University, and the SBDC are discussed. In addition, the challenges and limitations the program still faces in meeting the needs of students and clients are deliberated, providing insight into the restrictions higher education academicians and administrators must face if significant advances in EL pedagogy are to be achieved.

LITERATURE REVIEW

The Association for Experiential Education (n.d.) describes EL as a philosophy involving educators' purposeful engagement with learners in direct experience and focused reflection (para. 4). Bevan and Kipka (2012, p. 193) emphasize EL's interdisciplinary nature, holistic focus, and process of action-reflection, even as they apply EL more specifically to management education in their definition as "an interdisciplinary approach based in management, education, and psychology, and implicating a holistic process of action-reflection based on experience-abstraction." As a theory of learning, the foundation for EL is the transformation of new experiences into active and tacit knowledge (Kayes, 2002, Nonaka, 1994). Numerous scholars in learning and personal development have embraced experience as a core foundation of education theory (see Kosnik et al., 2013, p. 615). One of the most prominent models of EL is Kolb's (1984) experiential learning theory (ELT). As presented by Kosnik et al. (2013), in his ELT model Kolb identifies two critical dimensions – concrete and abstract – in a four stage model of transformational learning. The students first engage in a concrete experience, then develop personal meaning from that experience through review and reflection. Active and tacit observations from the learning experience are then conceptualized into conclusions that are tested through additional experimentation. The experimentation results in a new cycle of learning (Sugarman, 1985); with each additional cycle, students' knowledge and performance increases through the experience.

Within management education, internships are regarded as the primary tool to help students link theory acquired in a traditional classroom with practical experience. While internships serve as an excellent means for professional development, they often lack the reflective observation and continuous cycle of learning through active experimentation defined in Kolb's ELT model (Kosnick et al., 2013). Project-based learning, an approach involving the development of students' project management, technology, research, and analytical skills has been identified as one of the most effective approaches for EL (Tavanti and Wilp, 2018; Wurdinger and Carlson, 2010). Kosnik et al. (2013, p. 617) describe an EL project as a team of students assigned to a client organization to "complete a specific task or consulting project as an integral part of a formal course." The connection of EL projects to course objectives and a course grade, as opposed to the pass/fail rating given with internships, as well as incorporation of reflection and conceptualization into course assignments are noted by Kosnik and colleagues as benefits of project-based learning. Additional benefits include the development of leadership, social, and team skills (Kosnik et al., 2013), in addition to creative problem-solving skills (Devasagayam, R., Johns-Masten, K., and McCollum, J. (2012).

Kosnick et al. (2013) describe a new paradigm of value creation in business education that broadens the traditional student-faculty focus to a wider scope of stakeholders that includes employers and society at large. Within this paradigm, they recommend a curriculum that delivers three distinct sources of educational value: 1) academic – core business theories, concepts, and analytical skills taught in the traditional academic setting, 2) professional – managerial skills and self-awareness that are critical for success in business and society, and 3) moral – indoctrinating students with an enhanced level of integrity, social responsibility, and ethical behavior. A strong core knowledge of business theory and a robust analytical skill set for problem solving provided through traditional pedagogical methods remain essential components of a strong business education. What is also now recognized as equally, if not more important, however, are the professional skills that heighten one's efficacy in advancing an organization's impact on markets and society. Kosnick et al. (2013, p. 615) identify these skills as "communication, time management, team work, information processing, coping with uncertainty and ambiguity, motivation, and leadership." Finally, the need for an advanced awareness of integrity, social responsibility, and citizenship as displayed through sound moral character and good judgment continues to increase in business and society at large.

Kosnik et al. (2013) present these three types of curricula as ways to incorporate the revised standards for accreditation by the Association to Advance Collegiate Schools of Business (AACSB). The importance of graduates with capabilities beyond traditional academic knowledge is widely recognized across all disciplines, however. For example, Tavanti and Wilp (2018) discuss how values historically emphasized in nonprofit education – increased social responsibility, with shared benefits by multiple stakeholders – are now critical for leaders who are trained through management education. They emphasize the focal position of experiential education in meeting these new demands, stressing values such as community development, diversity inclusion, and empathic communication in management. Hynes et al. (2011) summarize two studies assessing the needs of employers in Ireland identified in major groups as: innovation and creativity; problem-solving, critical thinking, communication, and team work; information communication technology; and resourcefulness, dealing with uncertainty, and customer and external relationship management (EGFSN, 2007; Forfas, 2009).

A key aspect of project-based learning is the co-creation of value by the multiple constituents involved in the process – students, instructor, and client (Cook and Belliveau, 2005). This co-creation of value is dependent on an effective and sustainable community/university partnership. (Garrido-Lopez et al., 2018; Kenworthy-U'Ren, 2008). EL as a partnership model is presented by Tavanti and Wilp (2018). In this model, learning is advanced through three levels of pedagogy. The initial phase involves teacher-centered methods, which include more traditional experiential teaching activities, such as classroom speakers and case studies. The second level is focused on student-centered methods, which incorporate EL activities, such as project-based learning but include only students in the projects. The third level includes community-centered methods, which incorporate community partners in projects that achieve benefits for an organization outside the university. The authors discuss how the model displays an evolution in EL from teacher-centered to student-centered and finally, community-centered instruction. The third level – community-centered – is considered to be the benchmark for transformational experiential education.

PROGRAM DESCRIPTION

Solution Scholars is a collaborative program of a mid-sized, metropolitan, regional university and the local branch of the state's Small Business Development Center (SBDC). The purpose of Solution Scholars is to provide student-delivered consulting services to inform its clients' strategic decision-making. The program was developed in response to:

- A noted deficit of affordable and substantive support to help the area's established and emerging businesses pursue growth and in turn generate positive economic outcomes.
- An ongoing need for students to learn through skill application and to gain meaningful professional experience prior to their graduation.

Each year the University's College of Business, like other schools and disciplines across the University, fields numerous external requests for support with business or organizational issues. While the College of Business has a robust program for identifying student interns and promoting employment opportunities, it lacks a portal for receiving and responding to targeted project-based requests, and for consistently providing assistance with these requests. Solutions Scholars seeks to answer this community need, and provide students with meaningful experiential education opportunities, by providing student-delivered consulting services. The program provides an example of an effective university/community partnership, as well as the co-creation of value by multiple constituents involved in the EL project.

Solution Scholars began as a pilot in September 2015, and is in its fourth year of operation. Student consultants currently earn academic credit for one course – titled 'Opportunity Assessment' – with the potential to continue working an additional semester for internship credit. A few students continue on after their internship through consulting work opportunities at Solution Scholars. The students provide research and analytical services with a focus on market segmentation, competitor analysis, macro-environmental scanning, policy analysis, and industry trend identification. The class incorporates a reflective component after the completion of each project. In addition, the soft skills and professional skills required for effective consulting are reviewed through required readings and implemented through experimentation in client meetings and presentations.

The program utilizes both graduate and undergraduate students, with the graduate students serving as project managers. The students represent an interdisciplinary mix. Up to this point the graduate combination has primarily consisted of MBA students coming from a variety of undergraduate and work backgrounds – e.g. engineering, health care, and human resources. The undergraduate students have come from computer science, women's studies, and business thus far. To date, the program has served the small business clients of the local SBDC, which includes both small, local enterprises and innovation-driven startups at all stages of the business life cycle. In addition to work with small business clients, each semester, the Opportunity Assessment class completes one community project. Examples of these projects include a study for the Mayor's Council for Women on alternatives to payday lending and the need assessment for and educational modules to teach the basics of business planning and growth to small business owners.

The Solution Scholars' operation model includes a part-time program manager overseeing all student work and client relationships. The small business clients are vetted through the SBDC, working in conjunction with the program manager. The program manager is also the instructor for the initial class, titled Opportunity Assessment,

and coordinator for the student interns and consultants. Currently the University pays for the program manager to teach the Opportunity Assessment class and for the student internships. The class and internships do not provide all the consulting hours required by the client projects, however. Additional hours to support the program's management and student consulting are paid through a grant from the University provided to the local SBDC.

PROGRAM BENEFITS AND OUTCOMES

The Solution Scholars program recognizes the importance of an interdisciplinary approach to solving challenges new ventures and small businesses face. The collisions among various disciplines – engineering, business, and art, for example – often provide the impetus needed for the most creative and resourceful solutions. The broad backgrounds of the students involved in the program thus far have been extremely beneficial in the students' understanding of the various industries and technologies the clients represent. In addition, the students are interacting with ventures at various stages of development, with a wide range of business models. This helps their understanding of a venture's lifecycle and the differences in opportunities that emerge through strategic choices. Finally, the students gain a vital understanding of the importance of both hard skills – data collection and analysis – as well as soft skills – listening and sharing information with clients and teammates. The result of these benefits has been increased employment opportunities for graduates as employers recognize the importance of research, team management, and interpersonal skills.

The small business clients benefit from a deeper understanding of the trends and issues they are facing, and thus are able to make better informed strategic decisions. The University benefits through pedagogical advancements and effective community engagement. The SBDC has enriched its services and advisement through more focused attention on Solution Scholars clients. Table 1 delineates key benefits to Solution Scholars' key stakeholders.

Student evaluations for the Opportunity Assessment class have been very strong. Examples of some of the student comments include:

"The experiential learning component of this course is unparalleled. There's nothing else within the business school like it. I think it's a great opportunity to grow professionally and provide value for the business community."

"I have never done business research on this level. I know that I will use the skills I learned in this class for the rest of my career life."

The clients have also been very pleased with the program. Examples of client comments include:

"Solution Scholars helped do a lot of the initial market research for my startup that laid the ground work for our business model and pricing structure. It was incredibly helpful."

"The Solution Scholars team assigned to our business was extremely professional and knowledgeable. The amount of qualified data and research they provided made the next steps to grow our business not only clearer but possible."

Solution Scholars provides an excellent example of an effective university/community partnership. The program would not be possible without the programmatic support of the SBDC through the recruitment and vetting of program clients, and its ongoing support for the University. The program manager has also been a highly critical component of the program's success. Until recently, the program manager was housed in the county's business incubator, which is located within the SBDC building, through her venture as an independent business consultant. She still works closely with the SBDC. This connection provides essential coordination that is needed for an effective Solution Scholars program. Finally, the University administrators – business college department head and dean – have approached the program with an open mind and a willingness to find unique solutions to roadblocks.

The strong university/community partnership has led to the co-creation of value within the individual projects, resulting from effective vetting, client relationship management, oversight of the student consultants' work, and effective presentation of research results. Multiple constituents are included in each individual project, as well as in the ongoing management of Solution Scholars. Considering Tavanti and Wilp's (2018) partnership model of

experiential learning, the Solution Scholars program provides a means of reaching community-centered instruction, the third and final stage of EL in achieving transformational learning.

Table 1: Solution Scholars' Key Benefits

<table>
<tr><th>Students</th><th>Local Businesses</th><th>University</th><th>SBDC</th></tr>
<tr><td>Enhance critical (analytical and contextual) thinking skills</td><td>Inform business planning and strategic decision-making</td><td>Contribute to University's goal of transforming student lives through meaningful learning experiences</td><td rowspan="6">Enrich technical services and advisement provided to small business clients to realize positive economic outcomes</td></tr>
<tr><td>Gain marketable professional (research, communication, and consulting) skills and experience</td><td>Deepen business owners' understanding of critical issues and widen perspective through student input</td><td>Support University's commitment to community engagement</td></tr>
<tr><td>Improve ability to work effectively within an interdisciplinary team</td><td>Inform decisions that lead to increased number of jobs created or retained by the business</td><td rowspan="3">Allow for pedagogical research on experiential education approaches and outcomes</td></tr>
<tr><td>Graduate students gain managerial experience with undergraduates who represent an interdisciplinary background</td><td rowspan="2">Inform decision that increase capital investment into the local economy</td></tr>
<tr><td>Enhanced job opportunities due to research and consulting experience</td></tr>
</table>

A summary of the program outputs and outcomes as of December 2018 is provided in Table 2.

Table 2: Solutions Scholars Outputs & Outcomes as of December 2018

35 Student Consultants	2500+ Student Consulting Hours Provided	54 Small Business Clients 22 Women-owned 12 Minority-owned	121 Jobs Created or Retained by Clients	$22 Million in Small Business Client Capital Infusion

PROGRAM CHALLENGES AND LIMITATIONS

Despite the strong benefits of the Solutions Scholars program, challenges remain as a result of limitations on interdisciplinary curricula and expansion restrictions due to the University's organizational structure. These are limitations that are common in higher education. Regarding curricula, the current arrangement of a traditional for-credit class, housed in one department, results in several challenges for both students and clients. First, the single semester schedule limits time and depth for student consultants to dedicate to projects as client needs do not typically fit into one semester. Trying to extend projects can cause a lack of continuity as new students then rotate in and out of a project over the course of multiple semesters. Thus, co-creation of value by multiple constituents is more challenging. A second limitation of the single semester system is the inability for students to gain an ongoing experimentation cycle of learning, as recognized as critical for the active and tacit observations needed for a transformative learning experience (Kolb 1984). Third, and finally, the for-credit class structure limits the ability to expand Solution Scholars to reach a wide interdisciplinary range of students. The Opportunity Assessment course is offered as an elective within the Marketing & Entrepreneurship Department of the University's College of Business. Receiving credit within other departments within the Business College and departments in other colleges is difficult

due to varying opinions about the relevance of business consulting to a specific discipline. Course credit for a major is determined at the department level. There are also challenges due to the course requirements from the various accrediting bodies across disciplines. Some majors entail such a high number of required courses that it is very difficult for students to fit in an elective, especially one that does not count for any major requirements.

Additional limitations exist in regard to expanding the Solution Scholars program due to the University's existing organizational structure. Currently, a small grant from the University to the SBDC provides pay for the time spent by the SBDC employees, the program manager, and the student consultants. The services are offered free to the SBDC clients. In order to expand the program to provide services to other deserving ventures in need of research consulting assistance, Solution Scholars needs to find other means of support. Offering fee-for-service consulting to corporations and large non-profit entities who have the ability to pay is one method. Pursuing grants to provide services to deserving clients that meet a specific criteria set is another revenue option. Fees that are not used to pay for the work conducted by student consultants and the program manager can be utilized to provide pro bono assistance for clients coming from disadvantaged areas, and for student ventures. Under the current structure, however, payment for consulting services cannot be accepted by the University. It is also difficult for the University to pay students for their work. Although they can be entered into the University system as student workers, this method is awkward for students that may be working varying hours with consulting projects.

PROGRAM OPPORTUNITIES

Solution Scholars has the potential to expand into a self-sustaining, interdisciplinary student consulting model that can provide business and research-focused consulting services to organizations within the private, public, and non-profit sectors. To achieve this vision, the program must invest in increased expert oversight and student capacity, program infrastructure, and marketing. A first step may be the establishment of Solution Scholars as an independent, non-profit entity that is not legally connected with the University. This will allow the pursuit of revenue generating consulting opportunities, the receipt of financial support from partner organizations, and the ability to easily pay student consultants.

Another significant change may be to remove Solutions Scholars as a for-credit class, and rather offer it as a work opportunity for students that requires significant vetting and interviewing via an application process. Changing to a co-curricular program would assist in recruiting a wider range of interdisciplinary students, increase depth and continuity in projects since the students will not be limited by a semester schedule, and increase benefits of experiential learning as the students have the opportunity to engage in ongoing experimentation over multiple semesters. In addition, opportunity exists for expanded co-creation of value from the multiple constituents involved – students, clients, program manager, SBDC and other agencies/companies utilizing the service. Ultimately, this should increase the level of community-centered learning that is achieved.

The challenges with moving toward a co-curricular model include the possible omission of the reflective component needed for a continuous cycle of learning, and a loss of student motivation due to the absence of a course grade. Both of these challenges can be overcome. Reflection at various points in engaging with the client and delivering consulting services can become part of the routine oversight expected from the graduate-level managers. The program manager can coordinate a higher level of reflection requirements as well. To encourage motivation, students should be required to engage in an ongoing evaluation process in order to get feedback on their work. As the Solution Scholars program provides significant opportunities for employment, student consultants can be expected to be highly motivated to receive strong evaluations and references for area employers. The three-source paradigm of value creation in education presented by Kosnick et al. (2013) could also be incorporated into this program, with ongoing training in research/analytical skills, professional development skills, and social responsibility and ethics training.

Finally, there is opportunity to engage faculty and consultant expertise. University faculty members and seasoned consultants in the community possess deep expertise that is sought by external organizations. Solution Scholars can enrich its consulting services and client deliverables by providing paid opportunities for external consultants to contribute to project team oversight. After strengthening the oversight function and adding student capacity, the program would be poised to take on a larger portfolio of consulting projects across sectors.

CONCLUSION

While the Solution Scholars program has provided an excellent EL experience for the students and community clients who participated, the program has been operating on a small scale. At this point, only a small number of students and clients have benefitted. The opportunity exists to expand Solution Scholars so that many more students and community clients can join, but this growth is limited by curricula requirements and organizational structure elements that are very common in higher education. The current for-credit, curricular model limits the EL outcomes and client deliverables due to limited interdisciplinary capabilities and limited student and project continuity.

Co-curricular programming offers a method of dealing with some of these limitations but challenges exist with this approach as well. Many students are motivated by opportunities to gain skills important for employment in the future, and many of these skills are provided through the EL experience of Solution Scholars. For a significant number of students, however, the need to earn revenue to pay for school and living expenses is critical. Work outside of class significantly reduces a student's capacity to participate in co-curricular programming. Providing paid consulting positions provides a means to help students earn wages, help the community with needed research services, and provide students with the skills needed by employers today and in the future. These skills that can only be acquired through active engagement and reflection outside a traditional classroom.

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Instructor Academic Factors and Their Influence on Instructor Perspectives of Online versus Face-to-Face Education at a Jesuit Institution

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ABSTRACT

In spite of the fact that instructors are a critical input into the education paradigm, research on instructor perspectives on online education are sparse. As part of a large study, the intention of this paper is to explore how demographic factors, specifically instructor academic factors, affect instructor perceptions at a Jesuit, Catholic private University in the northeast. Analysis of the differences between online and face-to-face perspectives on many individual and program factors demonstrated significant differences. The intention here is to continue this discussion through evaluating the specific academic factors of the instructor - the school the instructor is teaching in, instructor rank and the highest degree the instructor has completed

Keywords: instructor perceptions, online education, academic factors

LITERATURE REVIEW

Previously published research from this study demonstrates that instructor's perceptions between online and face-to-face (FTF) instruction significantly differ on all individual and program factors (Fish & Snodgrass, 2018). The individual factors studied, which included motivation, difficulty, discipline, self-directed learning, independence, time and cost investment, preference, happiness, appropriateness of online and online development programs for online education, address individual instructor perceptual factors which relate to the instructor his or herself. Correspondingly, program factors relate to the design of the courses and the activities included in the program design, and include academic integrity, academic program rigor, academic program quality, communication mechanisms and course activities, course organization, interaction with other instructors, student-to-instructor interaction, student-to-student interaction, and technical program activities. Prior research noted significant differences on instructors' perceptions on the individual factors of motivation, self-directed, time and cost investment, but not on discipline, independence or schedule flexibility (Fish & Snodgrass, 2018a). Similarly, prior research noted significant differences on instructors' perceptions on the program factors with respect to student-to-student interaction, instructor-to-student interaction, and cheating but not on difficulty (Fish & Snodgrass, 2018b). The online and FTF groups also differed on their perceptions of teaching environment preference, happiness and appropriateness.

While online education continues to grow in higher education (Allen & Seamen, 2013) and researchers citing the need to assess both the student and instructor's perspectives with respect to online education (Shieh, Gummer & Nies, 2008), literature on the instructor perceptions of online versus FTF is sparse. Additionally, online education issues are changing. Recently, a study on instructor online presence noted that as technology evolves, instructor and student perceptions is evolving as well (Richardson et al., 2016). Research on student perceptions of online and FTF education also note different results over time (Billings, Skiba & Connors, 2005; Dobbs et al. 2009; Tanner et al., 2004a, 2004b; Fish & Snodgrass, 2014). In order to improve instructional effectiveness, information and knowledge regarding instructor beliefs is an important factor to improving instructional effectiveness (Farrell & Kun, 2009). The larger study explores the question of '*How do instructors – those that have taught and those that have not taught online - perceive online education compared to face-to-face (FTF) education today?'* This paper specifically addresses this question relative to demographic factors related to instructor academic factors, that is, what the instructor brings to the conversation by virtue of professional academic rank, highest degree completed and the school he or she participates in.

Almost fifteen years ago, a survey of public and nonprofit private faculty on their perception of the effectiveness of online instruction in terms of seven principles of effective undergraduate education revealed that faculty rated online education more effective than FTF for promoting prompt feedback, time on task, respect for diverse learning styles and communicating high expectations than FTF (Guidera, 2004). However, instructors rated FTF more effective than online in promoting student-to-instructor contact and cooperation among students (Guidera, 2004). A few years

later, using the Delphi method, thirty-six business instructors who taught online from AACSB-accredited universities responded to online education best practices (Gallegos Butters, 2007). The study highlighted the need for professors to learn pedagogy respective to the online environment and for incentives to encourage professors to teach online (Gallegos Butters, 2007). A survey conducted almost decade ago of ten-thousand faculty members from close to 70 universities and colleges revealed that most faculty felt that their institutions did not provide online support and incentives to teach online (Seamen, 2009). Another survey of instructor perceptions of teaching and learning outcomes demonstrated that instructor positive experiences in teaching online corresponded to a perception that online and FTF are equivalent (Fish & Gill, 2009). Correspondingly, an instructor who never taught online or had negative online experiences, felt FTF and online outcomes are not the same (Fish & Gill, 2009). These studies were conducted over a decade ago prior to the educational explosion in online education and MOOCs. In 2013, roughly 5 years later, a significant increase in online education in higher education was noted (Allen & Seamen, 2013).

Instructor's perceptions of online versus FTF education may be impacted upon by demographic factors, such as age, gender, major or discipline, level taught, faculty rank, highest instructor educational level achieved, teaching experience, and technological skill level. As noted above, the focus of this paper is on the demographic factors associated with the 'academic factors' of the instructor - specifically what the instructor brings to the discussion by virtue of his or her academic rank, highest degree completed and school he or she participates in. A literature search on instructor's perspective on online education and various demographic factors revealed few studies on this topic. Specific to the demographic factors studied in this paper – rank, highest degree and school associated with, a literature search revealed only a single research article that explored a factor. Specifically, with respect to faculty rank, instructors with different ranks share the same perceptions and practices towards online instructor roles and practices (Chang et al., 2014). Obviously, research into instructor perceptions and these demographic factors is lacking. Additionally, much of the available research on instructor perceptions is over a decade old, when technology and online education capabilities were very different. For the research performed, samples differ in size (small, medium, large universities), audience (e.g. scientific versus social sciences, business versus non-business, graduate versus undergraduate), and research method (e.g. interview, survey). The study context may be an important factor to consider in interpreting the results. As noted in a similar study of student perceptions (Fish & Snodgrass, 2016a, 2016b), as technology changes, online education changes and perceptions may change as well.

We conducted our study at a mid-sized, Jesuit, Catholic, private school with a focus on teaching. The university includes three schools of academic study: traditional arts and sciences, education and human services, and business. The university prides itself on the small class size that averages 17 students in an FTF classroom. Full-time tenured instructors teach the majority of classes. While online education is growing as an educational method (Allen & Seamen, 2013), faculty at the university are not required to teach online and not all faculty have been trained in online course education. Prior research demonstrated that online and FTF instructors significantly differed on the individual instructor preference for motivation, self-directed, time investment, cost investment, preference, and happiness, and on the program factors of student-to-student interaction, student-to-instructor interaction, and cheating (Fish & Snodgrass, 2018a,2018b). The results showed that the instructors were indifferent on the individual program factors of discipline, independence and schedule flexibility (Fish & Snodgrass, 2018a) and program factor of difficulty (Fish & Snodgrass, 2018b). Generally, the results demonstrated a preference for the FTF environment at this institution (Fish & Snodgrass, 2018a, 2018b). The focus of this research is to explore instructors' perceptions of the online experience for those who have taught in and those who have never taught in the online environment with a specific focus on the differences in instructor perceptions by professional rank, highest degree completed and school participating in. Specifically, this research seeks to explore: *Are there differences in perspectives based upon instructor rank at the University (Professor, Associate Professor, Assistant Professor or Instructor)? Do instructor's perceptions for those who teach education courses differ from those who teach business courses or arts and science courses? Do instructor's perceptions differ based upon the highest degree that he or she completed?* Specific individual perceptions analyzed include motivation, discipline, self-directed learning and independence, time and cost investment, preference, happiness and appropriateness for learning environment, online orientation, cultural differences, course organization, academic rigor, program quality, and academic integrity. Specific program factors studied include difficulty, student-to-student interaction, student-to-instructor interaction, communication mechanisms, and program technologies. Theoretically, given the demographic factors of rank, highest degree completed and school associated with, instructors should perceive the environments equally and not favour either traditional or online education. This leads to the following hypotheses:

School Associated With.

Ho1: Arts & sciences, education & human services, and business instructors who have taught online do not differ in their perceptions of online education.

H11: Arts & sciences, education & human services, and business instructors who have taught online differ in their perceptions of online education.

Ho2: Arts & sciences, education & human services, and business instructors who have never taught online do not differ in their perceptions of online education.

H12: Arts & sciences, education & human services, and business instructors who have never taught online differ in their perceptions of online education.

Rank.

Ho3: Lecturers, Assistant Professors, Associate Professors, Professors and Other Instructors who have taught online do not differ in their perceptions of online education.

H13: Lecturers, Assistant Professors, Associate Professors, Professors and Other Instructors who have taught online differ in their perceptions of online education.

Ho4: Lecturers, Assistant Professors, Associate Professors, Professors and Other Instructors who have never taught online do not differ in their perceptions of online education.

H14: Lecturers, Assistant Professors, Associate Professors, Professors and Other Instructors who have never taught online differ in their perceptions of online education.

Highest Degree Completed.

Ho5: Associates, Bachelors, Masters, Doctorate, and Post-Doctorates who have taught online do not differ in their perceptions of online education.

H15: Associates, Bachelors, Masters, Doctorate, and Post-Doctorates who have taught online do not differ in their perceptions of online education.

Ho6: Associates, Bachelors, Masters, Doctorate, and Post-Doctorates who have never taught online do not differ in their perceptions of online education.

H16: Associates, Bachelors, Masters, Doctorate, and Post-Doctorates who have never taught online differ in their perceptions of online education.

METHOD

Participants for the study are instructors at an AACSB-accredited, Jesuit, Catholic, private, university in the northeast. Prior to distribution, the Academic Vice President and University Internal Review Board granted approval for distribution. As a matter of context, instructors at the university do not use online course designers, are responsible for 100% delivery of online content, and are encouraged to use the university's platform (Desire2Learn) as well as other programs and software (e.g., Youtube, dropbox, Zoom, Jing, etc.) in online and FTF course delivery. A link to a similar survey instrument for students perceptions of online versus FTF learning environments (See Student Survey at: http://www.cambriainstitute.com/journals/j.brcacadjb.2015.04.01.wa04.pdf) was distributed online three times over the month. The survey began with an initial set of demographic questions regarding age, gender, respective school the instructor associates with, teaching level (undergraduate, graduate or both), level taught, highest education level completed, number of years teaching at the school and in total, faculty rank, self-reported technological skill level, online course experience, and online teaching experience. The survey then divided the respondents into two based upon whether or not the instructor taught at least one online course. Instructors who taught at least one online course completed Section A questions, while instructors who have never taught in the online environment complete Section B questions. Questions in Sections A and B had corresponding questions on the individual and program perceptions noted; however, Section A statements are specific to "*I found*" versus Section B statements are "*I perceive*". Individual instructor perceptions questions included questions on motivation, discipline, self-directed learning, independence, schedule flexibility, time and cost investment, while program perception questions included questions on difficulty, cheating, student-to-student interaction, and student-to-instructor interaction. The survey used a five-point Likert scale for each of the factors: significantly dislike, dislike, okay, like, significantly like. The last questions in each section asked the instructor whether the instructor felt that online courses were appropriate for the institution, if the instructor would prefer the opposite environment, and the instructor's emotional happiness with the learning environment. For instructors with online experience, the last open-ended question inquired as to why they chose to offer an online course. For instructors without online experience, the survey included an open-ended question inquiring 'why not'.

ANALYSIS

Ninety-six faculty members completed the survey (with a response rate of 42.67%). Unfortunately, all of the instructors did not complete the entire survey, and only 82 surveys were useable (36.4% response rate). Participants were not required to answer every question. Forty-one instructors completed part A (online perception) and 41 instructors completed part B (FTF perception). Given the survey setup, responses positively viewed the environment that an instructor was part of. For example, if an online instructor felt that online was more difficult than FTF, he or she would indicate a significant 'positive' for the online environment. The scale for the FTF instructors was similar for their environment. Therefore, if the two groups perceive the teaching environment different than their own environment, a significant difference between the two groups would be detected. Since prior analysis demonstrated that the two groups – online and FTF, perceived motivation, self-directed, time and cost investment, student-to-student interaction, student-to-instructor interaction, cheating, preferred environment, happiness and appropriateness to favor the FTF environment, the two groups were analyzed separately to denote any significant differences within the group. Analysis was performed using the statistical package SPSS.

As shown in Table 1, there was little correlation between most demographic factors studied here. The strongest relationship exists for the instructors completing the FTF survey, where rank and school are positively correlated (.2065), which is a weak relationship. There is a negative relationship for both the FTF and online instructors for rank and highest education level (FTF instructors = -.11, online instructors =-.24, and overall -.16).

Table 1: Correlation Factors

OL Instru**ctors**	School	Rank	Highest Education Level
School	1		
Rank	0.0728	1	
Highest Education Level	0.0288	-0.2446	1
FTF Instructors	School	Rank	Highest Education Level
School	1.0000		
Rank	0.2065	1	
Highest Education Level	-0.0193	-0.10961	1
Overall	School	Rank	Highest Education Level
School	1.0000		
Rank	0.1635	1	
Highest Education Level	0.0365	-0.1600	1

School Associated With.

Forty-four (44) respondents were from the Arts & Sciences School, 27 were from the School of Education & Human Services, and 11 were from the School of Business. From the Arts & Sciences School, 13 respondents taught online while 31 taught FTF. For the School of Education and Human Services, 22 taught online while 5 taught FTF. For the School of Business, 6 taught online while 5 taught FTF.

As shown in Table 2, in support of hypothesis H01, online instructors within the three schools at the University did not significantly differ on their perceptions except for on the interaction between students (χ= 19.608, df =8, p = .012) and preference to teach in the opposite environment (χ=.9.733, df=4, p = .045). With respect to student interaction, the Education & Health Sciences instructors preferred the online experience over the FTF environment. In comparison to the other two schools, the Education & Health Sciences school were indifferent to teaching online versus FTF (2.09), while the other two schools would prefer to teach FTF (Arts & Sciences =1.77, School of Business=1.17).

Similarly, as shown in Table 3, FTF instructors across all three schools were very similar in their perceptions and results supported hypothesis Ho2 except for motivation (χ=.24.420, df=6, p = .037) and preference (χ=10.593, df=4, p=.032) with a slight significant difference on schedule flexibility (χ=14.380, df=8, p=.072). With respect to motivation, Arts& Sciences and School of Business FTF were strongly motivated to teach FTF, while the Education

& Health Sciences instructors were more indifferent to motivational aspects of the two environments. As for teaching preference, FTF instructors in the Arts& Sciences and School of Business did not wish to teach online, while the instructors in the education school were more amenable to the idea of teaching online.

Table 2: Online Instructors by School

Metric	Average Response							
	Arts & Science	Education & Human Services	School of Business	Pearson Chi-Square Value	Df	Asymptotic Significance (2-sided)	Pear-son's R	Spear-man Corre-lation
Difficulty	3.15	3.59	3.5	7.445	8	.489	.341	.372
Motivation	2.62	3.18	2.33	7.955	8	.438	.973	.899
Interact between students	2.17	3.14	2.20	19.608	8	.012 *	.279	.191
Interact instructor-student	2.54	3.27	2.00	12.141	8	.145	.833	.913
Discipline	3.46	3.95	3.67	5.641	8	.687	.451	.608
Cheat	2.31	2.64	1.83	5.347	6	.500	.559	.559
Self-directed	2.54	3.05	2.67	11.00	8	.202	.580	.535
Independence	3.15	3.41	3.17	3.148	8	.925	.813	.814
Schedule flexibility	3.62	3.77	3.83	3.212	8	.920	.638	.630
Time investment	3.38	4.05	3.83	5.823	8	.667	.229	.258
Cost investment	3.17	2.95	3.17	6.918	6	.329	.815	.897
Preference opposite?	1.77	2.09	1.17	9.733	4	.045 *	.408	.455
Happiness with environment	3.08	3.82	2.83	10.579	8	.227	.839	.729
Appropriateness	1.54	1.14	1.67	5.748	4	.219	.8188	.768

(* p < .05 ** p<<.10)

Rank at University.

One lecturer, 4 Assistant Professors, 22 Associate Professors, 11 full Professors and 2 'other' instructors completed the online survey. One lecturer, ten Assistant Professors, 14 Associate Professors, and 15 full Professors completed the FTF section of the survey.

Online instructors did not significantly differ by rank and results support hypothesis H03 except for significance on appropriateness (χ=16.946, df=8, p=.031) and a slight significance for self-directed (χ =25.217, df=16, p=.066) as shown in Table 4. The majority of Associate Professors preferred to be in an FTF environment, while the other ranks were more indifferent to the teaching environment. In keeping with this, online Associate Professors preferred the self-directed nature of the FTF environment more than the online one, while other ranks were more amenable to online. As shown in Table 5, the results for the FTF instructors was similar and support hypothesis H04 as there was only a slight significance for self-directed (χ = 13.442, df=8, p=.098) and independence (χ = 11.110, df=6, p=.085). However, FTF instructors significantly differed in their perspective on teaching environment preference (χ = 18.044, df=6, p=.006). The majority of full FTF Professors did not wish to teach online, while the Associate Professors were indifferent and the lecturer wanted to teach online. Average responses for OL and FTF instructors for the significant factors are shown in Table 6.

Table 3: FTF Instructors by School

Metric	Average Response							
	Arts & Science	Education & Human Services	School of Business	Pearson Chi-Square Value	Df	Asymptotic Significance (2-sided)	Pearson's R	Spearman Correlation
Difficulty	2.87	3.40	3.40	5.570	8	.695	.199	.144
Motivation	4.27	3.80	4.20	13.410	6	.037 *	.613	.713
Interact between students	4.13	4.75	4.00	3.413	6	.756	.915	.736
Interact instructor-student	4.23	4.75	4.60	3.976	6	.680	.240	.146
Discipline	3.27	3.40	3.40	6.114	6	.410	.705	.512
Cheat	3.90	3.80	3.60	5.033	6	.540	.443	.556
Self-directed	4.13	4.20	4.60	2.014	8	.981	.354	.539
Independence	3.86	3.20	3.60	4.417	6	.620	.319	.209
Schedule flexibility	3.34	2.75	2.60	14.380	8	.072 **	.117	.144
Time investment	3.13	2.80	2.80	1.638	6	.950	.318	.309
Cost investment	3.28	2.80	3.80	8.953	6	.176	.498	.852
Preference opposite?	2.74	2.00	3.00	10.593	4	.032 *	.929	.728
Happiness with environment	4.48	4.60	4.80	4.563	4	.335	.300	.226
Appropriateness	1.74	1.40	1.80	6.877	4	.143	.763	.505

(* p < .05 ** p<<.10)

Table 4: OL Instructors by Rank

Metric	Pearson Chi-Square Value	Df	Asymptotic Significance (2-sided)	Pearson's R	Spearman Correlation
Difficulty	11.014	16	.809	.992	.889
Motivation	21.609	16	.156	.860	.729
Interact between students	14.161	16	.587	.430	.462
Interact instructor-student	13.063	16	.668	.415	.735
Discipline	19.184	16	.259	.353	.329
Cheat	8.441	12	.750	.864	.766
Self-directed	25.217	16	.066 **	.808	.685
Independence	18.346	16	.304	.488	.727
Schedule flexibility	22.567	16	.126	.522	.262
Time investment	20.050	16	.218	.562	.511
Cost investment	4.731	12	.966	.869	.745
Preference opposite?	16.946	8	.031 *	.875	.761
Happiness with environment	13.463	16	.639	.526	.666
Appropriateness	6.985	8	.538	.981	.837

(* p < .05 ** p<<.10)

Table 5: FTF Instructors by Rank

Metric	Pearson Chi-Square Value	Df	Asymptotic Significance (2-sided)	Pearson's R	Spearman Correlation
Difficulty	9.549	12	.655	.605	.538
Motivation	11.057	9	.272	.020	.028
Interact between students	12.800	9	.172	.097	.209
Interact instructor-student	12.722	9	.176	.240	.299
Discipline	7.670	9	.568	.898	.951
Cheat	6.122	9	.729	.321	.352
Self-directed	13.442	8	.098 **	.675	.535
Independence	11.110	6	.085 **	.527	.471
Schedule flexibility	8.026	8	.431	.481	.482
Time investment	12.387	9	.192	.539	.577
Cost investment	5.998	9	.740	.766	.683
Preference opposite?	18.044	6	.006 *	.135	.139
Happiness with environment	7.907	6	.245	.183	.158
Appropriateness	3.065	6	.801	.982	.935

(* $p < .05$ ** $p<<.10$)

Table 6. Average Response for OL and FTF Instructors by Rank for Significant Factors

Metric	Instructor Rank				
	Lecturer / Adjunct	Assistant Professor	Associate Professor	Professor	Other
Online					
Self-directed	5.0	3.25	2.43	3.36	2.50
Preference Opposite?	3.0	2.5	1.52	2.00	2.50
FTF					
Self-directed		4.40	4.00	4.33	
Independence		3.70	3.64	3.93	
Preference Opposite?	1.00	2.80	2.57	2.87	

Highest Degree Completed.

At the University, at a minimum, instructors must attain a masters' degree. With respect to online instructors, three completed their master's degree, 33 completed their doctorate and 5 completed a post-doctorate. For the FTF group, 6 instructors completed their master's degree, 31 completed a doctorate and 4 completed a post-doctorate.

With respect to the highest degree completed by the instructor, online instructors did not differ significantly and results supported hypothesis H05 except for happiness (χ = 15.522, df=8, p=.050) and appropriateness (χ =9.583, df=4, p=.048) as well as a slight difference for preference for the opposite environment (χ= 9.303, df=4, p=.054) as shown in Table 7. Instructors with masters or doctorate degrees were happy with the online environment, but instructors with post-doctorates were unhappy with the online environment. As for the appropriateness of online education at the college, instructors with masters or doctorate degrees felt online education was appropriate at the college, but those with post-doctorates were not in favor of online education. FTF instructors were indifferent on all of the metrics and results supported hypothesis H06 except for time investment (χ=21.255, df =6, p=.002) and appropriateness (χ=10.802, df =4, p=.029) and a slight significance on discipline (χ =12.560, df=6, p=.051) as shown in Table 8. FTF instructors that completed their masters degrees indicated that FTF time investment was greater than online, while those with a doctorate were indifferent, and instructors who completed a post-doctorate felt that online required more time investment. FTF instructors that completed a masters or doctorate felt that online education was appropriate; however, instructors that completed a post-doctorate did not support online education. The average response for each level of highest education degree completed are shown in Table 9.

Table 7: OL Instructors by Highest Education Degree Completed

Metric	Pearson Chi-Square Value	Df	Asymptotic Significance (2-sided)	Pearson's R	Spearman Correlation
Difficulty	13.442	8	.098 **	.695	.663
Motivation	3.864	8	.872	.336	.295
.Interact between students	12.867	8	.117	.027	.029
Interact instructor-student	8.007	8	.433	.141	.121
Discipline	6.593	8	.581	.392	.371
Cheat	8.178	6	.225	.624	.429
Self-directed	3.710	8	.882	.276	.296
Independence	4.913	8	.767	.220	.285
Schedule flexibility	6.369	8	.606	.132	.109
Time investment	4.059	8	.852	.847	.924
Cost investment	4.547	6	.603	.653	.938
Preference opposite?	9.303	4	.054 **	.484	.414
Happiness with environment	15.522	8	.050 *	.008	.009
Appropriateness	9.583	4	.048 *	.055	.138

(* p < .05 ** p<<.10)

Table 8: FTF Instructors by Highest Education Degree Completed

Metric	Pearson Chi-Square Value	Df	Asymptotic Significance (2-sided)	Pearson's R	Spearman Correlation
Difficulty	11.229	8	.189	.370	.265
Motivation	2.878	6	.824	.395	.328
Interact between students	4.886	6	.558	.179	.182
Interact instructor-student	4.064	6	.668	.318	.255
Discipline	12.560	6	.051 **	.226	.106
Cheat	6.817	6	.338	.508	.644
Self-directed	4.113	8	.847	.437	.397
Independence	7.226	6	.300	.242	.225
Schedule flexibility	12.074	8	.148	.506	.573
Time investment	21.255	6	.002 *	.140	.058
Cost investment	8.395	6	.211	.848	.938
Preference opposite?	3.518	4	.475	.079	.065
Happiness with environment	1.354	4	.852	.306	.362
Appropriateness	10.802	4	.029 *	.002	.001

(* p < .05 ** p<<.10)

Table 9. Average Response for OL and FTF Instructors by Highest Degree for Significant Factors

Metric	Instructor Rank				
	Associates	Bachelors	Masters	Doctorate	Post-Doctorate
Online					
Difficulty			3.00	3.48	3.40
Preference opposite?			2.00	1.88	1.60
Happiness with environment			4.33	3.55	2.67
Appropriateness			1.33	1.24	2.00
FTF					
Discipline			3.83	3.20	3.25
Time Investment			2.33	2.71	3.00
Appropriateness			1.00	1.74	2.50

DISCUSSION

Prior research on the differences between instructors' perceptions on different individual and program factors demonstrated that online instructors and FTF instructors perceived the environments differently on most factors (Fish & Snodgrass, 2018a, b). Essentially, both groups favored FTF for the perceptions analyzed. This purpose of this study was to explore the demographic factors associated with the academic attributes (rank, school and highest degree) of the instructor for these different perceptions.

With respect to instructor rank, prior research found that instructors with different rank had similar perceptions for online education (Chang et al, 2014). Our study uncovered a few significant differences by rank. Within the online group, for environment preference at the University, Associate Professors preferred to teach in an FTF class and other ranks were more amenable to online. Interestingly, within the FTF group, Associate Professors were indifferent to the environments, while full Professors did not wish to teach online. Contrastingly, lecturers in the FTF group wished to teach online.

No prior research analysed an instructor's associated school or highest degree completed as potential differentiating factors. Our study revealed that online instructors perceived student-to-student interaction and environment preference differently, while FTF instructors differ in their perception of teaching in the online environment. With respect to both factors in the online group and the FTF group's teaching preference, the School of Education & Health Services instructors perceived online indifferently, while the other schools favored FTF. While the specific reason that this occurred was not analysed, perhaps since instructors in the School of Education & Human Services are actively involved in 'teaching' and tend to be exposed to different teaching methods more than the other two schools, they are more willing to be open to a different teaching environment. With respect to the highest degree completed, it is interesting to note that for both the online and FTF groups, post doctorate instructors indicate the online education is not appropriate, while masters and doctorate instructors are more accepting of online. In the online environment, post-doctorate instructors are not happy online. Within the FTF group, with respect to time investment, instructors with a master's degree felt FTF required more time than online, while doctorates were indifferent, and post-doctorates felt online required more time preparing than FTF. The study did not attempt to gather anecdotal information as to why these perceptions resulted, and while interesting, it is not clear why increasing education level (from masters to post-doctorate) would result in this change in perception.

For rank, school and highest degree of study, the analysis demonstrates that for each of the individual and program factors studied, there are very few differences in perception. The homogeneity of each group – regardless of the demographic factor – is the interesting item to note. The insignificance demonstrates the clear perception that the particular population has on the topic of online versus FTF education. In general, and in keeping with the larger study (Fish & Snodgrass, 2018a, b), the results for each of the individual and program factors, regardless of the demographic factors of rank, school or highest degree completed were:

- Motivation: Instructors – both online and FTF - are more motivated in the FTF environment.
- Discipline: Online and FTF groups are indifferent to the discipline required in the educational environments.
- Self-directed: Instructors that teach online and FTF prefer the self-directed FTF environment more than online.
- Independence: Online and FTF instructors enjoy the independence in the FTF environment more than online.

- Schedule flexibility: Online and FTF instructors are indifferent to the schedule flexibility of one environment versus the other.
- Time investment: The online group felt online required more time investment than FTF, while the FTF group did not perceive a difference in the time investment.
- Cost investment: Online and FTF instructors were indifferent to the cost investment in one environment versus the other.
- Difficulty: Online instructors felt the online environment was more difficult than FTF, while FTF instructors were indifferent.
- Student-to-Student interaction: Both online and FTF instructors favored the student-to-student interaction in the FTF environment.
- Student-to-Instructor Interaction: Online and FTF instructors favored the student-to-instructor interaction in the FTF environment.
- Cheating: Instructors in both the online and FTF environment felt that it would be more difficult to cheat in the FTF environment than online.

Essentially, for this population, both groups favor the FTF environment on the individual and program factors. Interestingly, in a similar study of students' perceptions of online versus FTF education, many students felt that online education offered schedule flexibility over the FTF environment (Fish & Snodgrass, 2016a, 2016b); however, as noted here, instructors did not perceive the schedule flexibility to favor online education.

With respect to preference and appropriateness for online education, it appears that instructors that teach online have self-selected themselves into teaching online as they are indifferent to it. FTF instructors are very happy teaching in the FTF environment and do not wish to teach online. With respect to the appropriateness of online education, FTF instructors indicated that they were indifferent but online instructors felt it was appropriate.

CONCLUSION

This paper presented a study of the relationship between the demographic factors of school associated with, rank and highest education level achieved, and instructor perceptions of online versus FTF education. The larger study demonstrated differences on many of the factors between online and FTF educator perceptions that favored teaching in the FTF environment for many of the individual and program factors. Within each group – online and FTF – the instructors' perceptions were similar. These results show the strong similar perceptions of these two groups on these factors. Both online and FTF instructors in this study prefer FTF over online education. However, these results were for a private University that mainly focuses on teaching and not on research, and the context of the study may be a critical factor to the results. Conducting this survey at other Universities may reveal different perceptions of online and FTF education. Future research to explore whether context of the study is a critical factor – private versus public – is advised.

Limitations.

The sample size was a key limitation for this study. The sample size for the population was acceptable for the larger study; however, in some cases, the sample size for each demographic subgroup was small. In future studies with a larger population, adequate subgroup sizes may be possible and may reveal significant differences in perceptions.

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Assessing and Developing Leadership Capabilities in MBA Students Using The 16PF® Personality Test

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ABSTRACT

The 16PF® personality test and 16PF® Leadership Coaching Report were utilized as a framework to assess and develop the critically important but often under-emphasized leadership "soft skills" of MBA students. The test was administered to 59 students in five Teamwork and Team Leadership MBA classes over a two-year period. Test results are provided in the form of a 16PF® Leadership Coaching Report, which identifies strengthen, and weaknesses, performance comparisons to successful leaders, and specific developmental recommendations. Students were asked to use the report as the basis for an assignment to (1) better leverage two of their existing strengths in the workplace and (2) make improvements in two of their weaker areas. Anonymous, end-of semester responses from students were uniformly very positive.

Keywords: 16PF®, Leadership,

INTRODUCTION

The Association to Advance Collegiate Schools of Business (AACSB) International clearly recognizes the importance of leadership content in MBA programs. In the most recent accreditation standards (2018, p. 35), "leading in organizational situations" is the first of five broad areas that should be included in student learning experiences. Similarly, leadership is identified as an essential skill within the internationally and United Nations supported principles for responsible management education (Woo, 2009). Not surprisingly, leadership is addressed in some form, often as a foundation course (Rubens, et al. 2018), in virtually all MBA programs.

In order to determine how effectively schools of business are providing leadership education to MBA's, Development Dimensions International (DDI), reported the results of a nine-year study involving over 15,000 leaders across 300 companies in 18 countries (Wellins and Sinar, 2016). They compared performance in assessment center leadership simulations for MBA holders versus those with undergraduate business degrees on eight essential leadership skills (financial acumen, business savvy, compelling communications, driving execution, driving for results, entrepreneurship, influence, and inspiring excellence). The findings indicate that MBA's outperformed undergraduate degree holders in the traditional analytical business skills, but underperformed in the people soft skills areas. Unfortunately, the critical contribution of these deficient soft skills to leadership success has been documented by several researchers (Center For Creative Leadership, 2016; Goleman, 2004; Mintzberg, 2005; Wong & Law, 2002).

The confluence of these two factors (MBA deficient soft skills and the necessity of soft skills for leadership success) has resulted in widely reported criticism of MBA Programs for failing to effectively prepare graduates for leadership positions (Davidson, 2016; Hurrell, 2016; Nillson and Moules, 2017). In an international survey of 48 organizations headquartered in all continents, conducted for The Financial Times, Moules and Nilsson asked executives to rate 29 "soft" and hard skills on their importance and difficulty in finding during the recruiting process. Results confirmed that the five most important skills were "soft skills" (like ability to work with a wide variety of people) and these same skills were among the most difficult to find when recruiting MBA graduates. Davidson (2016) reported on the results of a Wall Street Journal survey of 900 executives concerning the hiring process. Findings confirmed that 92% of respondents believed that soft skills were equally or more important than technical skills and that soft skills were more difficult to find among job applications, forcing many firms to begin assessing candidate personality traits. Davidson's conclusions suggest an intriguing and interesting strategy for leadership education in MBA programs the use of personality test to inform the assessment and development of the "soft skills" required for leadership success.

The process of leadership development according to Van Velsor and McCauley (2004, p. 2) begins with "the expansion of a person's capacity to be effective in leadership roles and processes...those that facilitate setting direction, creating alignment, maintaining commitment in groups of people who share common work." Individuals must develop greater self-awareness, clarity around personal values, and an ability to continuously learn, think, and act creatively and strategically (Day, 2001; Van Velsor & McCauley, 2004). A major component contributing to the development of an authentic leader is self-awareness (Gardner, et al, 2005). Self-awareness, an ongoing process linked to self-reflection, leads one to come to a basic understanding of one's knowledge, experience, capabilities, values, emotions, motives and goals. Developing this understanding can provide a sense of self that provides a solid anchor for decisions and actions. A common approach (Leatt & Porter, 2003; Van Velsor, 2004) to improving self-knowledge employs a process that starts with an assessment of an individual leader's current strengths and weaknesses in an effort to create awareness, as well as identify areas in need of development. Additional learning and development can then take place in order to improve one's effectiveness.

A useful method for developing leadership capabilities in our students is to borrow a tool commonly used in leadership or executive coaching in the corporate sector. Personality-focused coaching has gained in popularity in this arena. Although the typical coaching relationship involves assessment and development of skills, abilities or competencies in a particular job setting, utilizing personality data can provide strategic self-awareness of one's behavior and motivation that transcends working through a particular situation (McCormick & Burch, 2008; Gaddis & Foster, 2017). Because personality has been shown to predict leader effectiveness (Bono & Judge, 2004; Barrick, M.R., Mount, M.K., & Judge, T.A., 2001), utilizing such assessments can have significant impact (Gaddis & Foster, 2017). Rubens, et al. (2018) utilized the Myers-Briggs Type Indicator® ® (MBTI®) personality test as one of many tools to enable MBA students to engage in self-assessment and development of leadership skills.

Pearson Education, Inc. publishes the 16PF® Fifth Edition personality test and accompanying Leadership Coaching Report that offer a useful framework for assessing and developing leadership skills in MBA students (a complete description of these materials is provided in the Method section). The 16PF® provides a unique set of prominent advantages that include: (1) a strong psychometric recommendation from The Buros Institute's Mental Measurements Yearbook, (2) comparisons of individual scores with those typically found in successful leaders, (3) specific and detailed developmental recommendations, and (4) a Coach's Summary of the results for potential use by an individual's instructor, supervisor, and/or mentor.

PURPOSE

The purpose of this article is to describe and evaluate the use of the 16PF® and 16PF® Leadership and Coaching Report as a framework for facilitating MBA student self-assessment and development of leadership soft skills.

METHOD

Subjects

Participants in this study were graduate students in a part-time MBA program who were enrolled in a required course on teamwork and team leadership. The educational institution is a regional campus of a large Midwestern state university system, located in an urban area.

Personality Test

The personality test used was the 16PF®. It a 16PF® is one of the most revered, respected, and research-supported tests in all of psychology, and is aptly described in the 2009 Test Manual (p.2) for the current Fifth edition:

> In 1949, Dr. Raymond B. Cattell published one of the first objective measures of normal personality, the Sixteen Personality Factor Questionnaire (16PF®) Since its original publication, the 16PF® Questionnaire has matured through four revisions into a widely used and well researched measure of normal adult personality (Schuerger, 1992). The inventory is administered worldwide, having been translated into over 40 languages. IPAT, the publisher of the 16PF® Questionnaire, along with licensed providers throughout the world, offer a number of computerized interpretive reports for the inventory. An expanded version of the 16PF® instrument, the PsychEval Personality Questionnaire, assesses traits in both the abnormal and normal ranges of personality.The 16PF® Questionnaire is comprised of 16 Primary Factor scales and five

Global Factor scales developed via factor analysis of the primary scales. Thus, the inventory provides a two-tiered hierarchical system of personality measurement; that is, the primary and global scales measure the same personality domain but at two levels of specificity. The 16PF® assessment has been effectively applied in a variety of research and applied settings, including industrial and organizational, clinical and counseling, and educational. These applications have resulted in a wide range of prediction equations for criteria such as creativity, leadership, interpersonal skills, marital adjustment, and an assortment of occupational profiles.

Professional Evaluation

The Mental Measurements Yearbook series published by the Buros Institute provides independent professional reviews of published psychological tests (typically two reviewers per instrument). The 5th Edition of the 16PF® was reviewed in the Twelfth Mental Measurements Yearbook (Conoley, J. Impara, J. Murphy, L. 1995) published in 1995. Summary evaluation comments by the two reviewers included:

(1) "Perhaps the greatest strength of the 16PF® Fifth Edition is that this well-known research instrument has stood the test of time and is supported by a vast body of data" (Rotto, 1995, p. 949-950) and
(2) "The 16PF® is a widely used measure of various personality characteristics. This psychometrically sophisticated measure is a valuable contribution to the testing repertoire of counselors and clinicians." (McLennan, 1995, p. 948).

Thus, the 16PF® has garnered strong support from Mental Measurements Yearbooks and can be professionally used with confidence.

16PF® Leadership Coaching Report

One very popular option for scoring responses to the 16PF® is the Leadership Coaching Report. An overview is provided by Watterson (2002) in the Test Manual, p.2:

> The LCR [Leadership Coaching Report] provides individuals with the information and tools to begin on a path of self-awareness so they can start to truly harness their special gifts and resources. The most important component in the leadership development process is self-awareness. When people are clear about who they are, they are then able to capitalize on their strengths and develop their weaknesses. Research and practical experience in both large and small organizations have strongly indicated that the more people know about themselves (likes, dislikes, interests, motivations), relative to a specific job, career, or profession, the more it helps them to be productive, successful and most of all, happy in their endeavors. The LCR is intended to heighten people's self-awareness. Incorporating personality information into a leadership development plan helps focus a person's development on personal characteristics that are important to becoming an effective leader. Personality feedback can facilitate the leader's attempt to bridge the gap between who he or she is as a person and how he or she behaves on the job.

More specifically, the Leadership Coaching Report provides individual scores on five major leadership dimensions (Influence, Emotional Resilience, Extraversion, Practicality, and Self-Control; Problem Solving is also assessed on a scale from concrete reasoning to abstract reasoning). In addition to an individual's score on each dimension, information is provided about where successful leaders tend to fall, in the form of a shaded bar. To the extent that a gap exists between an individual's score and the range for successful leaders, specific developmental recommendations are provided (i.e., activities to practice, books to read). A sample Leadership Coaching Report is available from the publisher at: https://www.16PF®.com/wp-content/uploads/Leadership_Coaching_Report_-_Ima_Leeder1.pdf.

Pricing

Various pricing options are available from the publisher, ranging from $71 to $88 (depending upon quantity), at https://www.16PF®.com/en_US/product/16PF®-leadership-coaching-report/. These prices are very reasonable compared to those charged for other high quality tests used in the workplace.

Student Personality Assessment

MBA students completed the 16PF® within the first month of the semester. In order to control and standardize the test taking environment, the 16PF® was administered during class time. Students responded to test items on

machine scorable answer sheets. These were then sent to the publisher for scoring and report generation. Leadership Coaching Reports were forward to the school administrative assistant, who printed them, placed them in a marked, sealed envelope for each student and then deleted the computer files. These steps were taken in order to insure complete confidentiality for each student.

16PF® Assignment

Leadership Coaching Reports were distributed to students in class, and accompanied by a discussion of how to best interpret the results. Leadership coaching sessions with the instructor were available to all students on a voluntary basis. The written assignment for the 16PF® is displayed in Figure 1. It asks students to: (1) identify two to three strengths reflected in the 16PF® report and discuss how they might be more fully leveraged in the workplace and (2) identify two to three areas for improvement documented in the 16PF® report and discuss specific strategies to address them in the workplace. Students were given approximately one month to complete the assignment.

Figure 1: 16 PF Project Instructions

1. Review the interpretational report generated from your 16PF® results.
2. Discuss your 2-3 major strengths, as indicated in the 16PF® results. Identify specific ways that you could better utilize or leverage each of your strengths in the workplace.
3. Discuss your 2-3 major areas from improvement in the 16PF® results. Identify specific ways that you will make these improvements.
4. Summarize the above information in a 3-5 typewritten double-spaced page report.

The demographic profile for students in the MBA Program during the time of this study is shown in Figure 2.

Figure 2: Demographics

Gender	Male Female	59.3% 40.7%
Race	Black Asian Hispanic Other White	20.3% 3.4% 11.9% 3.4% 61.0%
Age Range	20-29 30-39 40-49 50+	35.6% 37.3% 22.0% 5.1%

16PF® Assignment Evaluation

In conjunction with standard student evaluations administered at the end of each semester, a supplemental 6-item survey (plus a final open-ended question) addressing various aspects of the 16PF® assignment was included. The response scale was from 1 (Strongly Disagree) to 5 (Strongly Agree). The specific items are contained in Table 1 in the Results section.

RESULTS

Graduate Student Sample

A total of 59 MBA students from five Teamwork and Team Leadership classes over a three-year period (2016 – 2018) completed the 16PF® assignment and evaluation. Given that the evaluation was completed anonymously, there is no specific biographic information available for the sample. However, this information is available for all students enrolled in the MBA Program and are applicable to the sample of 59.

16PF® Assignment Evaluation Survey

It is important to note that graded 16PF® Projects were utilized in the school's assurance of learning (AOL) program for accreditation purposes. Written projects were evaluated in terms of the quality and quantity of specific strategies formulated to (1) better utilize existing leadership strengths and (2) adequately address indicated areas for improvement.

Figure 3: 16PF® Assignment Evaluation Item Means

Item means for the assignment evaluation survey are provided in Figure 3.

Survey Items	**Item Means[1]**
1. The 16PF® provided helpful insights about my personality	4.6
2. The 16PF® results were an accurate description of my personality.	4.4
3. The 16PF® recommendations will help me to improve my leadership effectiveness.	4.4
4. The 16PF® Action Plan assignment was helping in formulating steps to better leverage my personality strengths in the workplace.	4.3
5. The 16PF® Action Plan assignment was helpful in focusing my leadership improvement efforts.	4.5
6. I would recommend the 16PF® to other leaders as a useful self-improvement tool.	4.7

[1]On a 1-5 scale from Strongly Disagree to Strongly Agree

Student responses to the six items were very positive, with item means ranging from 4.3 to 4.7 and an overall mean of 4.5.

Similarly, favorable comments were made to the final open-ended question: What was most useful/helpful to you about the 16PF® results and Action Plan assignment? Upon analysis, the comments supported results obtained via the survey. A total of 52 responses were provided. Twenty-five students specifically mentioned the learning and insight they gained about themselves related to strengths and opportunities for improvement. An additional eight indicated that results also validated or confirmed their previous knowledge of self. The second most frequent response reported by twenty-one participants was the opportunity to receive recommendations related to action planning for further growth and development. Others appreciated gaining an outside or unbiased perspective (3), motivation to improve (2), or merely having the opportunity to reflect (1). Verbatim student comments are contained in Appendix A.

DISCUSSION

Conclusions

Based upon the results obtained in this study, the following conclusions can be reasonably drawn. First, MBA student evaluations of the 16PF® and 16PF® Leadership Coaching Report were uniformly positive. Specifically, they indicated that: (1) the tools provided helpful insights about their personalities, (2) the 16PF® results were accurate, (3) the recommendations would be helpful in improving their leadership effectiveness, (4) the 16PF® assignment was helpful in formulating plans to better leverage personality strengths, (5) the results were useful in focusing improvement efforts in specific areas, and (6) they would recommend the 16PF® to other leaders as a useful self-improvement tool.

Written comments from MBA students concerning what they felt was most useful/helpful about the 16PF® more consistently very favorable and are contained in Appendix A.

The 16PF® and 16PF® Coaching report provide a student friendly, reasonably priced, psychometrically sound framework for assessing and developing the "soft skills" so important to leadership success. It is important to note that the strong psychometric characteristics of the 16PF® have been independently and professionally confirmed by the Buros Institute in the Mental Measurements Yearbook. This endorsement should be required of any personality test used within collegiate schools of business.

The 16PF® assignment can be helpful in documenting Assurance of Learning (AOL) outcomes for purposes of AACSB accreditation.

Limitations

When interpreting the results of this study, the following two limitations should be considered. First, the sample size was relatively small (59) and the students were enrolled in a single Midwestern commuter campus MBA program. Second, there were no measures of leadership effectiveness or leadership performance improvements. The MBA participants simply provided self-report responses about the perceived usefulness of the 16PF® in enhancing their leadership skills by better leveraging strengths and improving weaknesses.

Future Research

Future research areas would be useful in extending the results at this study. Evaluating the utility of the 16PF® and 16PF® Coaching Report as a leadership assessment and development framework within MBA programs should be done with larger samples, selected from several AACSB accredited programs, both in the United States and abroad.

In order to establish the external validity of the 16PF® and 16PF® Coaching report, it would be important to collect objective measures of overall leadership performance/improvement longitudinally and compare them to those in a matched control group. It would also be helpful to explore the specific aspects of leadership performance that were impacted by the program and mechanisims by which these changes occurred. Interviews with participants would be invaluable in addressing these issues. Finally, it would be interesting to the effectiveness of other permanent personality tests (i.e., Myers-Briggs Type Indicator® ®, The Hogan Personality Inventory) in assessing and developing leadership capabilities in MBA students.

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APPENDIX A: Compilation of Representative Student Comments

Learning and insight (25)

- The most helpful were the evaluations themselves listing strengths and weaknesses … I am not always conscious of that. (5)
- The most helpful part was seeing a visual representation comparison against other leaders…scale where you fell. (4)
- It identified certain "high risk" attributes that were a concern or a liability in leadership. Certain attributes that I considered strengths were in fact leadership liabilities…allowed me to rethink these issues…It helped me to understand how some behaviors that I may have seen as positive can also be negative in some business situations. (3).
- Finding out things about myself that I hadn't acknowledged before. (2)
- Great project; was able to clarify areas to work on. (2)
- The accurate description of my personality was helpful. I have not begun any of the action plan assignments. I intend to after schooling is complete.
- The 16PF gave me a better insight on what kind of leader I am and ways to make myself stronger. I can definitely use this information to better myself.
- It really made you check who you are as person.
- The most useful aspect of the 16PF and Action Plan assignment was that it gave me a profound insight regarding my personality characteristics.
- Telling me in-depth about my personality as an introvert.
- I was able to really pin down some of my weaknesses and give them a name. This will help me in the future to overcome those weaknesses and work to make them strengths.
- The details given for each result were beneficial.
- It was useful to know where I actually fell on the scale, however I feel that some of the questions that it said that I need to improve that area were answered the way I thought it should be versus how I would actually answer them.
- Actually gave some perfect examples of my personality; while I might have known some of my faults, it helped to name them (adjectives).

Validation and confirmation of previous knowledge (8)

- It confirmed a lot of what I knew and thought of my skills. Shed some light on certain areas. Right on point. (4)
- Help me to recognize things about my personality that I thought I had but the 16PF test confirmed them. Also, helped reinforce qualities I knew I already had!
- Just acknowledging that I need work in these areas.
- It was interesting to see how the results aligned with what I feel my strengths + weaknesses are. Really enjoyed it!
- The suggestions for improvement in the troubling areas were always spot on, so was the analysis of how your actions may be perceived in a completely different way than intended.

Recommendations for further growth and development (21)

- Recommendations for improvements and feedback on effects of present conditions. This gives me something well-defined to follow up on in order to improve in the many studied areas (5)
- I really liked that the Action Plan gave suggestions on how you become better in the traits that needed some kind of improvement; specifically being told areas I can improve on along with being forced to analyze particular ways I can use those suggestions in my everyday choices. (4)
- Recommendations on books to read and ways to practice on characteristics…to better improve my leadership skills. (4)
- I appreciated the extra material recommended by the test. It offers solutions/things to practice to further develop skills. (4)
- I like that I can concentrate on my developmental areas and refine my strengths. (2)
- The most useful will be application of the action plan. (2)

Outside/Unbiased perspective (3)

- It was great to have an unbiased survey done to help my growth as a person.
- The accurate description of my personality was helpful. I have not begun any of the action plan assignments. I intend to after schooling is complete.
- Looking at yourself is a hard thing to do, so having an outside look is great.

Motivation to improve (2)

- Honestly, all of it. I've been trying to achieve many goals since getting my results back. Reading my strengths has really motivated me to improve myself.
- One of the best classes I've experienced in the program. Loving the challenge to a better me. Thanks!

Opportunity to reflect (2)

- The paper to review/reflect on those results.
- Analyzing the survey and having to write a paper on the results including an action plan. Writing the paper forced a deep understanding of the survey results.

Other

- I really liked the 16PF assignment; Glad we took the test.
- Explanations for instructor.
- It told me that I appear to be uncaring about what I do because of my resilience.
- I thought it was humorous because I never saw myself totally in the way the survey read me.
- It's a great assessment tool to take into account. I don't think it's the end all/be all to determine how an individual actually is.
- Becoming more tactful in accomplishing my action plan.

The Use of Extracurricular Interdisciplinary Project-Based Teams in Higher Education as a Catalyst for Actionable Knowledge

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ABSTRACT

The Innovation Consulting Community is an extracurricular, interdisciplinary, project-based professional development experience available at no cost to all students at a large university in the Midwest. Students from across campus and academic levels who volunteer to participate in this noncredit, unpaid experience are formed into teams and consult with organizations under the mentorship of faculty, staff, or experienced practitioners. Prior to beginning their consulting engagements, students must complete background work in design thinking, project management, leadership, conflict resolution, and self-awareness. Additional optional professional development workshops are also offered. In addition to program mechanics, this paper provides feedback from students who participated in the first year of the program and concludes with recommendations on how institutions could develop a similar program.

Keywords: actionable knowledge, experiential learning, interdisciplinary, innovation in higher education, student consulting

BACKGROUND

Higher education institutions have been developing new educational experiences to foster innovation among students across disciplines in the belief that doing so improves problem-solving skills that developmental experiences focused in a single domain of expertise are less capable of nurturing. These new experiences also mimic the work environment that students encounter after graduation, and the cross-disciplinary conversations include a more complete vernacular, cultural friction, and potential benefits of working across disciplinary lines.

Interdisciplinary educational experiences are not widely discussed in the academic literature. This paper introduces in some detail a new extracurricular, interdisciplinary, project-based program recently developed by a public university in the Midwest. It further provides feedback from students who participated in the first year of the program and concludes with recommendations on how institutions could develop a similar program.

Active learning of this type is necessary in the classroom to improve outcomes for most students (Dallimore, Hertenstein, and Platt, 2004). Consulting, in which students engage clients' real problems, has been a particularly popular example of active learning used in the classroom (e.g., Heriot, Cook, Jones, and Simpson, 2008) because consulting projects in the classroom require at a minimum that each student interact with other students, faculty or mentors, and clients. This active and dynamic experience is unavailable to a student passively receiving course material in a traditional classroom setting, and furthermore, the ability to proactively and reactively engage in problem solving is highly valued by future employers.

As Kennedy, Lawton, and Walker (2001) state, "There are significant benefits to moving toward greater process-focused teaching. These benefits include significant client-university contact, a challenged and stimulated faculty, and most important, the development of students' abilities in areas that are crucial in today's marketplace" (p. 151). Moving beyond rote learning to historical and recent case studies and simulations has become prevalent in business education, but greater use of live cases is more suitable due to the rapid changes in the economy over the last few

decades. In a much cited U.S. government report, the following prerequisite themes were identified for active learning to be present in education:

- Students are involved in more than listening.
- Less emphasis is placed on transmitting information and more on developing students' skills.
- Students are involved in higher-order thinking (analysis, synthesis, evaluation).
- Students are engaged in activities (e.g., reading, discussing, writing).
- Greater emphasis is placed on students' exploration of their own attitudes and values. (Bonwell and Eison, 1991, p. 2)

These trends led Bonwell and Eison (1991) to define active learning "as anything that 'involves students in doing things and thinking about the things they are doing'" (p. 2). We would add that student actions after reflective thinking are essential.

> Although traditional tools used in business classes such as case studies can still be useful in some courses, Case studies are unlike the business world in that the essential facts are preassembled and the reasonable alternative courses of action are often implied. Computer-based simulations typically provide less structure than case studies but do not require students to identify and obtain relevant information from the marketplace. (Kennedy, Lawton, and Walker, 2001, p. 147)

To effectively address new standards and to continue to prepare students in ways that make a meaningful difference, the types of activities available to students must also change. As such, the Association to Advance Collegiate Schools of Business (AACSB) introduced new standards for accreditation of its member schools in 2013 (AACSB, 2018). Under these standards, AACSB accreditation requires, in part, that higher education provides evidence of continuous improvement in three key areas: *engagement*, *innovation*, and *impact*.

This paper describes the steps taken by faculty from diverse disciplines to establish student-led consulting experiences in which the act of consulting for a client becomes a mechanism for students to develop professional skills. We also provide some hints and suggestions for those considering how to start their own Innovation Consulting Community. Too often, professional skills are taught in a very technical, traditional, and siloed style. Although this may be effective to communicate concepts and best practices to a small segment of the student population, it rarely conveys the complexity of the applied skills that professionals need to work with people from a variety of different backgrounds on challenges that are not straightforward. We present an alternative avenue of learning in which students are immersed in client-based projects and develop skills through the use of innovation, project management, and collaboration in a community.

DISCUSSION

Innovation Consulting Community

The Innovation Consulting Community (ICC; http://InnovationConsulting.Community) is an extracurricular, interdisciplinary, project-based, professional development opportunity available to all students at a public university in the Midwest. Faculty and staff from across the university began informal discussions to develop the concept from the ground up after several years of encountering businesses and nonprofit organizations who asked, "Isn't there someone at the university who can help me with this?" We knew that there was a market for providing help, and we knew that we didn't have the faculty resources to provide support to organizations with little budget flexibility. We also hoped that students would recognize that real experience would likely enhance skill development in critical thinking, collaboration, and communication. This opportunity also affords students who are unable to find a high-quality internship, often due to a lack of prior experience (a chicken-and-egg or catch-22 situation) or are unable to work in the United States, with a high-quality professional development experience.

During the first year of operation, 38 students from 18 different disciplines participated on nine different projects. (Exhibit A shows the ICC website with a list of projects.) Projects included employee engagement at a heavy equipment company, a social media ad campaign for a professional major league baseball team, drafting a market entry plan for an electric mobility products company, and finding alternative uses for glass collected from recycle bins by a waste management facility in a small city.

The timeline of the ICC's tasks of garnering student involvement, student team and client pairing, and client project completion is depicted in Exhibit B. In the spring and early summer, projects are identified, scoped, and posted onto

a website by the ICC's Faculty Coordinating team. The ICC website layout and content was tested with university alumni who provided valuable feedback before the site went live. Projects are identified mainly by faculty, alumni, those serving on Advisory Boards, networking on LinkedIn, and word of mouth. A mix of for-profit, university, and nonprofit projects are solicited because they appeal to a broad cross section of students interested in engaging in interdisciplinary projects. After projects are identified, mentors with relevant backgrounds, including both faculty and staff, are identified and asked to participate. Mentors are team guides rather than student supervisors and are expected to meet with their teams once every 2 weeks in the spring term. After posting projects on the ICC's website, the goal is to drive students to evaluate the project descriptions and to subsequently submit their credentials (e.g., resume) and project interest in rank order through an online form. Marketing of the site is largely done through advertisements in the university's student newspaper, personal visits by ICC Coordinators to select classes and student organizations, and educating career and academic advisers who have close contact with students about the benefits of the ICC. Student personal interest is the main criterion driving what project a student will be placed on. Exhibit C has information that students submit for ICC involvement. Next, students are interviewed by phone or Skype by one of the ICC Coordinators to answer any questions that they may have and to clarify ICC expectations. These interviews are conducted early in the year to assess suitability, and almost all students who can carry on a conversation describing their motivation and interests make it through to the next phase.

Following the selection of participants during the fall term prior to their project work, students complete five online modules available through the university's learning management system (LMS). The module areas are leadership, project management, conflict resolution, self-awareness, and design thinking. These modules are short and were developed to provide a baseline level of understanding for students with different types of backgrounds. Requiring that students complete these modules also helps to ensure that students are serious about participating in the program. Students complete the modules on their own time (approximately 7 hours in total), without receiving course credit, and are graded on a pass or fail scale. Following successful completion of modules in the fall term, they work on their team project in the spring term. Participants are also encouraged to attend various short face to face workshops in the fall and spring on topics such as how to consult with a client and how to present to an audience. Following this, each team clarifies the project and deliverables with the client, builds a project plan, and provides the client with biweekly updates. At the end of spring term, teams present their recommendations at a symposium, submit their final written paper and PowerPoint files, and then receive a certificate of completion. Exhibit D has best practices that students are encouraged to follow to maximize their success.

Student, Faculty, University, and Community Benefits

The benefits to students are enhanced professional development outside of what may have been a fairly siloed educational experience. Students may not have had a professional internship before their ICC participation. The ICC is open to any student in any major. For example, a freshman or sophomore can start building a resume to increase the probability of obtaining a better internship as an upperclassman. This can be considered an opportunity to avoid the chicken-and-egg (or catch-22) dilemma when a quality internship provider is seeking an applicant with prior experience. Professional experiences such as the ICC can later lead to a better full-time job offers. Faculty can also benefit from mentorship experiences.

Faculty have the opportunity to informally spend more time with students motivated to work on projects without traditional classroom rubrics. Faculty may also gain additional practical experience understanding client expectations to inform their teaching and further build credibility in the classroom. Faculty thereby participate in an expanded learning community beyond the one created in their own classroom. A professional learning community typically involves specialists from one or more fields working together to learn and apply perceived solutions to problems. Professional learning communities in education are small collaborative faculty groups that develop and implement strategies for optimum student learning (see Lenning, Hill, Saunders, Solan, and Stokes, 2013). The ICC presents a professional learning community opportunity for faculty to learn from one another in a fairly low stakes and creative environment (see Lenning et al., 2013). Opportunities for faculty seeking data from ICC clients is a natural extension of some projects.

The university also benefits because it has a new program that may help to attract students, potential partners, and funders. Development officers have an interesting story to share with potential donors. Deans have content to share with accrediting bodies documenting community engagement, innovation, and impact. Career and academic advisors have a low-cost professional development opportunity to share with students encouraging them to burnish their credentials.

Additionally, the emergence of service learning in higher education and the renewed focus on community engagement provides colleges and universities with opportunities to develop campus–community partnerships for the common good. These partnerships can muster both campus and community resources to tackle important issues in local communities (Bringle and Hatcher, 2002).

Of course, this all requires investment from students, faculty, staff, and practitioner mentors. This requires that participating students invest time and energy in this experience. They may have to reduce hours working a job outside of attending school, cut back their commitment to a student organization, or reduce recreational time. This also requires investment from faculty, staff, and practitioner mentors as they make time for this along with their other personal and professional activities.

Survey Assessment Data

At the end of the first year of the ICC, students were asked to complete a survey providing feedback about the program. The survey was anonymous, and no incentive was provided. Twenty-eight university students (14 men, 14 women, and three who did not report) with an average age of 22.5 years old and 3.46 years of work experience responded to the survey asking for feedback on their experience as a participant in the ICC.

Approximately 97% (n = 27) reported that the project descriptions provided to them at the start of the process were accurate (Exhibit E contains examples of ICC projects). As noted, all of the students were required to complete the five modules that focused on self-awareness, project management, conflict resolution, design thinking, and leadership. Generally, students felt that the modules were moderately useful to their project's completion—each module was rated between 3.23 and 3.48 on a 5-point Likert scale (with 1 indicating *extremely useful* and 5 indicating *not at all useful*). Several upper level students recognized that foundational knowledge, discipline-specific technical skills, and skills in communication, conflict management, and collaborative problem solving were all necessary for success in their chosen careers. They also realized that the technical skills they had developed in college were soon likely to become obsolete. These students perceived that the interpersonal communication and problem-solving skills they had developed during consulting projects would later enhance their ability to gain access to new technical knowledge as it evolves (Colbeck, Campbell, and Bjorklund, 2000).

At the start of the spring semester, student consulting teams began their projects in force and were invited to attend a communication skills workshop designed to be a first team meeting and a kick-off event for their ICC project. Seventeen students (61%) reported attending the communication workshop; of those that attended, 13 (76%) reported that the workshop was useful.

Students reported spending an average of 2.7 hours working with their team each week (not including mentor communication). Only seven students (25%) reported having to engage in a level of effort greater than the other project members, and no student reported expending less effort than other team members. Responses regarding project outcomes are as follows: 22 of the 28 students (79%) indicated that their project was successful, and 23 of the 28 students (82%) indicated a willingness to participate in the ICC again. Fifteen students (54%) felt that their team had the appropriate resources needed (time, student backgrounds and knowledge, and proper mentor support). Only four students (14%) reported the support received to be extremely lacking or moderately lacking.

Twenty-two of the 28 students (79%) indicated that participation in the ICC project improved their skills. When asked what caused this skill development, the students indicated that work on the project itself and interactions between students were responsible for the majority of the development. The online modules and communication workshop were identified as developmental, but each was attributed to less than 10% of the development attained by the student. Almost two thirds of students reported that the project mentor played a constructive role in helping the team be successful. Quotes obtained from students about their participation in the ICC are provided in Table 1.

Table 1 - Students' Responses

Question: What skills do you think you learned or improved through this process that will be beneficial to you in the future?
• I think I have learned the skills to work in a team in a much more "real-world" experience as to just completing a group assignment for a class.
• Pushing through a project and getting a solid result despite low motivation and burnout.
• Working with other majors was helpful because it was a different approach than what you have typically been doing when just confined to your designated program. I think our project was challenging and almost too big to "fix" without changing many things, which isn't a bad thing, just limited time constraints. It was challenging and not something that had a clear-cut end answer. I think this was one of the more beneficial things about it, and all projects should be done at this level
• Working with a real client and the preparation of being able to present twice before our actual presentation was extremely beneficial and provided us with amazing feedback that we utilized.
• Techniques on how to research a project.
• Working with younger team members.
• Professionalism and giving presentation.
• Time management, communication, and hands-on experience.
• Public speaking, research, and teamwork.
• Leadership and how to work as a team.
• Collaboration. I learned a lot about working with other disciplines.
• Time management skills.
• Team and project management skills were my biggest takeaways.
• Group interaction. Putting myself out there.
• I learned how to find my role in a diverse team where my background is not initially associated with the project.
• Design thinking. I am so very grateful to have gotten this experience. It is already benefiting me outside of the project.
• I learned that a project like this takes a lot of time and patience.
• Research skills.
• Making the most of an unideal situation, learning to be adaptable, and teamwork.
• Researching skills.
• My design thinking, research abilities, communication skill, and confidence were improved.
• Teamwork.

Note. For more on how to assess an interdisciplinary collaboration, see McKeage, Skinner, Seymour, Donahue, and Christensen (1999).

Issues, Obstacles, and Adjustments

Some of the challenges encountered in running the ICC are as follows. First, finding and scoping appropriately sized projects with clients takes experience and some trial and error. Several of the ICC's Faculty Coordinators had prior experience with using client projects in their traditional courses. Client project vetting was general, and then the following filters were developed to select projects: the organization is well known, the project has the potential for a strong positive social impact, or the project topic is an emerging technology. These filters are attractive tools to recruit students to projects. Additionally, a goal by ICC organizers is to refrain from overly structuring the project description provided to students such that the solution to the problem is self-evident. A large part of the student learning is to break down the project and clarify objectives with the client.

Second, finding mentors to serve year after year may be difficult due to time constraints. As a result, for the second year, ICC Coordinators are planning to experiment on a few projects with use of locally based practitioners who are mainly alumni of the university. They will report to a faculty member at different time intervals to see how their

teams are progressing. This search for other mentors prompted the ICC organizers to develop a new more detailed document to specify the role of mentors.

Third, finding motivated students may be a challenge because the focus is on extracurricular, non-credit-earning experiences. Students make choices of how to spend their time, and anything new may be seen as unproven and a risky time investment for them. Many students at the university are attending full time and working jobs outside of school to help pay for their education. Although their jobs may not be professional in nature, it is speculated that many value hourly jobs in the service industry while taking courses as a debt minimization strategy, which sometimes prevents students from gaining the "right" professional work experience prior to graduation. Participating in a unique noncredit, professional skill building experience could increase students' chances of finding a higher quality and or more satisfying jobs after graduation.

A fourth challenge is building awareness for the program with so many messages competing for students' attention. To counter this challenge, after at least one year of operation, an ICC video will be created to help convey the benefits of participation.

Fifth, student teams are built in the fall with the understanding that some students will drop off over fall, winter, and even spring. Teams are intentionally built larger than necessary because of this attrition. The goal is to have at least three students actively contributing on each team in the spring (Some projects may not run at all due to insufficient student interest). Although no team member conflicts were identified or reported during year one of the ICC, future use of psychological preference tools could help team members better understand themselves and others on their team to enhance productivity (see Caenepeel and Wyrick, 2001, for an example of how the Myers-Briggs Type Indicator [MBTI] was used on teams tackling interdisciplinary projects).

Sixth, some university faculty and staff involved with the program may want to be compensated for their time. If stipends and course releases are not available, this can stymie progress. Building incentive for university personnel to participate into unit annual review processes may help. To minimize financial resource expenditure, finding the right "like minded" faculty and staff and other participants is in most cases the more feasible route, at least in the program creation outset. As noted previously, greater use of non-university mentors may also represent a savings in labor, although university oversite by way of faculty is important. Intellectual property (IP) is often handled differently at every institution. Consultation with university counsel is important to understand how student team IP is to be treated. It is not lost on the authors that the challenges of building the ICC would itself be an excellent project for an ICC consulting team.

For more on the role of academia in the business of commercialization, see Boni, Weingart, and Evenson (2009). Confidentiality of client information is important, and the use of appropriate nondisclosure agreements and a mutual understanding of what students can document on their resume and Linked-In profiles upon successful project completion deserves discussion at every institution considering introducing a student consulting program. The ICC is very conservative with project details and client names posted on its website.

Recommendations for Developing an ICC

Institutions seeking to provide additional unique experiences for students such as the one presented in this paper may find that they are resource constrained and unable to start. They may think that the development of a new program or set of interdisciplinary project-based professional development experiences is beyond their reach. However, the ICC was created on a small budget (under $5,000) and has developed a set of guidelines that may help other institutions to efficiently and effectively create their own. It is important to underscore that each institution has its own unique advantages, limitations, and context from which to gain inspiration and leverage. The guidelines below are not in sequential order because there are often overlapping activities, but for the most part, they follow a logical order.

First, it is important to identify university personnel who are passionate about educating students differently. These folks may be faculty but could also be staff. For faculty members, a review of how they teach and what they research can help identify those who would be interested in participating. A quick review of highlighted or showcased university personnel can simplify the identification of these individuals. Focus should be placed on identifying people from different disciplines and creating a core team of three to five people to promote speed of

meeting and decision-making. A larger team may be useful for help with mentoring, finding interested students, identifying projects from their own areas of interest, and providing their expertise.

Next, identify a point person for the program who is ultimately in charge. It may be helpful to also identify two people: one who handles internal issues and one who handles external issues. For example, one person can deal with administrative issues, and the other finds projects and is responsible for faculty recruitment and other issues. Third, even inspired people who are identified at the institution may need motivation or additional knowledge to develop an ICC type program. In this regard, research what schools are within a 2 to 3 hour drive that are innovating and schedule a site visit to learn about what they are doing. This field trip need not be expensive but may enlighten and serve to bond core faculty through this shared experience. For the ICC, participants visited a university in Chicago and learned about how they use design thinking as a unifying framework in which to run their design projects. When traveling to conferences, faculty members could also meet with university personnel from schools that are doing innovative things and share their knowledge with their colleagues upon their return.

Additionally, it is important to build a simple yet respectable website or create some other tangible presence to clearly communicate and signal to interested parties (e.g., students, potential clients, and advisors) that this experience will actually happen. For millennials and even slightly older students, the existence of a website is essential for credibility. Ideally one of the lead faculty has the skill to build and maintain a website. Fifth, at the institution, identify areas of positive differentiation, expertise, and local resources. What is unique and positive about what personnel do? What can local alumni in well-placed positions at well-known organizations offer to support this effort? Ask for their feedback to encourage their interest and support. Sixth, use professional networking tools such as Linked-In to identify clients and seek out nonprofits—working with nonprofits may have a lower reputational risk to the institution in the beginning of program development. Engage a wide variety of clients to appeal to a large and diverse student base (as well as diverse faculty and staff) signaling that there is something for everyone, and seek project areas that are growing such as healthcare, digital, energy, and sustainability, especially if the domain pairs with university academic organizational strengths.

Next, avoid one college or school unit "owning" the program, which may limit participation for other units which reduces the community component. Eighth, start small the first year, and iterate rapidly, pivot, and generate some early wins. Designate someone as a note taker, and make sure that insights provided by participants are fed back into the system and that revisions are integrated and are communicated to those who cared enough to share them. Ninth, link efforts to the university strategic plan and college missions, which will make administrative support much easier to obtain. If possible, link efforts to accrediting bodies and what they value. One college's primary accreditation body at the present institution values impact and innovation, which aligns well with the emphasis of the ICC. This will also enable more broad support from upper administration. Next, develop a clear set of expectations for all involved: mentors, students, and clients. Circulate those expectations to build shared understanding, and revise documents as appropriate. As time permits, develop assessment tools. Even brief anonymous surveys will help organizers to improve the experience and to document success, which is important for securing additional resources.

Finally, as success stories emerge, while being aware of client confidentiality issues, gain visibility through the university website, university newspaper, community newspapers, local economic development organizations, and Chambers of Commerce. Try to document (with client permission) the success stories by videotaping or posting testimonials from the key participants—students, mentors, and clients—because success breeds success. Internally at the institution, encourage short presentations to academic unit advisory boards or steering committees, which may be a source of support in the form of encouragement, projects, mentors, and even funding or enhanced partnerships. Lastly, engage development officers to slowly start sharing the message with potential donors who can help institutionalize efforts. We were fortunate in our first year to have very highly recognized brands connect with ICC faculty. We encourage you to seek the highest level of quality clients that you can support and then do your very best to deliver value added to those organizations. This self-reinforcing cycle of quality programming will be the best advertisement for students, faculty, and clients as you build your own ICC.

CONCLUSION

One of the challenges facing educators is how to provide students with actionable knowledge from projects around practitioner issues. Cross and Sproull (2004) define this "as knowledge that leads to immediate progress on a

current assignment or project" (p. 446). This is not trivial to provide. The theme of the 2004 Annual Conference of the Academy of Management was on creating actionable knowledge, which led Blood (2006) to comment: "But as I encountered multiple previous calls for the creation of actionable knowledge (or synonymous terms), I began to wonder why we were still calling for something that we knew we needed a long time ago" (p. 209). Coupled with this, abundant information is available to suggest that increased student involvement with academic pursuits in the academic and social aspects of campus life improves their learning and personal development. The ICC provides students with an opportunity to systematically apply what they are learning in multiple classrooms and spend their time and energy on an extracurricular activity in which they work on a client project to gain academic, professional, and social benefits. We acknowledge that the ideas and steps we describe are difficult to convey in writing, and we encourage readers to contact us to discuss this project further.

Exhibit A: ICC website with List of Projects.

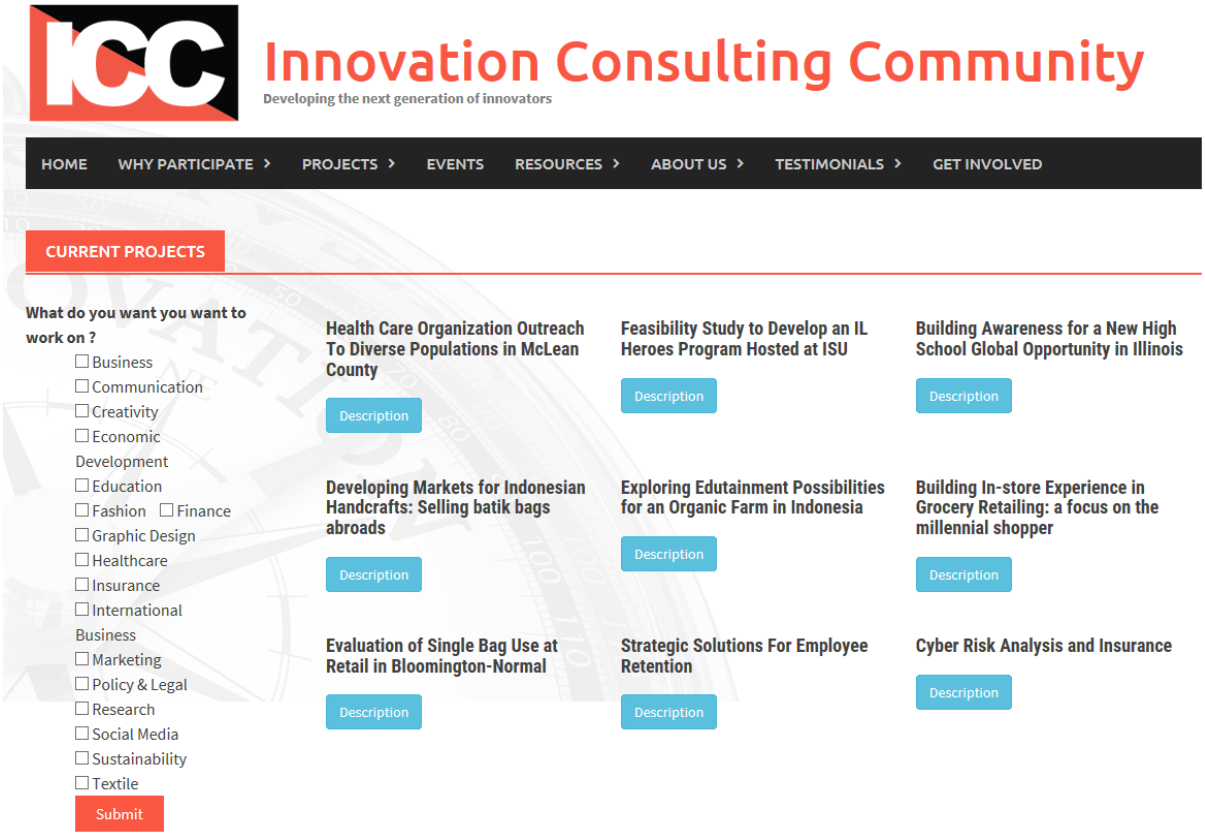

Exhibit B: ICC Timeline

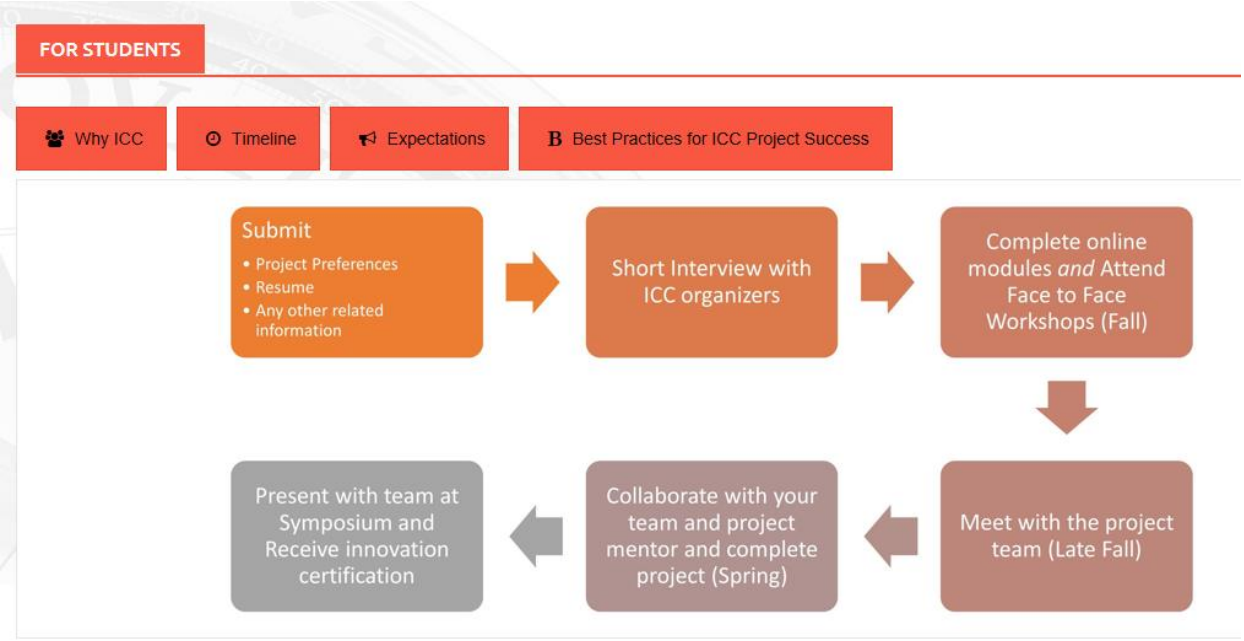

Exhibit C: ICC Student Interest Submission

GET INVOLVED

Innovation Consulting Community
innovationconsulting@ilstu.edu
When you contact us with your interest in participating in a project, submit the following information and we will contact you. **Please be advised – you need to be an ISU student in the Fall and Spring semester to participate. Additionally, if you are taking a full course load at ISU and working more than 10 hours per week in the spring term we do not recommend ICC participation. Fall semester time commitment is approximately 15hours (total; not per week) and Spring semester time commitment is ~5 hours/week until mid-April.**

- Your full name
- Major at ISU
- Contact number
- Project of interest (if more than 1 clearly indicate your order of preference)
- Why is this project of interest?
- What skills/experience if any do you have in this project area?
- How did you learn about ICC?
- What will you need to give up (outside work time, RSO participation, etc.) to participate in the ICC?
- Are you an international student studying in the U.S. (yes/no)?
- **Please *attach* your resume as a word (.doc or .docx) document**

Exhibit D: ICC Best Practices for Student Teams

FOR STUDENTS

Why ICC | Timeline | Expectations | B Best Practices for ICC Project Success

Based on observations and experience by **Andrew Bordewick**, ICC Project Mentor and ISU Alumnus April 2018.

1. Schedule team meeting times to meet in person on a frequent basis (weekly or bi-weekly at a minimum) and stick to that schedule. This helps with team formation, cooperation, and accountability, which will improve the quality of your work. Work as a team, and find ways that everyone can contribute.
2. Work with the client to determine the scope of the project as soon as possible, including what they are expecting as a final deliverable. Start with identifying the final deliverable so that you know what you are ultimately responsible for, then work backward to plan the activities required to complete your project.
   - Take time and make an effort to define terms when working with the client – this is absolutely essential! Your definition of a "marketing plan" may not be the same as their definition of a "marketing plan". Be deliberate in talking through what they mean, what they want, what they are looking for. Ask for examples if they have any. The last thing you want to do is to work for 6 months, present your deliverable, and then find out the client was looking for something completely different.
   - Be realistic and upfront with the client about your schedules, capabilities, capacity, etc. They may not have realistic expectations for a student project, or in some cases may underestimate your abilities. Talk through what your team is capable of doing and set proper expectations for what you will deliver.
3. Create a timeline of activities for the entire project and meet every deadline. Assign tasks and hold each other accountable to ensure that you are progressing towards the final deliverable. If your timeline is too ambitious, or if you start to get behind, that is an indication that your project scope is too large and you need to reduce your activities and/or the planned deliverable. If a change in scope is required, have an open conversation with the client and come to an agreement on a revised deliverable.
4. Establish a minimum frequency of communications with the client, and use the method that they prefer (phone, skype, email, in-person). Meet those minimum expectations for meeting check-ins, and then use email for questions between official meetings.
   - Have the Project Manager be the funnel for all communications and single point of contact for the client. This makes things much easier for them.
   - Keep your mentor informed. Carbon copy the mentor on all emails to the client.
5. Use your mentor as a resource: bounce ideas; ask questions; have them proof-read surveys, documents, emails, etc; ask for advice on research methods. If you encounter problems with the client, ask for the mentor's assistance in facilitation and communication.
   - The mentor will not do any of the work for you. However, a short conversation with your mentor may point you in the right direction and make things much easier for you.
   - The mentor may have other resources in their network that can help your team – experts in a certain field, knowledge about research methods, experience with software, industry contacts, etc.
   - Meet with your mentor in person once a month at a minimum, and communicate via their preference (email, text, phone) in between meetings.
6. Practice your final presentation multiple times at least 1 week before delivering to your client. Practice in front of a group of peers, another ICC group, your mentor, other student groups, a professor, etc. Get a range of feedback about your content, slide design, verbal delivery, etc. Iterate and improve!
7. Keep a journal of your experience – things that go well, things that don't go well, improvements made, your contributions to the team, interactions with the client, lessons learned, etc. This will give you excellent material to talk about "real world" consulting experience in future job interviews.

Exhibit E: Examples of ICC Projects

Organization Descriptor	Project Descriptor
Large manufacturer of heavy equipment	Develop strategies to enhance employee engagement.
Professional Baseball team	Develop strategies to help the team's corporate partners to reach young fans in-stadium.
Municipal waste hauler	Identify new uses for glass bottles that it collects.
Larger grocery chain	Attract more millennial shoppers.
National Football League team	Develop strategies to sell corporate suites.
NGO in Thailand	Develop a social media strategy to find donors.
Large medical center	Develop a plan to help center to attract more minorities to pursue health care careers and become employees at the hospital.
Coffee chain	Develop a plan to help chain reduce hourly worker turnover.
Mid-size city in the Midwest	Develop a plan to help City forge closer relations with students at the local university.
NGO in Indonesia[a]	Develop strategies to help NGO export their handicraft bags to the United States. Develop a plan to help NGO further develop inbound edu-tourism.

[a] There were two projects for this organization.

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The Role of Competency Based Education in Higher Education: The Process of Tuning the Marketing Discipline

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ABSTRACT

Higher education is feeling pressure to make changes in the way it operates. Scholars have identified gaps which may be growing between marketing practitioner needs and marketing education content. At the same time, higher education is facing numerous challenges from environmental forces such as online education and in many cases reduced stakeholder support. Competency based education (CBE) has emerged as a potential educational focus. One of the benefits of CBE is that the skills and knowledge a student needs to acquire become transparent at the outset of the program thereby sending a clear signal to prospective students. This paper provides an extensive presentation of a three state multi-degree competency based framework for the marketing discipline based on *Tuning* methodology. The development, analysis and evaluation of marketing competencies used multiple methods and offers educators in the field of marketing both a framework for developing competencies and a comprehensive set of competencies for consideration in their marketing curriculum.

Keywords: Competency based education, accreditation, assessment, assurance of learning, outcomes data, AACSB

INTRODUCTION

Higher education is feeling pressure to make transformational changes in the way it operates. Institutions are facing numerous challenges from environmental forces and various important stakeholders. Indeed, Revere, Decker, and Hill (2012, p. 78) state "Couple the probable AACSB trends with the continued industry emphasis on relevancy and the focus of professional accreditation organizations, and it is apparent that the future of assessment lies in higher-level competency-based assessments." Student loan debt is over one trillion dollars and the cost of tuition continues to rise while government funding of public institutions continues to decrease (Weise and Christensen, 2014). Meanwhile, some employers voice concerns over the quality of knowledge and skills exhibited by graduating students and the lack of alignment of skillsets provided relative to the needs of a dynamic marketplace (Sidhu and Calderon, 2014). Likewise, academics Finch, Nadeau, and O'Reilly state "… an increasing gap may be opening between marketing education content and the needs of practitioners…" (2013, p. 65). Additionally, some students are dissatisfied with the employment opportunities available after investing ever-increasing resources to earn the college degree. In a recent survey of freshmen conducted by the University of California Los Angeles' Higher Education Research Institute, 87.9 percent indicated that a major reason for earning a college degree is to get a better job which is about 17 percent higher than that cited in 2006 on the same survey (Pryor, Eagan, Blake, Hurtado, Berdan, and Case, 2012). Student demographics are also changing. Students, particularly nontraditional students, want the path to degrees to be faster, more flexible, and more attuned to the needs of employers (Weise and Christensen, 2014). Making explicit competencies for a specific discipline has the potential to create a common unit value supporting more efficient academic credit transfer saving students and other stakeholders significant resources in both time and money.

A central focus of the aforementioned trends proposes greater transparency in discipline specific knowledge and skills required for graduation in addition to cost reduction in delivering education. This paper discusses the role of Tuning which is a competency based framework that may help not only with the recommendations from a variety of stakeholders for appropriate educational skill development but also provide enhanced transparency potentially fostering greater flexibility and efficiency in degree attainment.

This paper is outlined as follows. First, we discuss the history and the current role of competencies in higher education. Next, we illustrate the process involved to develop a comprehensive set of competencies for the marketing discipline. Third, we highlight examples of Tuning benefits at various institutions that participated in the

Tuning initiative. Finally, we provide recommendations on how competencies could be implemented on a broader scale and obstacles that may arise.

PREVIOUS RESEARCH

The role of competencies in higher education

According to the Organization for Economic Co-operation and Development, the United States ranks 12th in the world for the number of college degrees earned by students between the ages of 25 and 34 (Bidwell, 2014) and the college degree attainment rate has been largely unchanged for decades. Thus there is pressure from government policymakers and private philanthropic organizations, such as the Bill and Melinda Gates and Lumina Foundations, to increase college degree attainment considered by many to be important for success in the competitive global environment. The Lumina Foundation, a private foundation that supports projects to increase access to higher education and degrees granted, has set a goal (Goal 2025 Initiative) to increase the proportion of college degree attainment to 60% of the United States population by 2025 (up from the current figures: 39.4 percent for ages 25-64 and 40.9 percent for younger adults ages 25-34). President Obama called for the United States to return to the number 1 ranking by the year 2020 (Bidwell, 2014). In the report "Making College Affordable: A Better Agenda for the Middle Class," the President pointed to emerging technologies, new institutional curriculum design practices, and new delivery methods as important avenues to create a high-quality, yet affordable higher education system (The White House, Office of the Press Secretary, 2013). A theme amongst many of these groups is to move to competency-based education (CBE) where students move at their own pace through demonstration of their mastery of a personalized set of transferable skills and modules, rather than fixed seat time and the current credit hour system (Parry, 2013).

The competency-based approach is not new. Gallagher (2014) claims the call for CBE dates to the late nineteenth century when "utility-minded administrators attacked the four-year curriculum as a useless tradition inherited from the medieval universities, and they introduced reforms to allow students to move through college at their own pace, acquiring training on an individual basis" (Collins, 1979, 125, as quoted in Gallagher, 2014). The CBE methods reappeared in the 1970s with the help of substantial federal funding in the form of FIPSE (Fund for the Improvement of Postsecondary Education) grants, but essentially disappeared in the 1980s. CBE was also promoted by proponents of civil rights and the women's liberation movement as a means of social empowerment, claiming that it expanded opportunities for individuals and typically excluded groups (Neumann, 1979; Oleson, 1979; Riesman, 1979). This rationale is not part of the current movement. A three-year study funded by a FIPSE grant identified a number of issues with CBE programs that led to its decline such as high drop-out rates, poor self-monitoring, inadequate institutional preparation and leadership, higher than expected costs, and problems standardizing and coding the competencies. In addition, the programs were not popular with students or faculty (Grant, 1979).

The latest resurgence of CBE developed in 1989 with the emergence of the University of Phoenix and its fully online program, which offered flexibility and convenience to working adults seeking a college degree or improvement of skills. Initially these programs did not compete directly with traditional programs as they attracted a different target market, nontraditional students. These students tend to be older, not enrolled full-time, do not live on campus, and have work, family or other responsibilities that make traditional programs difficult and less attractive. Today the nontraditional student has become more prominent with approximately 71 percent of college students in America fitting some aspect of this description (Weise and Christensen, 2014). Programs using CBE today range from the addition of industry-approved competencies into the traditional curriculum to programs focusing strictly on competencies with no courses or curriculum (such as Southern New Hampshire University's "College for America" program). Western Governors University has been operating with a CBE program for 18 years and is held up as the "proof of concept" by policymakers (Johnstone and Soares, 2014).

The justification today for competency-based programs focuses on the flexibility, efficiency and affordability of the CBE process (Gallaher, 2014) and that the skills and knowledge the student needs to learn and be able to perform are identified at the onset of the program and are transferable across programs.

However, faculty and traditional universities have been reluctant to align their practices with CBE programs. Most faculty members are not willing to adopt what they may perceive to be a "vocational training" approach to education. They are reticent to accept the notion that the main purpose of education is to provide only the necessary

content and skills to credential workers who achieve the minimum standards for future employment. Instead most faculty contend that education should be about creating rich educational experiences that help students learn to think and explore topics and deep questions that may be totally unrelated to employment (Neem, 2013).
Assessment of learning outcomes is an essential part of the curriculum improvement process regardless of the extent to which a program embraces the competency-based approach to learning. Universities pursuing AACSB International business program accreditation or experiencing the maintenance process must clearly specify the learning outcomes for their programs, identify where they occur within the curriculum, measure the effectiveness of the program based on accepted assessment practices, and make changes based on the information learned through the assessment process. Therefore, as part of the business curriculum, it seems prudent that marketing faculty should regularly consult not only with peer or aspirational institutions but also with employers, students, and alumni regarding the appropriate content and skills needed in the marketplace and strategically embed them within planned curriculum. The Tuning Process is one framework in which to accomplish this and is presented next.

The Tuning Process

Tuning is a faculty-driven process intended to make explicit what a student should know and be able to do [competencies] in a specific discipline when the degree is completed. The process involves consultation with various higher stakeholders in developing a framework that establishes clear learning expectations for students at each degree level (MHEC, 2014). Faculty members from multiple institutions and institution types cooperatively determine what differentiates their discipline from other disciplines. As a team they specify distinct competencies, student learning outcomes, and potential career pathways to reflect this differentiation. These elements are then shared with key stakeholder groups such as faculty colleagues, students, alumni, and employers and are modified based on stakeholder input. The final step in the framework is for faculty to review this information at the campus level and identify potential mission-based changes to curriculum and assessment needed in their program.

Tuning USA is a project created and funded by the Lumina Foundation to facilitate its Goal 2025 initiative, which seeks to increase the percentage of Americans with higher education credentials to sixty percent by 2025 (Tuning USA, 2012 as cited in MHEC, 2014)[1]. Since then, Tuning projects have been conducted for more than 20 disciplines. As part of this initiative, Lumina Foundation awarded a grant to the Midwestern Higher Education Compact (MHEC) to facilitate the first ever multi-state Tuning project with *marketing* as one of the areas of focus and is the focus of this paper. This Compact Initiative took two years and consisted of fifteen faculty (five each from Illinois, Indiana, and Missouri). Its members represented three different institutional sectors including two-year public, four-year public, and four-year private campuses. The authors of this paper are from institutions in three different states, from two year and four year institutions, and participated in this extensive process.

The primary objective of Tuning is to create a common understanding and intentionality among faculty in a discipline of the key competencies and learning outcomes faculty expect students to accomplish in order to earn a degree in the discipline. They must ensure these outcomes align with the expectations and needs of employers in the workplace. This interaction with key stakeholders and the transparency of expectations should enhance student learning, retention, transferability of credits between institutions, and overall success in the workplace. Ultimately, Tuning's goal is to improve the ability of higher education to respond to the needs of a dynamic environment.

It is important to emphasize that the purpose of Tuning is not to standardize curricula or assessment methods. Faculty members at different institutions retain total autonomy regarding how the agreed elements are delivered and assessed. Various assessment tools such as signature assignments, exams, projects, and presentations may be used to provide evidence of the knowledge and skills learned based on the competencies and outcomes identified in the Tuning process. Standards should drive assessment. Tuning identifies these standards in the form of program level competencies and learning outcomes.

Marketing degrees considered for Tuning.

[1] Tuning originated as a component of the Bologna Process, where Education Ministers from 29 European countries signed a cooperative agreement in 1999 to work toward more comparable outcomes and quality among the European higher education institutions. Since that time the Tuning process has expanded to other parts of the world including Latin America, Canada and the United States (Adelman, 2008a, 2008b, 2009; Gaston, 2008; Institute for Evidence-Based Change, 2010; Tuning USA, 2012).

One of the challenges of the marketing Tuning process was to define the scope of the degree specifications in light of the variety of educational offerings available. To prepare students for a career in marketing, programs provide basic business knowledge as well as education in specific marketing topics such as sales, advertising, marketing research, consumer behavior and communications. For students wishing to pursue careers in some aspect of marketing, several degree options are available and are briefly outlined below.

Student Proficiency. Selection of specific degree levels to be included in Tuning Marketing curriculum is a critical first step in the Tuning process. Successful tuning depends on the ability to discern students' mastery of agreed-upon learning objectives at varying degree levels. Two equally important components of this Tuning effort must be considered when establishing degree-level proficiencies. At the end of a two-year degree program students may go directly into the workforce or transfer to a four-year program prior to entering the workforce. Expected skill sets would be different for an individual coming out of a two-year program than for a student graduating from a four-year program. Therefore, after general student proficiencies have been established, they must be scaled according to degree level. Faculty must also determine whether degree-level outcomes are relevant to the workplace and matched to entrance needs in the field.

Degree Level Focus Selected for Tuning Marketing. Table 1 contains information on the various degree levels considered for competency development. Two levels were eliminated at the outset. The high school graduate was eliminated because of a lack of proficiency in marketing content knowledge and work skills. At the other extreme, doctoral degrees are customized and often specific to each institution and focus intensely on a narrow theoretical (rather than practitioner-related) aspect of marketing. Hence, the doctoral degree was eliminated due to the small number of marketing professionals impacted and the highly specialized focus within the marketing discipline.

After extensive discussion, it seemed most consistent with the goals and limitations of this endeavor to include four degree categories: Associate of Applied Science (A.A.S.), Associate of Science/Art (A.S., A.A.), Bachelor's Degree (B.A., B.S.), and a combined Master's of Business Administration, Executive M.B.A., and a Master's of Science/Art (M.S./M.A.). The associate's degrees were separated into an applied science and associate of science options because of the significant differences in expectations of proficiencies, skills and career expectations upon degree completion. The Master's degree options were combined due to the expectations of similarities in proficiencies, skills and career expectations upon degree completion.

Developing marketing competencies

Prior to identifying the competencies, a definition of marketing was reviewed by faculty participants. The discipline of marketing focuses on identifying and meeting human and social needs. It is based on thinking about business in terms of customer needs and their satisfaction. The American Marketing Association offers the following formal definition:

> *Marketing is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large. (Approved July 2013) (https://www.ama.org/aboutama/pages/definition-of-marketing.aspx)*

Identifying Marketing Competencies. A marketing competency is comprised of categories of knowledge and learning within a discipline that is "ratcheted" up according to degree-level. It is drawn from the template of core concepts, with competency at each degree level described in a brief statement. It describes the levels of learning within the discipline (IEBC, 2013). During the initial stages of the Marketing Tuning process, the Tuning team tried to capture the essential nature of the marketer's job and how these job tasks and responsibilities translated into competencies and learning outcomes. A consideration in selecting marketing competencies was whether it helped differentiate marketing major graduates from non-marketing major graduates.

Stakeholder input was conscientiously evaluated and improved our process and final product. This input helped to enhance our thinking by incorporating differing perspectives, clarifying questions, helping establish discipline boundaries, and identifying potential limitations in existing educational structures. An overview of the Tuning framework is located in Table 2. Next, we present the methodology used for stakeholder consultations to identify marketing competencies.

RESEARCH DESIGN

Methodology used for stakeholder consultations

Prior to primary data collection, the Tuning project reviewed a large body of secondary literature. These secondary sources can be broken into two broad categories: (1) competencies, and (2) the Tuning process. There is significant research that clearly describes the job knowledge and skills desired by many employers. These sources include job placement or information outlets (e.g., Monster.com, onetonline.com, O*Net), governmental agencies (e.g., Bureau of Labor Statistics' Occupational Outlook Handbook), and numerous textbooks, insightful news and academic articles. Other secondary sources include previous Tuning endeavors (e.g., Texas for Engineering and Utah State for History), and resources provided by Midwestern Higher Education Compact (MHEC), the Institute for Evidence Based Change (IEBC), and speakers and facilitators organized by MHEC for Tuning faculty.

At the outset for primary research, qualitative research was the focus with interviews conducted with current students, faculty peers of Tuning faculty, recent marketing graduates, and industry contacts known by faculty. Over fifty interviews and information requests were conducted. Following this process, draft competencies and subcompetencies were established and entered into an online survey format using Qualtrics®. We identified names, titles, and email addresses for marketing and human resource executives at public firms from four states in the Midwest using Lexis-Nexis. Executives from marketing and human resources were the target respondents because they have knowledge about competencies marketing graduates should possess. We emailed them a survey to confirm whether subcompetencies belonged under a particular competency and probed for omission of subcompetencies. The survey was pre-tested using fifty-six executives. Following survey revision, two email waves of three thousand executives located in Ohio, Minnesota, Wisconsin, and Michigan were sent and one hundred and twenty-two responses were received with eighty-eight usable surveys. No monetary incentive was used. Due to the detail of each competency and subcompetency and our desire to not overwhelm the respondent, each executive received a subset of the competencies. However, all subcompetencies were rated by multiple executives.

Competency categories

After extensive discussion amongst the fifteen Tuners based on all of the information obtained, five competency categories emerged: Market Sensing; Market Interpretation; Market Value Creation; Market Analytics, Feedback, and Control; and Personal Branding. Each is briefly summarized below. Table 3 contains definitions of competencies, subcompetencies and examples of learning outcomes for each marketing subcompetency. Each competency is briefly profiled below.

Market Sensing. It is important to understand the marketing environment to comprehend the customer's concerns, motivations and to adjust the product according to the customer's needs. Therefore, we included *Market Sensing* as a marketing competency and define it as *collecting and analyzing data about a firm's or brand's external factors including competitive set and economic, technological, cultural, social, demographic, legal, political, international, and ecological factors as well as internally focused factors including market share, customer needs, and similar relevant data as shaped by industry.*

Subcompetencies identified for marketing sensing are environmental analysis and research and consumer behavior. Definitions for these in addition to a couple learning outcome examples are found in Table 3.

Examples of marketing positions responsible for market sensing include marketing research director, market research analysis, economist, statistician, and account executive.

Market Interpretation. We define the process of market segmentation, targeting, and positioning broadly as *Market Interpretation* and define it as: *revealing meaning and relationships among and between consumers, the organization, and products in the market in order to facilitate brand value creation.* Segmentation, targeting, and positioning comprise a three stage process: where firms (1) determine which kinds of customer segments exist, then (2) select which ones they are best suited to serve and, finally, (3) implement segmentation by optimizing products/services for that segment and communicating that the company has made the choice to distinguish themselves that way.

Subcompetencies identified for market interpretation are segmentation, targeting, positioning, and marketing strategy. Definitions for these in addition to a couple learning outcome examples are found in Table 3.

Some examples of marketing careers responsible for market interpretation include brand manager, sales manager, vice-president of marketing, advertising manager, media coordinator, and media buyer.

Market Value Creation. We define *Market Value Creation* as *adding value to the firm's product or service offering by developing marketing mix strategies that reflect the needs and characteristics desired by each of the selected target markets that are identified in the market sensing and market interpretation processes.*

Marketing plans lay out the target markets and the value proposition the firm will offer. At the tactical level (often synonymous with the four Ps of marketing – product, place, promotion and price), marketers specify product features, promotion, merchandising, pricing, sales channels, and service. Subcompetencies identified for market value creation are product management, pricing strategy, supply chain management, and integrated marketing communications. Definitions for these in addition to a couple learning outcome examples are found in Table 3.

Typical marketing job categories include: brand merchandising manager, sales representative, assistant brand manager, brand manager, sales manager, global brand manager, marketing director, Chief Marketing Officer, and Vice-President of Marketing

Market Analytics, Feedback and Control. An important task of marketing research is to assess the efficiency and effectiveness of marketing activities. *Market Analytics Feedback and Control* is defined as r*ecognizing the correlation between marketing metrics and customer relationship management and understanding the importance of both in providing feedback that identifies gaps in meeting the goals of previous process steps such as market sensing, market interpretation, and market value creation.* Marketing metrics such as brand awareness, campaign ROI, and consumer satisfaction are employed to help managers quantify, compare, and interpret their marketing performance. Marketers must also know their customers. A comprehensive database about individual customers or prospects is required that is current, accessible, and actionable for marketing purposes such as lead generation, lead qualification, sale of a product or service, or maintenance of customer relationships.

Subcompetencies identified for market analytics, feedback, and control are marketing metrics and analytics and customer relationship management. Definitions for these in addition to sample learning outcome examples are found in Table 3.

Some of the typical jobs involved in these activities include: web analytics manager, business intelligence analyst, customer relationship manager enterprise reporting analyst, database developer, digital marketing manager, marketing researcher, marketing consultant, and marketing analyst.

Personal Branding. Personal branding is how we market ourselves to others. Thus, *Personal Branding* is defined as *the differentiation and packaging of unique talents, strengths and character that provide value to others by individuals.* It is a timeless concept. The primary reason why branding has always existed on an individual level is that we always have to sell ourselves in various situations, from trying to impress our managers so that we can take on bigger projects, to convincing our friend to see a movie.

We recognize that personal branding skills are not unique to marketing, but contend that marketing students should have a deeper understanding and use of these skills to differentiate themselves.

Subcompetencies identified for personal branding are ethics, civic engagement, teamwork, leadership, oral communication, written communication, critical thinking, information literacy, and media literacy. Due to space limitations, additional information for this competency is available at http://www.mhec.org/programs/tuning.

Identifying and scaling learning outcomes

Once general agreement was reached on the competencies, the team divided into workgroups to develop associated *sub-competencies,* as noted above, and to identify appropriate *learning outcomes*. The goal of Tuning Marketing is to establish clear learning expectations for marketing students at each degree level in order to articulate what they

should know and be able to do at the point of degree completion. A benchmark which helped to define appropriate learning outcome statements were the elements of the acronym *SMART* (IEBC, 2013). SMART suggests that learning outcome statements should be student-centered, measurable, action-oriented, results driven and tailored to specific degree Levels. To further assist in this process, the revised Bloom's Taxonomy was referenced to help appropriately express levels of learning activities for the various degree types (Anderson, Krathwohl, Airasian, Cruikshank, Mayer, Pintrich, Raths, and Wittrock, 2001).

Outcomes by degree level

As language was developed for all competencies and learning outcomes, concern was expressed about assuming that only lower-level Bloom's taxonomy verbs were expected in the first two years of college. On the contrary, students in their first two years may be, and are frequently asked to, perform higher-level Bloom's taxonomy work. At the same time, it was agreed that students in later semester coursework often had more knowledge within the discipline and could work on more complicated marketing scenarios. Therefore, it was decided that the following four descriptors would be used to explain level of achievement by degree-level: Recognized – student recognizes the concept, but has not applied it. Basic – student has applied concept to a relatively simple marketing scenario. Complex – student has applied concept to a relatively complex marketing scenario. Integrative – student has applied concept to a marketing scenario and understands its implications across business functions.

Mapping marketing career pathways

In addition to identifying competencies, subcompetencies and learning outcomes, marketing career pathways are created through Tuning. Table 4 presents a representative sampling of career areas, possible positions and associated salary ranges. Names of career areas and positions may vary by industry.[2] This list uses common nomenclature and does not include all possible positions. Depending on the industry and the specific company the potential salary range may differ. Because marketers understand the entire value chain and the importance of each piece of the value chain in delivering what meets the customers' needs, this list of career opportunities is not an exhaustive one. An example of a scaled career pathway for one competency, Marketing Analytics, Feedback and Control, is presented in Table 5.

Implementation of Tuning

We surveyed Tuning participants approximately two years following the Tuning process to understand how and to what extent they implemented aspects of Tuning at their institutions. Each participant was contacted via email asking them how, if at all, they and their institutions are using Tuning. Finally, they were asked about any *obstacles* that arose related to implementation. Of the fifteen faculty eight responded with information. Respondents were promised anonymity by name and institution.

Based on this feedback implementation can be best categorized into four broad areas: a) course and curriculum development and assessment including development of institution or program specific student learning outcomes, b) acceptance of the concept of measurable student learning outcomes, c) use of the Tuning process for accreditation purposes, and d) student advising.

By far, and not surprising, the greatest impact of Tuning on participants has been in the area of course and curriculum development and assessment. Faculty reported their ability to write more succinct student learning outcomes and enhanced faculty acceptance of assessment of these outcomes. Curriculum changes were made by identifying curriculum gaps and mapping learning outcomes. One faculty member reported the following consequence of her work with Tuning: "I have developed new quizzes, unit tests, and a comprehensive final exam based upon the Tuning student learning outcomes for my Principles of Marketing course. Further, I have a midterm marketing research project and a marketing plan project using a marketing simulation that are specifically identified with student learning outcomes from the Tuning project." Another faculty member who participated in Tuning highlighted a similar benefit and stated: "We used Tuning to revamp our marketing curriculum which entailed adding courses (analytics and social media), combining some courses (advertising and IMC), among other things. We didn't have to re-invent the wheel with surveying and interviews and our Advisory Board found it very helpful."

[2] For more information on job descriptions, please consult the O*NET website, https://www.onetonline.org.

Further, common agreement led one respondent to develop open education resources that can be used in teaching basic marketing concepts. The student learning outcomes have no doubt provided a foundation for commonality in business curriculum within and outside the participating institutions. The external validation involved in the Tuning process convinced a number of faculty and some administrators that learning outcomes can be developed and measured.

Participation in the Tuning process has allowed faculty representatives to lead others at their institutions through the use of the Tuning process to *solve other issues* within their institution. In Indiana, for example, public universities and colleges used a similar process to develop a Single Articulation Pathway for Business Administration so that any student completing an associate degree at a two-year institution can enter state universities at the junior level. An additional benefit of Tuning was woven into a medium that has growing appeal for students, use of video. One faculty member stated the following: "We have incorporated video content in our statewide online course to assure that we are covering all Tuning-based student learning outcomes in our Principles of Marketing course. This information has been shared with each region within our system as well, via a formal presentation of the Business Administration Program Chairs."

Lastly, several institutions reported that the Tuning process helped them document for their recent accreditation efforts and helped students and admissions and advising staff better understand the career opportunities available for those with marketing degrees. One faculty member captures this benefit and stated the following: "[We] used the Tuning competencies as our marketing competencies as part of our recertification with IACBE to solidify our goal of moving in that direction. In addition, the Personal Branding competencies were used in the Management section of the IACBE report." Another faculty member highlighted Tuning's benefit for student advising with the following statement: "The academic advisor to all marketing students was provided with both the competencies and the career map to share with students. The competencies improved his understanding of the discipline of which he is not an expert, but is knowledgeable."

CONCLUSION

The future of competencies in marketing in higher education

The identification of competencies and learning outcomes for the marketing discipline may represent an effective way to assess whether programs and their graduates possess the appropriate skills for their chosen field. In this paper, the framework to identify these competencies and learning outcomes was Tuning. While Tuning allows multiple relevant stakeholder groups to participate through multiple methods, it is ultimately *faculty driven and owned*.

Universities pursuing accreditation or experiencing the maintenance process or a program review must clearly specify the learning outcomes for their programs, identify where they occur within the curriculum, measure the effectiveness of the program based on accepted assessment practices, and make changes based on the information learned through the assessment process. It is important to keep in mind, that once this process takes place, periodic reevaluations are necessary as changes in the market occur. Given the speed at which marketing has changed over the last decade, and continues to change, this is particularly important. Indeed, Finch et al state "… that the speed of transformation facing many industries today may negatively dilute the perceived value of marketing education and give rise to the substitution of alternative training" (Finch et al. 2013, p. 65). Engaging practitioners often as recommended through Tuning in addition to the traditional methods used for program review such as activities of peer and aspirational institutions may enable the discipline to both meet the needs of the business community in addition to those of the academic community. It is, however, important to balance the need to continually and frequently renovate curriculum with the resources required to achieve this.

Tuning offers benefits beyond discipline specific competencies. It also offers the development of career maps that prospective students for a discipline could evaluate in high school or prior to selecting a discipline in higher education. By providing students with greater information about a discipline's focus, major changes and associated costs in student time and financial resources may be reduced. Of potential interest to public policy makers and funding entities such as state legislators sometimes skeptical about the relevance of university curriculum, tuning offers greater transparency on competencies by degree level (e.g., 2 year, 4 year) with the goal to facilitate faster and more effective credit transfer between institutions. Loss of academic credit between or even within institutions may

demotivate students if not derail some from completing a degree altogether (Jenkins and Davis, 2016). Although Tuning's focus is not explicitly on individualization and personalization it may represent a first step in this process.

The identification of competencies and learning outcomes provides an improvement over some current approaches, however, it is not perfect and there are obstacles to attaining its implementation. A question such as "can all skills and abilities be reduced to competencies?" is a legitimate one. It is not easy to measure intangibles and emotional intelligence but a competency based framework is a place to start.

Additionally, obstacles to employing a competency based framework at the department or unit level in the marketing discipline may include but are not limited to the following (some of which overlap): bias against using pre-developed competencies created outside one's home department ("not invented here"), lack of resources available to develop and implement department specific competencies, if not using pre-developed competencies, faculty disbelief in the value of identifying and employing a competency framework, faculty perception of encroachment on faculty academic freedom, and difficulty determining in which course or courses identified competencies should be embedded. One could, however, envision an online diagram of competencies each student at an institution will possess upon marketing degree completion. A student would be able to enter a course number and visually see which competencies will be learned in a specific course. At the end of her/his degree, all competencies should be highlighted. This tool would make transparent to students, faculty and other stakeholders what each student should be learning throughout their coursework potentially leading to greater student satisfaction and motivation and potentially efficiency in service delivery. With higher education considered as a service, many universities are starting to focus more on meeting or exceeding the needs of their students.

The process of Tuning should be faculty driven and is flexible to allow each institution to craft its own approach based on its mission and position in the market. Although limitations and obstacles to developing a competency based approach exist, we hope that this paper provides a framework and guide in which higher education departmental units can develop and use a competency based approach to learning and take advantage of its many benefits.

Table 1: Degree Levels Evaluated for Competency Development

Associate of Applied Science (A.A.S.). is a two-year degree program requiring 60 +/- hours and typically includes minimal general education requirements. This program is designed for students seeking employment immediately upon graduation.

Associate of Science/Art (A.S., A.A.) is a two-year degree requiring 60 +/- hours, including approximately 40 hours of general education. Ideally, completion of all requirements allows student to seamlessly enter a four-year institution's business program (in Marketing, Accounting, Management, etc.) to complete a B.S. degree rather than immediately entering the workforce.

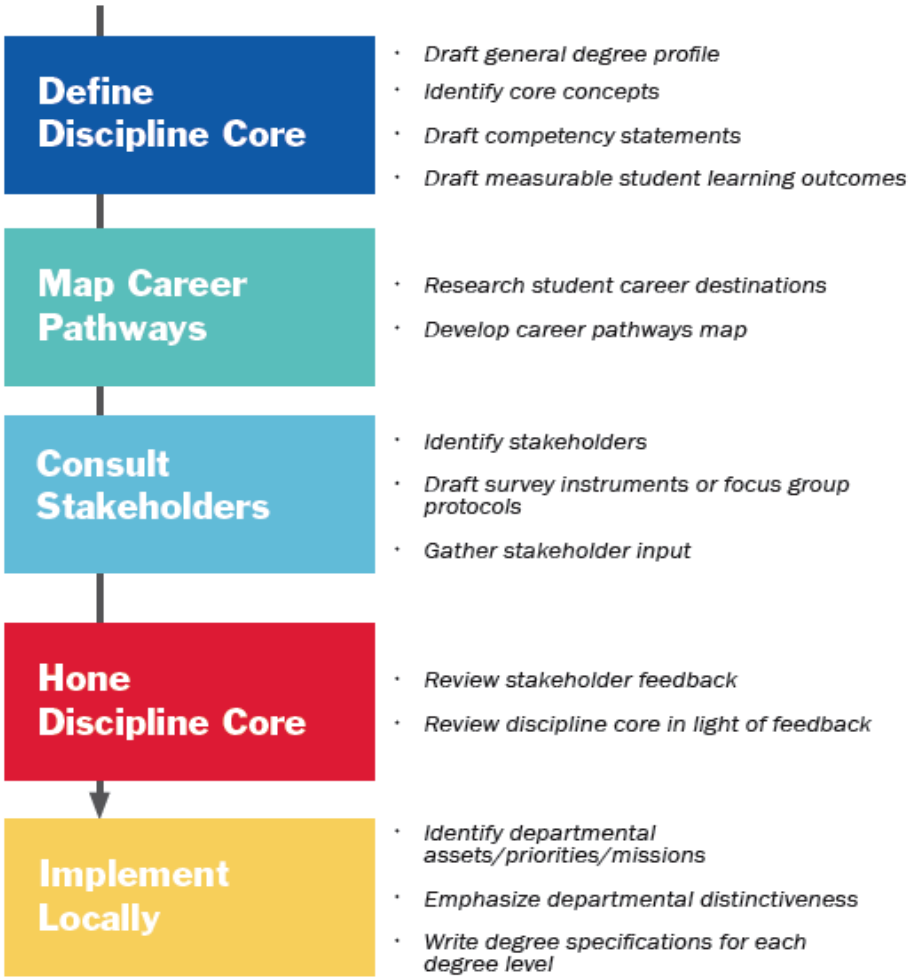
Bachelor's Degree (B.A., B.S.). For future marketing professionals, a four-year Bachelor of Science degree program in Marketing can help students develop an understanding of how businesses develop relationships with their customers, and how their customers' needs can best be met.

Master's of Business Administration, Executive M.B.A. An M.B.A. degree attracts people from a wide range of academic disciplines because it provides wide-spectrum theoretical and practical training to help graduates gain a broad-based understanding of general business management functions.

Master's of Science/Art (M.S./M.A.). In a master's of science program students concentrate on a specific field of study (e.g., Marketing Research or Integrated Marketing Communications) and upon program completion, demonstrate advanced knowledge of a specialized body of theoretical and applied topics. They offer significantly more depth in specific areas of study than do their broader-scope M.B.A. counterparts.

Source: MHEC, 2014

Table 2: The Structure of Tuning Process



Source: Institute for Evidence-Based Change (IEBC), 2013

Table 3: Competencies, Sub-competencies, and Learning Outcomes

1. Market Sensing collecting and analyzing data about a firm's or brand's external factors including competitive set and economic, technological, cultural, social, demographic, legal, political, international, and ecological factors as well as internally focused factors including market share, customer needs, and similar relevant data as shaped by industry.

1.1 ENVIRONMENTAL ANALYSIS

Evaluating what a firm does well/poorly within the context of the opportunities/threats present in the marketing environment and quantifying financial results of previous marketing actions.	**A.A.S. or Certificate**	**A.A. / A.S. or 1st 2yrs. College/ University**	**B.A. / B.S.**	**M.S. /M.B.A.**
Analyze competitors and the competitive environment by industry.	B	R	C	I
Analyze economic considerations by industry.	B	R	C	I

1.2 RESEARCH and CONSUMER BEHAVIOR

Understanding, implementing, and forming decisions from consumer inquiry. Evaluating markets of current and potential buyers for a given situation, describing the need(s) buyers satisfy through product use, how buyers make purchases, and what factors influence the buying decision.	**A.A.S. or Certificate**	**A.A. / A.S. or 1st 2yrs. College/ University**	**B.A. / B.S.**	**M.S. /M.B.A.**
Diagram the purchase decision process and problem solving method for a given product or service.	B	U	B	C
Develop and implement a marketing research plan through data collection and conversion of data to *information using quantitative analysis*.	B	B	I	I

2. Market Interpretation. Revealing meaning and relationships among and between consumers, the organization, and products in the market in order to facilitate brand value creation.

2.1 SEGMENTATION

Dividing a market into groups of consumers who are homogeneous within and heterogeneous between, on important attributes to the product category.	**A.A.S. or Certificate**	**A.A. / A.S. or 1st 2yrs. College/ University**	**B.A. / B.S.**	**M.S. /M.B.A.**
Define segmentation and segmentation variables.	B	R	B	B
Choose and collect segmentation data in order to recommend a market structure.	R	U	B	C

2.2 TARGETING

Selecting a market segment on which to focus and compete.	**A.A.S. or Certificate**	**A.A. / A.S. or 1st 2yrs. College/ University**	**B.A. / B.S.**	**M.S. /M.B.A.**
Define targeting	B	B	C	C
Evaluate strategies for selecting target markets (e.g. concentrated, differentiated, undifferentiated, and micromarketing, etc.).	U	U	B	C

2.3 POSITIONING

Defining a marketing mix for a product that creates a distinct and focused image in the targeted consumer's mind.	**A.A.S. or Certificate**	**A.A. / A.S. or 1st 2yrs. College/ University**	**B.A. / B.S.**	**M.S. /M.B.A.**
Define the key elements on which competitors in the product category are evaluated.	B	U	B	C
Evaluate the relative attractiveness of various positioning strategies.	U	U	B	C

2.4 MARKETING STRATEGY

Identifying attractive opportunities and developing appropriate marketing plans to achieve organizational objectives.	**A.A.S. or Certificate**	**A.A. / A.S. or 1st 2yrs. College/ University**	**B.A. / B.S.**	**M.S. /M.B.A.**
Identify the organizational mission.	B	B	B	B
Assess the financial impact of a marketing strategy.	R	U	B	I

3. Market Value Creation Adding value to the firm's product or service offering by developing marketing mix strategies that reflect the needs and characteristics desired by each of the selected target markets that are identified in the market sensing and market interpretation processes.

3.1 PRODUCT MANAGEMENT

Adding value by matching design features to customer needs, developing a relevant brand and building brand equity through effective positioning of the product or service for a specific target market.	**A.A.S. or Certificate**	**A.A. / A.S. or 1st 2yrs. College/ University**	**B.A. / B.S.**	**M.S. /M.B.A.**
Discuss product line influences on product strategy.	B	U	C	I
Evaluate a particular company's product strategy.	B	U	C	I

3.2 PRICE STRATEGY

Understanding the interplay between a product or service, cost, demand, customer perceived value, and competitors' prices to determine a pricing strategy that reflects the product's value and meets the firm's pricing objectives.	**A.A.S. or Certificate**	**A.A. / A.S. or 1st 2yrs. College/University**	**B.A. / B.S.**	**M.S. /M.B.A.**
Describe the concept of dynamic pricing.	R	U	B	C
Solve mark-up, breakeven point, and target profit pricing problems.	R	U	I	I

3.3 SUPPLY CHAIN MANAGEMENT

Adding value throughout the supply chain by efficiently managing upstream and downstream flows of inputs, final products or services and related information among suppliers, the company, resellers, and end users.	**A.A.S. or Certificate**	**A.A. / A.S. or 1st 2yrs. College/ University**	**B.A. / B.S.**	**M.S. /M.B.A.**
Distinguish between a company's supply chain and its marketing channel.	B	R	B	C
Connect channel intensity decisions to the type of product and the stage in the Product Life Cycle.	B	U	C	C

3.4 INTEGRATED MARKETING COMMUNICATIONS (IMC)

Selecting and strategically using appropriate IMC tools to create one consistent message across multiple channels to ensure maximum impact on the firm's current and potential customers based on the firm's communication objectives.	**A.A.S. or Certificate**	**A.A. / A.S. or 1st 2yrs. College/ University**	**B.A. / B.S.**	**M.S. /M.B.A.**
Describe how promotion mix tools can be used to communicate value throughout the PLC.	B	U	C	C
Create an annotated list of the major decisions needed to develop a successful IMC campaign (e.g., budgets, objectives, channel impact, etc.).	R	U	B	C

4. Market Analytics, Feedback, and Control. Recognizing the correlation between marketing metrics and customer relationship management and understanding the importance of both in providing feedback that identifies gaps in meeting the goals of previous process steps such as market sensing, market interpretation, and market value creation.

4.1 MARKETING METRICS and ANALYTICS

Understanding the critical marketing metrics that enable an organization to quantify its performance and determine the effectiveness of an organization's marketing program.	**A.A.S. or Certificate**	**A.A. / A.S. or 1st 2yrs. College/ University**	**B.A. / B.S.**	**M.S. /M.B.A.**
Outline the process for selecting marketing metrics.	R	U	B	C
Develop a logistic model to predict the likelihood of customer conversion.	U	U	C	I

4.2 CUSTOMER RELATIONSHIP MANAGEMENT

Understanding the purpose of CRM and the potential CRM strategies organizations may employ, and how CRM is an enabler to achieving the organization's strategic goals and facilitating the evolution of the relationship with the customer.	**A.A.S. or Certificate**	**A.A. / A.S. or 1st 2yrs. College/ University**	**B.A. / B.S.**	**M.S. /M.B.A.**
Define and explain various applications of CRM.	B	U	C	I
Use datamining to extract useful information about individual, trends, and segments from business databases.	U	U	B	C

5. Personal Branding. Differentiating and packaging unique talents, strengths and character that provide value to others.

5.1 ETHICS

Abiding by accepted principles of right and wrong that govern the conduct of society.	**A.A.S. or Certificate**	**A.A. / A.S. or 1st 2yrs. College/ University**	**B.A. / B.S.**	**M.S. /M.B.A.**
Identify one's personal values and demonstrate an understanding of how values are shaped by social, cultural, and other personal contexts.	B	B	C	I

5.2 CIVIC ENGAGEMENT

Working to make a difference in the civic life of his/her communities and developing the combination of knowledge, skills, values, and motivation to make that difference.	**A.A.S. or Certificate**	**A.A. / A.S. or 1st 2yrs. College/ University**	**B.A. / B.S.**	**M.S. /M.B.A.**
Analyze personal carbon footprint considering how one's respect for the environment affects others.	B	B	C	I

5.3 TEAMWORK

Appreciating the various roles of team membership and performing his/her role in an effective and supportive manner.	**A.A.S. or Certificate**	**A.A. / A.S. or 1st 2yrs. College/ University**	**B.A. / B.S.**	**M.S. /M.B.A.**
Explain why teams are important for accomplishing tasks	B	B	C	I

5.4 LEADERSHIP

Mobilizing, motivating, and coaching others to achieve goals.	**A.A.S. or Certificate**	**A.A. / A.S. or 1st 2yrs. College/ University**	**B.A. / B.S.**	**M.S. /M.B.A.**
Analyze skills necessary for effective leadership.	R	B	C	I

5.5 ORAL COMMUNICATION

Using oral communication to increase knowledge, foster understanding, and/or promote change in the listeners' attitudes, values, beliefs, or behaviors.	**A.A.S. or Certificate**	**A.A. / A.S. or 1st 2yrs. College/University**	**B.A. / B.S.**	**M.S. /M.B.A.**
Create oral presentations using clear, concise, colorful, creative, and culturally sensitive language.	B	B	C	I

5.6 WRITTEN COMMUNICATION

Expressing ideas in writing, working in many genres and styles, and utilizing many different writing technologies, texts, data, and images.	**A.A.S. or Certificate**	**A.A. / A.S. or 1st 2yrs. College/ University**	**B.A. / B.S.**	**M.S. /M.B.A.**
Evaluate theory and critique research within one's discipline.	B	B	C	I

5.7 CRITICAL THINKING

Using in-depth analysis of evidence to form opinions and make decisions	**A.A.S. or Certificate**	**A.A. / A.S. or 1st 2yrs. College/ University**	**B.A. / B.S.**	**M.S. /M.B.A.**
Formulate testable hypotheses and design approaches to obtain data to answer questions or solve problems.	B	B	C	I

5.8 INFORMATION LITERACY

Identifying the best sources of information for a given need, locating the sources, evaluating them critically, and sharing the information.	**A.A.S. or Certificate**	**A.A. / A.S. or 1st 2yrs. College/ University**	**B.A. / B.S.**	**M.S. /M.B.A.**
Manage, analyze, and synthesize multiple streams of simultaneous information as part of an oral presentation.	B	B	C	I

5.9 MEDIA LITERACY

Accessing, analyzing, evaluating creating, and participating in messages in a variety of forms – from print to digital.	**A.A.S. or Certificate**	**A.A. / A.S. or 1st 2yrs. College/ University**	**B.A. / B.S.**	**M.S. /M.B.A.**
Evaluate motive, point of view, biases and stereotypes, accuracy, continuity, and currency of media messages.	B	B	C	I

Outcome: statements that describe the student response to learning. As part of the requirements of a degree program, they isolate assessable demonstrations of learning that indicate the proficiency with which students have mastered the sets of knowledge and processes that make up a given competency/sub-competency (Tuning 2012).

R= recognize. Student recognizes the concept but has not applied it.
B= basic. Student has applied concept to a relatively simple marketing scenario.
C=complex. Student has applied concept to a relatively complex marketing scenario.

U=unknown or N/A. Concept is not assessed in curriculum.

Source: MHEC, 2014

Table 4: A Sampling of Marketing Career Opportunities

Major Career Area	***Position***	***Possible Salary Range***[3]
Brand Management	Brand Manager, Product Manager, Product Development Manager	$62,000 -- $87,000
Advertising and Promotions	Marketing Manager, Advertising Manager, Advertising Sales Director, Account Executive, Account Coordinator, Media Director, Media Coordinator, Media Buyer	$41,000 -- $166,000
Major Career Area	**Position**	**Possible Salary Range**
Public Relations	Public Relations Specialist, Public Relations Director, Corporate Communications Manager, Press Secretary	$49,000 -- $166,000
Market Research	Market Research Director, Market Research Manager, Market Research Analyst	$33,000 -- $111,000
Sales	Sales Manager, Sales Representative, Event Planner, Purchasing Managers, Customer Service	$18,000 -- $166,000
Graduate School	MBA, Master of Marketing Research, Juris Doctor, PhD	N/A

Source: MHEC, 2014

[3] Salary information is obtained from Bureau of Labor Statistics' Occupational Outlook Handbook http://www.bls.gov/ooh/management/home.htm. Jobs listed within each career area are not in order of income.

Table 5: Marketing Analytics, Feedback and Control. An Example of a Scaled Career Pathway

Typical job categories: web analytics, business intelligence, customer relationship management, enterprise reporting analyst, database developer, and data warehousing, digital marketing managers, marketing researcher, marketing consultant, and marketing analyst.
2-year (A.A., A.A.S.) Competent students will understand the purpose of relationship management and its benefit (e.g., increased profitability, customer retention, and decreased overall costs) to the firm. These students will have solid technological skills, especially in the area of digital literacy. They will also understand key marketing capabilities in tracking social media campaigns and effectively employing email, social media, telephone, and direct mail.
4-year (B.S., B.A) Competent students will be able to implement marketing analytics across product lines and target markets. They should be able to assess all website properties, perform ongoing research and analysis to provide and implement actionable recommendations to best utilize Google Analytics. They should be able to construct a customer satisfaction survey. In addition, the student should be able to conduct a customer value analysis and interpret relationship management dashboards.
Graduate (M.B.A., M.S.) Competent students will be able to plan data driven analytical solutions in marketing strategies and decisions to reduce the rate of customer defection and enhance customer lifetime value. Specifically, they should possess strong computer and analytical skills to mine data in complex databases and address issues such as CRM, media allocation, cross selling, and fraud detection. They should be able to analyze information from other applications, ERP, industry databases, etc.

Source: MHEC, 2014

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The CPA Project: A Model To Embrace Diversity and Inclusion In the Accounting Profession

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ABSTRACT

While the number of black CPAs has increased substantially since John Cromwell, Jr. became the first African-American CPA in 1921, the accounting profession still has not achieved the degree of diversity reflected in the total population. Considerable effort and dollars have been expended by the AICPA, NASBA and other organizations to increase the number of African-American CPAs, however, the results are disappointing. Currently, only 3% of CPAs are African-Americans. The purpose of this article is to address why progress has been slow despite several initiatives to increase the number of minority CPAs and suggest a model to develop a pipeline of minority CPAs to increase diversity within the accounting profession. This will entail developing partnerships and collaborative efforts between academia, the CPA profession and various organizations, and providing support and information to potential CPA candidates. A comprehensive and collaborative model (The CPA Project) is suggested for implementation at selected Historically Black College and Universities (HBCUs). The CPA Project consists of five components to motivate and prepare minority undergraduate students for careers in public accounting: (1) HBCU institutions with a CPA Champion that will coordinate activities to engage students and prepare students for a career in public accounting; (2) A two-week Summer Institute for selected students; (3) CPA exam review and coaching sessions; (4) Internship opportunities through partnering with CPA firms; and (5) mentoring and other support to overcome obstacles faced by minority students.

Keywords: CPA, minority, model, Historically Black Colleges & Universities

INTRODUCTION

The AICPA 2017 report on *Trends in the Supply of Accounting Graduates and the Demand for Public Accounting Recruits* indicates that the supply and demand for accounting graduates in the profession remains constant since 2014-15, when it was at an all-time high. Enrollment in accounting programs, degrees awarded, and hiring are all projected to increase. This is good for the profession, but it does not translate to any significant increase in diversity. While the number of African-American CPAs has increased substantially since John Cromwell, Jr. became the first African-American CPA in 1921, the accounting professional environment still has not achieved an adequate degree of diversity. This is a serious problem that has been acknowledged for a long time and is now beginning to receive attention by various groups in the profession. In 2007 George Willie, CPA and managing partner of Bert Smith & Co., (a black-owned CPA firm based in Washington, D.C.) testified before the *U.S. Department of the Treasury Advisory Committee on the Audit Profession* on the need for greater minority participation. He expressed concerns that African-Americans represented only 7% of accounting graduates, 3% of new hires to the professional staff, and 1% of CPAs and partners at CPA firms. Considerable effort and dollars have been expended by various professional organizations to increase the number of underrepresented minority CPAs; however, the results are disappointing.

Despite several initiatives, which include scholarships and internship programs by the AICPA, NASBA, National Association of Black Accountants (NABA) and state CPA societies, the accounting profession has the lowest representation of African-Americans than any other profession. Government pressure to increase diversity during the 1970s resulted in an increase in African-Americans in the profession; however, in the 1980s as the government relaxed this pressure, we saw a decline in efforts. Although the number of African-Americans graduating with a degree in accounting has increased, the percentage of African-American CPAs has increased only slightly from 1% in 1969 to 3% today.

The problem of African-American underrepresentation in the accounting profession has been well documented, but the solution has been fragmented. For example, for many years the AICPA, state societies and other organizations have had several initiatives to include recruitment programs, faculty development programs and scholarships for minorities. The National Association of Black Accountants supports programs such as the Accounting Careers Awareness Program (ACAP) to enhance minority students' awareness of careers in accounting.

In 2012, the AICPA formed the National Commission on Diversity & Inclusion to propose strategies to recruit, retain, and advance under-represented minorities in the profession. When asked why diversity has been elusive in the CPA profession, Ralph Thomas, Commission member and CEO of New Jersey Society of CPAs responded that, "it's about getting people throughout the profession coordinated in the effort. It's about getting everyone paddling in the same direction at the same rate in order to get things going." Thus, to really address the problem, there must be a strong, united collaborative program that involves all segments of the accounting profession that can be leveraged by all HBCUs. The accounting profession must make this a high priority.

The purpose of this article is to address why progress has been slow in spite of several initiatives and to suggest a model to build a pipeline to increase the number of African-American and other underrepresented minority CPAs, as well as improve the retention rate of minorities within the accounting profession. It is proposed that a collaborative partnership between the top HBCUs and various organizations in the profession with specific components will result in a successful solution and contribute to a more globally competitive workforce in the accounting profession.

The Importance of the Issue to the Profession and to Accounting Education

There are several compelling reasons why it is in the interest of the profession to increase the number of African-American CPAs and thus diversity in the profession. First, a diverse workforce contributes to the overall growth and success of firms and the profession (George Willie, 2007). Secondly, according to the U.S. Bureau of Labor Statistics, by 2050 almost half of the population will consist of minorities, which will be reflected in the makeup of audit clients. The audit personnel must be able to understand the culture and needs of these clients. Third, there is a high demand for qualified persons with financial expertise. Thus, if the profession is to grow and compete in the global market by providing quality service, the profession needs to have a workforce that mirrors the population.

THEORETICAL FRAMEWORK

Over the years, a few studies have addressed the status of minorities in the accounting profession. (Mitchell, 1969, 1976, 2005; Brotherson, 2005). Weisenfield and Robinson-Backmon (2001) documented the perception of African-American accountants with respect to discrimination and other barriers to career advancement. Quinton Booker (2005) determined that the number of African-American students sitting for and passing the CPA Exam increased between 1997 and 2002. The growth was attributed to several factors such as internships and mentoring programs. In 2007, 2008 and 2009, the National Association of Black Accountants conducted a *CPA Summit* to provide insights on why more African-American accounting graduates are not sitting for the exam. These and other studies have expounded reasons for the low percentage of African-American CPAs. For example, Booker, Hill and Wright (2010) suggest that the 150-hour requirement to sit for the exam is a deterrence for African-American accounting students. Gabre, Flesher and Ross (2013) identified lack of minority CPA role models, inadequate preparation at the undergraduate level, affordability of the exam and occupational motivators as factors that impact the likelihood of African-Americans becoming a CPA. They further suggest that the results of their study indicate the low representation of minorities in the profession may be more of an economic issue rather than an ethnic issue. While it is plausible that economic factors play a role in determining who is more likely to pursue the CPA certification, African-Americans are more impacted by these economic factors than others.

It is proposed that a model to develop a pipeline of minority CPAs is the best strategy to increase the pool of African-American CPAs. This is based on the premise that: *A cohesive, integrated partnership between academia, CPA firms, state societies, and accounting organizations will result in a significant increase in the number and success of African-American CPAs.* The goal of this article is to increase the awareness of the status of African-American CPAs and provide a model for HBCUs to increase the pipeline of minority CPAs.

In recent years, there has been a reawakening of concern in the profession for the low representation of minorities, particularly African-Americans. To that end, in 2012 the AICPA established the *National Commission on Diversity and Inclusion* to focus on expanding diversity and increasing the retention and advancement of minorities in the profession. The fifteen-member Commission is comprised of representatives from minority professional advocacy groups, CPA firms, state CPA societies, and leaders from business and industry, government, and education. Two working groups were formed to focus on best practices for retention and advancement. In addition, a third group conducted research to determine the "culture of acceptance and awareness that exists within the profession and some of the barriers and obstacles that impact minorities" (Tysiac, 2013). As a result of their research, the AICPA

implemented two diversity and inclusion initiatives: The Inclusion Champion Program, which represent a cohort of CPAs across the country to foster discussions on diversity and inclusion throughout the profession; and the CEO Action for Diversity and Inclusion, which consists of the top 100 accounting firms who have pledged a commitment to advance diversity and inclusion in the workplace. The firms are now committed to working with HBCUs to increase the pipeline.

Ken Bishop, president and CEO of NASBA has also placed increasing minority representation in the profession as one of their priorities and is reaching out to various organizations for opportunities to collaborate. In 2011, NABA partnered with PricewaterhouseCoopers (PwC) and the National Academy of Finance to launch the Accounting Finance Pipeline Initiative Program (AFPI). This is a two-year program aimed at encouraging high school minority students to consider the accounting and finance profession. These and other programs are good initiatives to develop a pipeline, but most are limited to specific schools and/or geographical areas. It is hoped that the proposed model will provide a catalyst for HBCUs to develop a consortium so that everyone can begin moving in the same direction at the same time to have a significant impact on the problem.

DISCUSSION - A MODEL TO BUILD A PIPELINE OF AFRICAN-AMERICAN CPAS

The CPA certification adds value and credibility to the owner. There is perceived "value" and "privilege" for those who pass the exam. In addition, there is an economic benefit to being a CPA that many African-American students are not availed to. According to the 2009 Robert Half Salary Guide, a new college graduate with a CPA earns 10% more on average, than a non-certified accountant in the same position.

A comprehensive model to raise awareness, mold, and mentor African-American accounting students through the pre-hire education path to retention and promotion in the CPA profession is proposed and will be referred to as ***The CPA Project.*** The Project includes four components to recruit, motivate and prepare African-American students for careers in public accounting.

Academia – HBCU Institutions

Wells et.al. (2009), indicates that one of the barriers to becoming a CPA identified by African-Americans was inadequate preparation at the undergraduate level. It is therefore, important that any strategy to increase the number of African-American CPAs begin with academic institutions. Although most accounting firms do not typically recruit from minority institutions, the majority of African-American accounting graduates come from HBCUs. Thus, to have the greatest impact, the model is based on a partnership between HBCUs, the Big 4 accounting firms, state societies, and various accounting organizations to include the AICPA, NASBA, NABA and the National Commission on Diversity & Inclusion. The model may be implemented at all HBCUs; however, it is particularly recommended for those with AACSB accreditation because they have indicated a level of commitment to quality programs, faculty and students and they have the ability to obtain necessary resources to implement the program. Additionally, CPA firms, state societies and other organizations are likely to be more receptive to develop the kinds of relationships with these schools that will be needed to be successful.

Perception of Model Components

To determine what should be included in the model, a small sample from selected HBCUs with AACSB business accreditation and professionals in various professional organization and CPA state societies, were surveyed to get their perceptions on the importance of various components of the proposed model. One hundred surveys were sent out, which included fifteen in academia and eighty-five in professional practice. Thirty-eight participant responded for a response rate of 38%. The respondents consisted of ten from academia and twenty-eight from the profession. All participants are CPAs. The results are summarized in Table 1. In addition, participants were asked what they perceived as barriers to African-Americans becoming CPAs. The top responses are summarized in Table 2.

The results indicate that respondents agree that all of the factors are somewhat or extremely important in reducing the barrier for African-Americans. Mentorships, internships and scholarships, however, were considered the most important components. The barriers identified are similar to those pointed out in other studies.

Table 1 - Perception of CPA Pipeline Model
**Based on a scale where 3 = extremely important; 2 = somewhat important; 1 = not important*.

	Mean	Std. Dev.
Q1. Include CPA Review courses in curriculum	2.00	1.00
Q2. Have Monthly CPA Forums at institutions	2.67	0.58
Q3. Institutions designate a faculty as CPA champion/coach	2.67	0.58
Q4. Institutions host a CPA Summer Institute	2.00	1.00
Q5. Organized field trips to CPA firms	2.67	0.58
Q6. Selection of cohort group to participate in program	2.50	0.71
Q7. Curriculum changes	2.67	0.58
Q8. Mentors for students and new hire	3.00	N/A
Q9. Internships	3.00	N/A
Q10. Scholarships	3.00	N/A
Q11. Consortium Grant to Participating HBCUs to support program	3.00	N/A
Q12. CPA Coaching Sessions after students graduate	2.67	0.58
Q13. Payment of CPA Exam fees for students completing the program	2.33	0.58
Q14. Employment opportunity for students completing the program	2.67	0.58
Q15. Payment of student membership in one professional organization	2.33	1.15

Table 2 - Perceived Barriers for African-Americans Becoming CPAs

Lack of mentors and role models
Lack of family support
Lack of understanding of the benefits of the profession
Lack of information about the profession
Lack of academic preparation

The PhD Project and the PhD Pipeline Program are examples of two successful programs with a unified strategy to increase diversity and minority PhDs in business education. The CPA Project could produce similar results to increase diversity in the accounting profession. The key to the proposed model is implementing a unified program at selected HBCUs. These institutions are in a position to have the greatest impact because more African-American accounting graduates come from HBCUs. Thus, a consortium among these institutions is proposed.

The Model

HBCU – CPA Consortium – HBCUs, particularly AACSB accredited HBCUs, develop partnership with state societies in the state where they are located, Big Four, regional and local CPA firms, AICPA, NABA, NASBA and the National Commission on Diversity & Inclusion.

Each HBCU selects a cohort of students each year to participate in the CPA Project. Selection criteria should include GPA, sophomore status, interest and commitment. Participants must commit to participating in all phases and activities of the project to include: monthly CPA forums, CPA review and/or coaching sessions, an internship, CPA Summer Institute, field trips, completion of a 150 hrs. to sit for the exam after completing the undergraduate program and taking the exam. In return, participants are provided an assigned mentor, CPA Review materials, payment of CPA Exam fees for first time sitting, an internship and membership in one professional organization.

Each participating HBCU should develop an Accounting Education Center and designate a faculty member as director and CPA Champion. The Center coordinates a series of activities to motivate and keep students on track. These will include workshops, field trips, exam preparation materials, as well as other activities to help students understand the benefits and rewards of becoming a CPA.

The Big Four and regional CPA firms, state societies, AICPA, NASBA, NABA would be responsible for obtaining and providing mentors, internships for participants, participation in monthly forums, summer institute and CPA coaching sessions.

It is further recommended that CPA firms implement other recommendations made by Frank Ross, director of the Center for Accounting Education at Howard University (Gabre et.al., 2012). These include:

- Diversity training for first-level supervisors
- Assignment of a CPA mentor for new employees
- Include certification as a performance measure in annual evaluations
- Increase the number of underrepresented minorities on the AICPA's board of directors, Council, and volunteer committees.
- Increase support and offer the types and levels of value and rewards that African-Americans deem important to their success.
- Encourage constructive dialogue in the profession around diversity
- Accounting organizations and both large and small CPA firms become a champion of inclusiveness.

EXPECTED RESULTS AND BENEFITS

The CPA Project is expected to make the under-representation of minorities in the accounting profession a high priority. Academia and the CPA profession are expected to embrace a cohesive and collaborative model that will be implemented through partnerships with HBCUs across the United States to project a unified message.

Notable results are expected within 3 years after implementation. Just think, if only ten students from each participating school are successful at the end of each cycle year, the pipeline of African-American CPAs could increase by 210 each year after the first cycle. It is expected that the results could be much greater. The project is currently being implemented with a cohort group at South Carolina University. Over the next three years, results will be tracked on the number of participants completing internships with CPA firms, sitting for and passing the exam and accepting employment with a CPA firm.

CONCLUSION

The CPA profession has struggled for decades to improve diversity by implementing programs to attract and retain African-Americans and other under-represented minorities, but the results of many initiatives have been poor. After several decades, African-Americans still represent only 3% of CPAs and only 1% of partners in CPA firms. While 23% of new accounting hires are from a minority group, only 3% are African-Americans.

Efforts of the PhD Project to increase the number of under-represented faculty in business disciplines was based on the premise that minority faculty can encourage and support the success of minority students in these disciplines. A similar premise also holds true for increasing the number of African-American CPAs in the profession. As the pool of African-American CPAs increase, they will be able to encourage and support other minority students to be successful in accounting. The proposed *HBCU-CPA Consortium* is a model to create a cohesive, integrated partnership between academia, CPA firms, state societies, and major accounting organizations that will result in a pipeline of minority CPAs. The accounting profession has a social responsibility to increase diversity. As pointed out by George Willie several years ago, "the time for action is now."

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Adding Hands-on Learning to a Digital Marketing Course with a Simulation

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ABSTRACT

The contribution of this paper is to provide results of a beta test of the Stukent Mimic Pro Simulation to instructors who may be considering using the simulation. I have since used the Mimic simulation again with an online MBA class with excellent results. I give the simulation an unqualified positive recommendation. I conclude that the primary contribution of the Mimic simulation is to give students hands-on experience with "paid search," and secondarily understanding of other concepts such as search engine optimization, landing page design, email, and analytics.

Keywords: hands-on learning, digital marketing, Mimic simulation, Stukent

INTRODUCTION

Are you a "hero" in the Digital Marketing classroom? Stukent promised to make a hero of every teacher who used its Mimic Pro Simulation. I took Stukent up on this offer and adopted it for my online MBA class. While using the simulation I surveyed students regarding their experience with the simulation. This paper is a recap of the findings of that research. Stukent (2019) claimed Mimic Pro is "The World's #1 Internet Marketing Simulation." They invited instructors to "add real hands-on learning to your digital marketing course." The cost to each student was $50.

In a brief review of literature, Granitz and Kohli (2018) found that simulations increase social interaction; teach students how to work as a team; increase involvement, engagement and perceived realism; and require students to use conceptual abilities, analyze data and use information for problem-solving. Students perceive the simulation game to be highly effective learning method, preferred over the case method and "live" consultancy projects.

BACKGROUND

I used the Stukent Mimic Pro Simulation for a 16-week online course with 30 MBA students as individual players (no teams). The product to be marketed and sold was a digital camera. Mimic Pro is a simulation of the Google Ads (formerly AdWords) product. Players select and bid on keywords, and create advertisements to appear on the sponsored results area of the search engine results page. Players also create a simplified version of landing pages for searchers who click on a link in the advertisement. The simulation provides players with ad performance metrics such as ad impressions, clicks, conversions, sales revenue, and profit.

SOURCES OF SIMULATION FEEDBACK

*The experiences of students as participants (including myself as a student participant).
*My experiences as the instructor.
*A survey of students specific to the Mimic simulation.
*An assignment with open ended questions: "What I wish I knew" and "What I wished I had learned."
*Student teaching evaluations, which included responses related to Mimic.

RESULTS

Mimic simulation effectiveness at teaching digital marketing tools (survey)
(Percentages are of MBA students (n=30) who "agreed" or "strongly agreed" with the statement:
The Mimic simulation gave me a better understanding of:)
*Mimic best at giving students a better understanding of "the mechanics of paid search" (100%).
*Mimic excelled at showing "how search engines work" (94%).
*Mimic weaker at "how to market via email" (77%).
*Overall: "In general, the Mimic simulation gave me a better understanding of digital marketing" (93%).

Student perceptions of the Mimic simulation (survey)
(Percentages are MBA students (n=30) who "agreed" or "strongly agreed" with statements)
*Relatively few students thought the Mimic simulation was frustrating (36%).
*Most students thought the Mimic simulation was worthwhile (87%).
*Students felt more confident about attempting digital marketing in the real world after completing the simulation (83%).
*Few students agreed that the simulation should be used in a team setting (27%).
*Most students, with dissenters, thought the time required to complete the Mimic simulation was about the right amount (77%).
*The majority of students would recommend participation in the Mimic simulation to another student (83%).

What aspects of this class contributed most to your learning? (teaching evaluation)
*Hands-on experience
*Realistic decisions
*Simulation reinforced textbook and video "lectures"

What aspects of this class detracted from your learning? (teaching evaluation)
*Beta software; some students annoyed with bugs
*Compared unfavorably to mature products (Marketplace)
*A bug led to unreliable results, which disrupted the competition
*Ambiguous feedback or lack of feedback

GRADING

The contribution of the simulation to the total grade was relatively small, only 110 out of 650 points (17%). Most of the simulation grade was based on written reflections on decisions and results (80 out of 110 points). Performance in the simulation was recognized with 5, 10 or 15 points awarded to the bottom-third, middle-third, and top-third players based on profit dollars.

LESSONS LEARNED

* Most students appreciated learning "paid search" digital marketing with the simulation
* The simulation is a good supplement, but a course cannot rely on Mimic alone
*Simulation pairs well with Stukent Expert Session videos
*Manage student expectations regarding ambiguity
*Minimize student frustration with a goal to learn proper inputs, not to optimize outputs
*Set relatively low grade stakes for the simulation
*Use the simulation with individual players, not teams

CONCLUSION

I have since used the Mimic simulation again with an online MBA class with excellent results. I give the simulation an unqualified positive recommendation. I conclude that the primary contribution of the Mimic simulation is to give students hands-on experience with "paid search," and secondarily understanding of other concepts such as search engine optimization, landing page design, email, and analytics.

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Engaging Students in Large Sections of Principles of Marketing

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ABSTRACT

Business schools continue to seek ways to engage students in large sections of introductory classes and principles classes. Distractions from various sources, combined with changes and expectations of today's university students, may cause disengagement. The literature is replete with evidence of the positive benefits of student engagement, including learning and retention. Accordingly, we present three methods for engaging students in the large sections of the principles of marketing course.

Keywords: student engagement, student response systems, in-class activities, application assignments, principles of marketing

INTRODUCTION

Engaging undergraduate students in large classes remains a challenge for many business schools (Lamberton, 2017). For marketing faculty, that challenge resides in the principles of marketing course. Often, students for the course represent varied backgrounds, interests, and purposes. Although most students in the course have interests in business, a number of students come from outside the business school—humanities, sciences, engineering, etc. Business school students vary in their interests and focus—accounting, finance, management, marketing, operations, and supply chain management. Because of the diversity of backgrounds and interests, some students may choose not to engage in courses outside their primary focus (Taylor et al., 2011). Further, these class sections tend to be large, 300 or more students per sections, with some sections approaching 1,000 students (O'Reilly et al., 2007). Students may feel lost, insignificant, lonely, and/or detached in the large class. Finally, today's students are digital natives—expert users of laptops, tablets, and smartphones (Tucker, 2006). Technology can enhance student engagement (e.g., student response systems) or distract from student engagement (e.g., shopping during class). Together, these factors contribute to the challenge of engaging students in large sections of the principles of marketing course.

The literature in higher education demonstrates the benefits of active student engagement. Specifically, active student engagement is associated with student retention and learning outcomes (Coates, 2005), is more academically challenging, and increases faculty-student interaction (Russell-Bennett et al., 2010). For marketing classes, engagement predicts the quality of the educational experience (Taylor et al., 2011).

In this paper, we present three approaches for engaging students in the large principles of marketing course. Specifically, we focus on student response systems, in-class activities, and application assignments to engage students. Our experience is in the principles of marketing course with class sizes ranging from 400 to 800 students. In the next section, we describe the uses of student response systems and provide application examples for the principles of marketing course. Then we present examples of in-class activities designed specifically for large classes. Next, we describe four application assignments to engage students and to reinforce learning. We conclude with an invitation to continue the discussion of engaging undergraduate students in large classes.

STUDENT RESPONSE SYSTEMS

For more than a decade now, university faculty have employed student response systems to engage students in large-size classes (Herreid, 2006; Lincoln, 2008). The objective is to engage more students in class discussions. Certainly, large lecture classes present unique challenges for instructors seeking to facilitate discussions. Question and answer exchanges are dominated by a minority of students. Many students are reluctant to speak in front of large groups. Typical settings, in large auditoriums, make it difficult to hear students speak. Student response systems provide solutions to these challenges.

Student response systems, also known as student response devices, personal response devices, electronic voting systems, audience response pads, and "clickers," enable the instructor to present questions to students in class and

receive answers from students via the response system. Early versions of the systems required students to obtain a hand-held device (i.e., clicker) to transmit infrared or radio frequency signal to a receiver, managed by the instructor. Today, many student response systems use Wi-Fi to facilitate communication between instructor and students. This eliminates the need for a stand-alone "clicker" and radio receiver, because students may now download the application on their devices—laptop computer, tablet, or smart phone. Using a similar device (e.g., laptop computer), the instructor manages the response system. Questions may be framed in a multiple-choice format or short answer. Results are available immediately for display in chart form for multiple-choice questions or word cloud form for short answer questions.

Our decision to deploy a student response system in the large classes of principles of marketing was the result of our concern for student engagement and student learning. Student response systems have been linked to increased class attendance (Preis and Kellar, 2007), increased student-instructor interaction (Draper and Brown, 2004), assessment of comprehension (Vendemia, 2018), motivation for learning (Crouch and Mazur, 2001), higher confidence levels in learning and knowledge (Suchman et al., 2006), and improved student learning (Trees and Jackson, 2007; Dean, Lee-Post, and Hapke, 2017). Further, these digital natives, our students, have been surrounded by technology from a very young age. They expect technology to be an integral part of their educational experience (McCabe and Meuter, 2011).

Implementation

Employing a student response system caused us to think about student access. That is, will all students be able to access the system? To resolve this question, we started, seven years ago, with iClicker—each student was required to purchase an iClicker unit. We used a base unit to receive responses (two-way radio frequency). With advances in technology, we adopted a Wi-Fi based system—first Top Hat and then BungeeLink. (Today, iClicker also has a Wi-Fi based system.) Students may access the system with any smart device—smart phone, tablet, laptop computer. Today's digital-native student has access to smart devices. In the four years we have used a Wi-Fi system, that requires a smart device, we have never had a student without access to a smart device. Although occasionally students forget to bring their smart device to class, these cases are rare. Students want to stay connected. If they forget their smart device, they lose participation points.

With a Wi-Fi based student response system, students download the application on their devices—laptop computer, tablet, and/or smart phone. We present two to five questions, each class session, to facilitate discussion, interaction, and participation. Questions are carefully crafted to reinforce assigned readings, highlight key learning points, demonstrate marketing concepts, underscore in-class activities, and assess student learning.

Brand Preferences Application

At the beginning of the lecture on product and brand, we poll students to identify their favorite brands. This is an engaging activity because students are eager to vote for their favorite brands. They are also interested to learn about the favorite brands of their classmates. We use an open-ended question: "What is your favorite brand?" The response system automatically creates the word cloud and displays the results, as depicted in Figure 1.

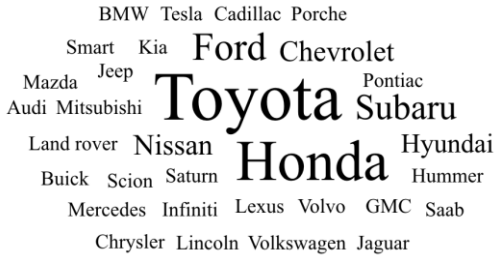
Figure 1: Word Cloud with Students' Responses for Favorite Brand

Next, we compare the results from the students' responses to the World's Most Valuable Brands (Interbrand, 2018). For example, the most popular brands identified by students are Nike and Apple. In comparison, Interbrand ranks Apple (1) and Nike (17). Other popular brands identified by students, and on the Interbrand list, include Google (2), Amazon (3), Microsoft (4), Coca-Cola (5), and Disney (14). We follow this activity with a discussion and lecture about brand.

Market Share Application

To illustrate the concept of market share, we present the open-ended question: "Which brand of automobile do you and/or your family drive? We display the results in a word cloud, as depicted in Figure 2.

Figure 2: Word Cloud with Students' Responses for Automobiles—Market Share

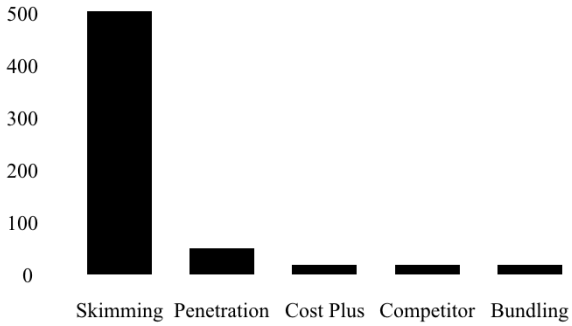


We then compare the results from students' responses to actual auto industry market share. A discussion of market share follows.

Assigned Readings Application—Price

We use the student response system to measure understanding of assigned readings. For example, at the beginning of the price lecture, we ask the following multiple-choice question: "Which pricing strategy is used when marketers set a relatively high price to obtain high margins at the expense of sales quantity?" Students view the question with the five possible choices. Then they submit their answers. Results are displayed in chart form in Figure 3.

Figure 3: Responses for Pricing Question



We then proceed with a discussion and lecture on price, including a comparison of price skimming and price penetration strategies.

IN-CLASS ACTIVITIES

Active participation in class improves the student learning experience (Chylinski, 2010). Interactive learning is increasingly popular with digital natives—Millennials (Allred and Swenson, 2006; Drea, Tripp, and Stuenkel, 2005) and Generation Z. To engage students in active participation, we designed a number of in-class activities.

Consumer Behavior—Auto Purchase Exercise

Fishbein's (1967) multi-attribute model provides a useful example for students to think about the determinants of attitude toward a brand. According to the model, a consumer's attitude toward a particular brand is a function of the

consumer's evaluation of the importance of particular attributes of a product and a belief that the brand can deliver on those important attributes. Mathematical formulation of the model is:

$$A_b = \sum_{i=1}^{n} b_i e_i$$

Where:
A_b = attitude toward the brand
b_i = belief strength that the brand can deliver on a particular attribute
e_i = evaluation of the importance assigned to a particular attribute

Using the data in Table 1, students work in teams to calculate A_b, attitude toward the brand, for each of the brands using the multi-attribute model. Results are provided in the bottom row of Table 1. For this example, the results show the consumer's highest attitude toward the brand score is 69—Auto 3.

Table 1: Attitude Toward the Brand Data

Attributes	Ratings (e_i)	Auto 1 (b_i)	Auto 2 (b_i)	Auto 3 (b_i)	Auto 4 (b_i)	Auto 5 (b_i)
Style/design	5	3	5	3	4	2
Price	5	4	2	5	3	5
MPG	4	3	3	4	3	4
Horsepower	2	4	3	2	3	4
Safety	3	3	4	3	4	3
		64	65	69	65	68

Price—The Price is Right Game
To engage students and create excitement for the topic price, we begin the lecture with the Price is Right game. Three students are selected to play the game. The rest of the class participate as the studio audience—just like the game show on TV. Student participants are asked to bid on a particular product, for example Style Line SL 8 RCA Interconnect cables (pair). Frequently, prices suggested by students are significantly less than the suggested retail price—$499.00. The student suggesting the price closest to the actual price, without going over, stays in front of the class to play round two. The other two students return to their seats. In round two, the student ranks three power cords by price—high, medium, low. Actual prices are $400.00, $200.00, and $5.00. After the game, students are highly motivated to learn more about price and pricing strategies.

Price—Using BDM to Measure Customer Willingness to Pay
To illustrate willingness to pay (WTP), we created an exercise that employs the BDM method (Becker, Degroot, and Marschak, 1964). This is an incentive-compatible procedure used in experimental economics to measure WTP. Students choose between a particular product and money. We use a harmonica and cash as illustrated in Table 2. We have also used Lindor chocolate truffles for this exercise. Of course, instructors may choose the product.

Table 2: Willingness to Pay (WTP)

Which do you prefer?		
$1	Or	Harmonica
$2	Or	Harmonica
$3	Or	Harmonica
$4	Or	Harmonica
$5	Or	Harmonica
$6	Or	Harmonica
$7	Or	Harmonica
$8	Or	Harmonica
$9	Or	Harmonica
$10	Or	Harmonica

Each student makes a selection at each price point—money or harmonica. Students are not forced to take the harmonica or the cash. They choose based on the price point. One of the price points ($1, $2, $3, …$10) is randomly selected and exchange takes place at that value. A student is randomly selected from the class to receive either the cash or the harmonica based on the student's WTP at the randomly selected price point. Using the student response system, WTP is collected for the class. This enables the instructor to demonstrate a demand curve and the revenue-maximizing price for the class.

Price and Distribution—Calculating Margin

To illustrate margin, we first present the concept of margin and the math for margin and percent margin with the following formulas:

Unit Margin = Price – Unit Variable Cost

Percent Margin = Price – Unit Variable Cost / Price

We discuss an example of a product's margin and percent margin at different levels in the channel of distribution. We then present a case study about a chain saw. We provide chain saw prices for each level of the channel of distribution and unit variable cost for the manufacturer. For our exercise, manufacturer selling price is $135, wholesaler selling price is $195, and retailer selling price is $299. Manufacturer unit variable cost is $80. We invite students to work in small groups of three or four to calculate the chain saw's percent margin for each member of the channel of distribution—manufacturer, wholesaler, and retailer. The manufacturer's selling price of $135, is the wholesaler's unit variable cost. The wholesaler's selling price of $195, is the retailer's unit variable cost. Knowing the prices and unit variable costs for manufacturer, wholesaler, and retailer, students can now solve for margin and percent margin at each level in the channel of distribution. An example of this exercise is presented in Table 3. We present the correct answers at each level.

Table 3: Margin Calculations

	Price	Unit Variable Cost	Margin	Percent Margin
Manufacturer	$135*	$80*	$55**	41%**
Wholesaler	$195*	$135**	$60**	31%**
Retailer	$299*	$195**	$104**	35%**

*Information given to students

**Students solve for this information

APPLICATION ASSIGNMENTS

University educators use active learning assignments to increase engagement and enhance learning (Duke, 2002; Smith, 2004; Yarmarik, 2007). Active learning includes instructional methods and activities that engage students in the learning process (Prince, 2004). Students participate in meaningful learning activities. For the principles of marketing course, active learning engages students with course content by enabling them to apply concepts in business situations (Hamer, 2000).

We deploy four application assignments across the semester to engage students in the active learning process. We call these assignments "Do Marketing" because of the application intent—students "do marketing." Each assignment underscores key learning concepts and provides an opportunity for students to deepen learning through application. These assignments may vary from semester to semester. In the next section, we provide examples of typical application assignments.

Global Marketing—Standardization Versus Customization

Advancements in communication, transportation, and financial flows have created opportunities for companies to market products and services across geographic borders. Today, more than any time in business history, businesses are seeking customers beyond domestic borders. Once a firm decides to market abroad, its next decision focuses on whether to standardize the marketing mix or customize the marketing mix for consumers in specific countries.

For this application assignment, we invite students to apply the concepts of standardization and customization by identifying companies that employ each strategy. First, students demonstrate a standardized approach to global marketing by showing how a company standardizes one element of the marketing mix (product, price, promotion, or

place) across three different countries, outside the domestic country. Students my choose the company, the marketing mix element, and the countries. Students discuss the reasons a standardized approach works well for the selected company across the three different countries. Then, students demonstrate a customized approach to global marketing by showing how a company customizes one element of the marketing mix (product, price, promotion, or place) for three different countries, outside the domestic country. Students my choose the company, the marketing mix element, and the countries. Students discuss the reasons a customized approach works well for the selected company in three different countries. To conclude the assignment, students discuss the general reasons companies select a standardized approach to global marketing and the general reasons companies select a customized approach to global marketing. Specific assignment questions are delineated in Figure 4.

Figure 4: Do Marketing—Standardization Versus Customization

1. Standardization: Demonstrate a standardized approach to global marketing. Choose one company. Now select three countries, outside the domestic country. Show how the company uses a standardized marketing approach (product, promotion, price, or distribution) across three countries. Document your sources (publication, website, advertisement). Discuss the reasons the standardized approach works well for this company across the three countries.

2. Customization: Demonstrate a customized approach to global marketing. Choose one company. Now select three countries, outside the domestic country. Show how the company uses a customized marketing approach (product, promotion, price, or distribution) across three countries. Document your sources (publication, website, advertisement). Discuss the reasons the customized approach works well for this company across the three countries.

3. Discuss the reasons companies standardize the marketing mix across countries? Discuss the reasons companies customize the marketing mix across countries?

Five Favorite Brands

For marketers, successful brands do three things: (1) resonate with customers, (2) differentiate from competitors, and (3) motivate employees (Aaker and Joachimsthaler, 2000). Further, brands are characterized by type—functional, image, and experiential (Tybout and Carpenter, 2010). Also, when positioning brands, marketers consider frames of reference, points of parity, and points of difference (Keller, Sternthal, and Tybout, 2002).

To illustrate these brand concepts, we invite students to consider their five favorite brands in an application assignment. To understand how a brand might resonate with consumers, we ask students to explain the reasons their favorite brands are important to them and describe the benefits each brand provides for them. Next, we ask students to identify and explain the type of their favorite brands—functional, image, or experiential. Finally, we invite students to consider the points of difference and the points of parity for each brand. That is, how does the brand differentiate from competitors? Also, how does the brand demonstrate category credentials? The assignment is illustrated in Figure 5.

Figure 5: Do Marketing—Five Favorite Brands

1. Select your five favorite brands. Create a PowerPoint slide with your photo in the center and the logos of your five brands surrounding your photo. Save as a PDF file. Upload the PDF file.
2. Explain the reasons each brand is important to you. What are the benefits each brand provides for you?
3. Identify and explain the brand type for each brand--functional, image, experiential.
4. Describe Points of Difference (PODs) for each brand. How does each brand differentiate from competitors?
5. Describe Points of Parity (POPs) for each brand. How does each brand demonstrate category credentials?

Social Media Marketing

Technology has changed how consumers behave. Indeed, today's consumer is spending more time each day looking at screens—desktop computers, laptop computers, tablets, and smartphones. As a result, marketers seek new and interactive ways to reach and engage consumers via social media (Kozinets et al., 2010).

To engage students in social media marketing, we designed a mini-case—premium baby stroller. Students have a small budget, $50,000, to spend on a nationwide communications campaign to market the stroller. Students begin by identifying five baby stroller brands they have seen advertised on social media. Then they explain what they learned regarding the social media used by each brand. Next, students create a newsworthy event that highlights the comfort of the company's premium strollers in a compelling and memorable way. Then they design a social media campaign to grab nationwide attention for the event or activity. The assignment is illustrated in Figure 6.

Figure 6: Do Marketing—Social Media Marketing

A national manufacturer of premium baby strollers wants to get the word out regarding the comfort of their strollers. The marketing team has a small budget of $50,000 to spend on a nationwide communications campaign, so traditional television advertising is not affordable.

1. What are five brands of baby strollers you have seen "advertised" on social media. What is the brand, what is the social media channel, and what are they doing? What did you learn?
2. Create a newsworthy event or activity that highlights the comfort of the company's premium strollers in a compelling and memorable way.
3. How would you use social media to grab nationwide attention for the event or activity?
4. Which social media channels would you use to promote the premium baby stroller? Explain.

Marketing Analytics

In recent years, businesses have ramped up their investment in data analytics. Over a billion dollars was invested in data analytics companies in 2015 and marketing tech companies now number over 2,000 (Ariker, et al., 2015). Marketing analytics is defined as the methods for measuring, analyzing, predicting, and managing marketing performance with the purpose of maximizing effectiveness and return on investment (Wedel and Kannan, 2016).

To engage students in marketing analytics, we designed a mini case with data—the bakery case. Using the predesigned data set, students calculate average daily sales for each bakery product. Then they identify bakery products that are most/least affected by day of week. Next, students recognize bakery products with the highest seasonality. Finally, students identify the two bakery products with the highest growth, year over year. Figure 7 depicts the assignment.

Figure 7: Do Marketing—Marketing Analytics

Unit sales of most every product vary by weekday and by month. Some products experience sales increases over time, while other products stagnate or die. Recording, tracking, and understanding sales patterns are among the most widely used and powerful applications of marketing analytics.

Given the bakery sales data provided on an Excel spreadsheet, answer the following questions. Use pivot tables if you can. The spreadsheet reports sales data for a chain of bakeries located in a large metropolitan area. Unit sales are organized by day of week, date, product, and whether or not a sales promotion was running.

1. Compute the overall average daily sales for each product.
2. Which product's average daily sales are most/least influenced by day of the week?
3. The average monthly sales of which two products exhibit the largest amount of month-to-month seasonality?
4. Compared to 2013 annual sales, which two products have grown annual sales the fastest?

CONCLUSION

Engaging today's students in large classes, specifically introductory courses and principles courses, continues to challenge business school faculty. Because of varied backgrounds, interests, and purposes, some students may choose not to engage. The teaching venue, large auditoriums, contributes to possible disengagement of students. Further, today's students are digital natives. They grew up on technology, they live with technology, and they expect technology to complement their education. Technology has the potential to enhance and/or detract from student engagement.

The higher education literature demonstrates that active student engagement is associated with faculty-student interaction, student learning, student retention, and education quality. Accordingly, we present methods to engage students in large sections of the principles of marketing course. Specifically, we focus on student response systems, in-class activities, and application assignments to engage students. Certainly, similar methods could be used in large sections of other introductory or principles courses. Our purpose is to initiate a process of sharing approaches and methods for engaging students in the large principles of marketing course and to encourage continued dialogue on the topic.

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The Enhancement of Learning Outcomes in a Marketing Fundamentals Course Through Innovations in Coursework Content and Delivery Mode

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ABSTRACT

In recent years, there have been numerous innovations in education involving the structure and presentation of coursework content and its delivery to students. Two issues in particular have been widely addressed: Concerns about the adequacy and affordability of traditional textbooks and the utilization of technology to supplement or replace classroom lectures. The study then describes related innovations in a Marketing Fundamentals course designed to address the learning objectives of a foundation-level course. Results of this study indicated encouraging learning outcomes for students who had taken the innovative course compared to a traditional textbook/lecture format or online.

Keywords: Teaching, Video lecture capture, Alternative content modes, Outcomes assessment

INTRODUCTION

Business educators have experienced immense changes in their profession over the past decade or two. There is probably no one who is presenting the same material in the same format as they did at the turn of the century. Likely the most visible emerging alternative can be seen in the rapid growth of online learning, both at traditional universities and in the campus-free model. Even online learning, though, is a continuously evolving product. Aggarwal and Lynn (2012) highlighted the need and opportunity to routinely improve and enhance online courses through the introduction and application of assessment metrics. They suggested that such a process would be useful elsewhere and, in fact, educators utilizing the more traditional person-to-person approach have come to appreciate the need for methodology to assess the changes they are employing.

This article will address innovations in the traditional classroom environment, and how they might enhance learning outcomes. There have been, of course, a wide variety of such innovations. For example, Kimball (2007) described the application of contemporary literature and popular business books to address personal development beyond just the specific skills required in a professional selling career. There are many other related examples of innovative courses and classroom activities, but two major areas stand out in recent descriptions of coursework innovations: Mode of delivery and nature of course-related content. It is these areas that will be addressed here.

INNOVATIONS IN MODE OF DELIVERY

In recent years, there have been numerous innovations in the mode of delivery for lectures and related material, but these emerging alternatives have raised questions concerning their effectiveness and consequences. For example, DiBacco, Hetherington and Putman (2012) documented high levels of utilization for lecture videos, especially among students preparing for exams. This was perceived to be of benefit, but the authors left open the question of how the availability of lecture videos would impact class attendance, emphasizing their opinion that such videos should not replace class attendance. Shaw and Molnar (2011) expressed very positive comments concerning the availability of lecture videos, particularly among non-native English language speakers who constituted a large segment of the student population in medical school, noting that such videos gave these students the opportunity to review the material multiple times to enable optimum comprehension. Another scholar expressing consistently positive comments about a video capture system was Toppin (2015), who advocated that this technology would reverse the trend of high drop, failure, and withdrawal rates, noting the positive reaction of students to the video capture system. Khan (2016) also spoke glowingly about the effects of video capture technology on the cognitive empowerment of students in higher education, advocating that it enhanced the utilization and comprehension of course content.

Numerous other scholars, however, although they spoke positively about lecture videos, were less enthusiastic about their impact. For example, Haughton and Kelly (2015) noted that although students provided lecture material online

prior to face-to-face class meetings performed somewhat better on the common final exam, there was no difference in final grades or student satisfaction with the course. Likewise, Lancellotti, Thomas, and Kohli (2016) observed that students with access to short online video modules covering key topics had performance comparable to, but not better than, students in other sections who did not. A related benefit to video lecture capture, though, was noted by Davis, Connolly, and Linfield (2009) who documented that the availability of online lectures resulted in a higher evaluation of the instructor's face-to-face teaching.

Some scholars expressed reservations and concerns about video lecture technology. O'Callaghan, Neumann, Jones, and Creed (2015) acknowledged positive student reactions and potential benefits for learning outcomes, but were troubled by the fact that several faculty had voiced concerns about a negative effect on attendance and engagement. From the perspective of students, Lust, Elen, and Clarebout (2012) observed that a significant number of students disengaged from using video lectures over time, and those who continued using them only did so after they had been convinced of the functionality of such a tool in supporting the learning process. Implicit in their study is the need for educators to guide and coach students to help them maximize the benefits of this technology. More serious reservations were expressed by Taplin, Kerr, and Brown (2014), who noted that a significant number of students did not utilize web-based technology and that many faculty had raised concerns that it had a negative impact on face-to-face teaching.

In sum, there appears to be a consensus that there are potential benefits to video lecture capture technology as an enhancement to, but not a replacement for, face-to-face engagement with students. It is of particular value in helping students prepare for or review the traditional lecture, and is especially applicable for structured material. However, it is of limited value in situations where it is necessary to have faculty-student interaction and communication. Thus, educators need to assess the nature of their course and its learning outcomes as a prelude to initiating this technology.

COURSE-RELATED CONTENT AND TEXTBOOKS

In recent years, there has been considerable, and increasing, discussion concerning textbooks and their alternatives for coursework. Historically, textbooks have been considered critical and their use unquestioned. This lack of alternatives was an open invitation for their costs to steadily increase, with few questions concerning whether their content was optimal. Twenty years ago, Besser, Stone, and Nan (1999) noted that textbooks had historically been considered a crucial element of a teaching-learning situation, but also noted that although texts could be a valuable learning tool, they could also be an impediment to learning. At that point in time, though, there were few alternatives, and textbooks were simply accepted as a necessary evil. Today, however, many scholars have questioned the adequacy of textbooks as a stand-alone source for course content, while at the same time acknowledging their value. Along these lines, Vafeas (2013) assessed attitudes toward, and uses of, textbooks among Marketing undergraduates, and concluded that textbook usage was limited primarily to being a handbook for definitions and as an aid for exams. Juban and Lopez (2013) explored textbook reading behaviors and found that students preferred PowerPoint slides to textbooks for class information, particularly if they could access such slides online. In recent years, questions about textbook content have continued to be asked, but joined by increasing concerns about their costs. This was addressed in an early study by Simon (2001), who described a model in which all course materials were available to students online at no cost. Students created content, which was checked by the instructor, and added to the website as a vehicle for discussion and dialogue. Baker-Eveleth, Jo, Miller, and Tucker (2011) expanded on this idea, attempting to lower business education costs with a custom professional-written text, describing the opportunity to address the development and use of encyclopedic introductory textbooks available online. Textbook publishers needed to pay little attention to the issue of costs as long as the impact was restricted to students, but as documented by Silver, Stevens, and Clow (2012), faculty were becoming increasingly concerned about their costs because of university, legislative, and publisher actions which were infringing on their options in the selection of textbooks, and restrictions imposed on them concerning how long they were required to use a specific textbook before replacing it with a newer edition. Addressing that question, Pollitz, Christie, and Middleton (2009) discussed the textbook affordability crisis and how it could be address through the management of library course reserves. They advocated the importance of maintaining physical reserves, but acknowledged that those documents were declining as alternatives were introduced and became increasingly popular, making it unnecessary for students to make a trip to the library to get these items. Along these lines, it was interesting to note that Behr and Hayward (2014), acknowledging the skyrocketing costs of textbooks, advocated the development of professional relationships between faculty and the university library to provide reserve copies of textbooks and to initiate an

awareness campaign concerning alternatives to textbooks including e-books and the Open Educational Resources movement to provide access to high quality educational materials. It is interesting to note, however, that these points were addressed at the University Libraries Faculty and Staff Presentations, which is to say that their perspective was strongly influenced by their desire to see that the library would continue to be a viable source of materials and related services. A related viewpoint was presented ty Lyons and Hendrix (2014), who likewise raised the question of a role for the library. They advocated the opportunity and need for the library's partnership with faculty, though it must be noted that their position was influenced by their personal motivation to remain a viable force. Similarly, Celik and Peck (2016) advocated that the library and campus bookstore form a partnership to address textbook affordability through the expansion of course reserves. Again, though, their perspective was influenced by a desire to remain viable and afloat in the midst of rapidly evolving alternatives.

Other scholars have raised questions concerning textbooks per se. A study by Berry, Cook, Hill, and Stevens (2010) concluded that despite the fact that students know it is important to read the textbook, know the professor expects them to read it, and know it will impact their grade, most students do not read the textbook. Additionally, for some time there have been concerns raised about the adequacy of textbooks by themselves to fulfill coursework needs. One of the earlier articles addressing this issue was Calhoun (1997), who raised the concern that although texts supply content knowledge, they were inadequate by themselves and that instructors must supplement the base content to address students' own unique personal needs. It is interesting to note that she raised this point as a time when there were far fewer such supplements and alternatives than there are today. But scholars are not unanimously enthusiastic about the supplements available. Sellnow, Child, and Ahlfeldt (2005) studied student evaluations of textbook technology supplements which accompanied a public speaking fundamentals textbook, and reported that such required supplements were less useful than had been expected, even when they related directly to course objectives. Their findings were consistent with those of Toerner (2006), who evaluated student readership of supplemental in-chapter material in introductory accounting textbooks and noted that 55-70% of students surveyed acknowledged ignoring all materials involving internet links, international accounting issues, and Microsoft Excel applications.

Numerous other studies have addressed the alternative of e-textbooks. Morris-Babb and Henderson (2012) strongly supported the concept of open-access textbook publishing, noting that e-texts were basically equivalent to print editions, though with restrictions on printing or downloading content. In terms of their value to students in the learning process, e-texts were determined to be equivalent to a traditional textbook. Cuillier and Dewland (2014) expanded on their ideas, describing the logistics of integrating e-textbooks into business courses and confirming their viability compared to physical texts. The ultimate results of such alternatives were documented by Fisher, Hilton, Robinson, and Wiley (2015), who performed a multi-institutional study of the impact of open-textbook adoption on learning outcomes and found no significant differences in course completion or achievement of a C- or better grade between 11,818 students using a traditional text and 4,909 using an open-resource text. The findings of Hilton and Laman (2012) were even more impressive. They evaluated the performance of 690 students using a free online psychology textbook, and noted that compared with students using a traditional text, they actually had higher grades in the course and higher overall retention rates.

There may even be benefits to these alternatives that extend beyond course content itself. McManus, Subramaniam, and James (2012) performed a comparative study of the effects of web-based versus in-class textbook ethics instruction on the propensity of Accounting students to whistle-blow to expose unethical behavior. They discovered that students exposed to web-based ethics instruction were more likely to whistle-blow than those students exposed to a traditional in-class textbook ethics instruction approach. This raises the intriguing possibility that for some sensitive and personal topics, students will more effectively absorb the critical concepts when they are in an isolated environment compared to a more public sphere. Sometimes the opportunity to reflect and contemplate independently and quietly can have a positive impact in such situations.

In sum, business educators have moved beyond the old model of using a textbook as the sole source of content, with lectures merely repeating or expanding on that material. Today, there is a huge portfolio of alternative vehicles to enhance the education process. The question that must be asked, of course, is exactly what to utilize and how to integrate those sources into the overall coursework. This is a process that must extend far beyond just impulsively grabbing something that seems interesting and proceeding to integrate it. Some innovations may be appropriate in one course but not in another. So, what the business educator must first do is step back and consider exactly what are the learning objectives of the course, both in terms of the course itself and its long-term impact. It is conceivable

that the critical metrics for evaluating coursework innovations must extend beyond just the course itself. Perhaps objectives might focus on preparations for future coursework, or even the impact on long-term skills and behavior. For example, in the cited study concerning ethics and whistle-blowing, it would be interesting to assess the influence of the presented concepts on professional behaviors well into the future. So, before adopting alternatives and innovations, the educator must specify exactly what course objectives are, and the metrics that will be used to assess them. This study has applied such a procedure to develop an innovative approach for a Marketing Fundamentals class.

DEFINING LEARNING OUTCOMES

The first step in developing coursework for the Marketing Fundamentals course was to define the course objectives. It is essential that innovations not simply be adopted haphazardly, but that they are developed and employed in support of those objectives. In the syllabus for the Marketing Fundamentals course, learning objectives are stated as follows: 1) Become familiar with the terms, definitions, concepts and applications of marketing; 2) Understand the marketing process and how it satisfies consumer needs in a mutually beneficial exchange; and 3) Gain insight into the opportunities for marketing, professionally and personally. These objectives are consistent with those we would expect to see in such a course in any setting. It is essential, though, to also consider the context for those learning objectives. Marketing Fundamentals is the foundation-level course for all upper-level courses, both core courses and electives, and for non-Marketing majors, it provides the basic knowledge of the marketing discipline, hopefully complementing their knowledge and preparation for whatever field of study they will pursue in their careers. That is to say, the effectiveness of Marketing Fundamentals must be assessed at some point after the students take the course, not just at the course's end. Furthermore, there is the question of exactly what knowledge we wish them to retain. For example, Marketing Fundamentals features one lecture each on Consumer Behavior, Marketing Research, and Marketing Strategy, subjects which constitute required courses for all Marketing majors. It is not expected that the Marketing Fundamentals course will make students proficient in these subjects, and, in fact, the material covered will be addressed in the first week or two of those upper-level courses. Thus, the objective of the Marketing Fundamentals course in this situation is to give students a familiarity with the subject matter and make them better prepared and more comfortable to explore these subjects in depth. But just as important, Marketing Fundamentals needs to provide them with the foundation of basic knowledge of the marketing process, as essential as would be language proficiency for a course in literature. Without this basic proficiency, students may not be adequately prepared for upper-level courses, and faculty in those courses may need to spend valuable course time reviewing this basic material. By the same token, a non-Marketing major would not be expected to have the proficiency to develop a marketing plan for an accounting firm or to develop a research initiative to identify business opportunities for their firm, but should be able to read through such documents and feel comfortable, not totally lost. Thus, an objective of the Marketing Fundamentals course is to provide focus on key concepts which constitute the most critical knowledge. That objective is not well served by cluttering the course with details that are not critical for those future applications, even though Marketing faculty might well see such details as fun and interesting. This bring us to the point of being able to determine what will be optimal for coursework content. As noted, objections have been raised concerning the high cost of textbooks but, having said that, if a textbook is the most effective vehicle for delivering content, it should be utilized. Within that context, of course, there would be the option of considering an e-text. But considering the specific objectives noted for the Marketing Fundamentals course, questions had to be raised concerning the appropriateness of a text in any form. By their very nature, although textbooks do highlight the most important critical concepts, terms, and definitions, they also expand on those items with a variety of details and secondary information, which has the potential to distract the student from the core knowledge.

DEVELOPING INNOVATIVE COURSE-RELATED CONTENT AND DELIVERY MODE

With the preceding considerations in mind, it was decided that a textbook, in any format, was not the optimum mode for delivery of coursework content. But to develop a format which would best serve the course's objectives, the key question to be addressed was how to most effectively focus on the critical material and eliminate superfluous clutter. Addressing that objective brought back the approach used by students in upper-level undergraduate courses, Master's and Doctorate-level courses. Facing huge amounts of material, students in those situations prepared notes from articles and textbooks which highlighted the most critical ideas and concepts. They would then not go back to the voluminous original material but would rely on their notes to prepare for class and exams. Such focus was exactly what was needed for a Marketing Fundamentals class, though most students at that level had not yet

achieved the proficiency of creating such summary highlights. So, for the Marketing Fundamentals class, this was done for them, with a series of 16 one-page Topic Outlines and Glossary, one for each of the 16 course lectures. These documents were provided in a Word folder, available free on line, and constituted the course content for all students, whether they viewed lectures in-person or online. In the classroom, lectures addressed examples and applications of these key concepts, notes from which students integrated into the respective Topic Outline and Glossary, yielding a total of about one page of notes per topic. These constituted their study materials, focused and concise. The three exams for the course, covering a total of 16 Topics, addressed six, six, and four Topics respectively, so even for one of the six-Topic exams, students worked from a total of 12 pages study materials, half of which were Topic Outlines and Glossary, and half of which were their notes from lectures. It was hoped that this approach would help them learn the key concepts more effectively and that they would retain more than with a traditional approach.

In terms of coursework delivery, research cited made a compelling case for the value of video capture of lectures in those situations where lectures were highly structured. This was the case with the Marketing Fundamentals class, though in the live classroom setting there was considerable interaction and discussion. Generally, for a 50-minute class, the structured lecture and interaction/discussion each took about 25 minutes. Interaction/discussion varied considerably class by class, however, and many of the points raised in class were tangential in nature, not critical to course content per se. Thus, it was determined that students were not well served by merely recording a classroom lecture and arrangements were made to form a joint task force with the Communication Arts Department to produce video recordings of the 16 structured lectures, plus the Intro to Class, in a professional studio setting. All have been posted on YouTube, available free to students (or anyone else). Since these concentrated solely on the core structured material, they provide students a source to review lectures in preparation for exams.

OBJECTIVE ASSESSMENT OF THIS INNOVATIVE APPROACH

As noted, the objective of the Marketing Fundamentals classis to have students retain knowledge of key terms, definitions, and concepts into the future. Thus, to make an objective evaluation of the innovative approach, a Quick Review Exam was given to 103 students in a Senior-level Marketing elective. All had taken Marketing Fundamentals in the past, from one semester to three years ago. The Quick Review Exam was made up of 10 multiple-choice questions addressing the most important terms, definitions, and concepts. As noted in Table 1, 34 of the students had taken Marketing Fundamentals in the innovative format, 45 through a traditional textbook and classroom lecture format, and 24 online. Students taking the innovative format averaged 5.41 correct answers, traditional textbook and classroom lecture averaged 4.36, and online averaged 4.33, detailed in Table 1 below.

Table 1: Student performance in a 10-question Quick Review Exam of key terms, concepts, and definitions from Marketing Fundamentals, conducted in upper-level Marketing electives

	Number of Students	Average Score
Described innovative approach: No textbook, content delivered in on-line modules, video lectures available	34	5.41
Traditional approach: Textbook, classroom lectures	45	4.36
Online	24	4.33

OPPORTUNITIES FOR FUTURE RESEARCH

As noted, participants in this study were in a Senior-level Marketing elective, and thus had taken Marketing Fundamentals at least a year ago, some possibly longer ago than that. They were not asked when they had taken Marketing Fundamentals, though that variable might be of interest in a more detailed future study. Along those lines, it might be interesting to see how many and which Marketing courses they had taken since Marketing Fundamentals. Similarly, an expanded study to include all Marketing students would enhance representivity and offer an opportunity to calculate the statistical significance of the results.

This study presents numerous opportunities for future research in the area of innovative coursework. Of course, the approach in this described Marketing Fundamentals class might not be appropriate in all situations. It might well prove viable for another foundation-level course such as Management Fundamentals, but other courses, perhaps at upper levels, could very well require a different approach. As in this study, the opportunity would begin by specifying learning objectives. Then, the question would be whether an alternative format or delivery system could be as effective, or more effective, in achieving those objectives. It is very possible that for some courses, a form of textbook and supplemental modules, including video-based instruction, would be appropriate. Certainly a key question is whether the classroom setting provides an important component of the learning experience. In the Marketing Fundamentals class described here, interaction and discussion with students appeared to generate interest in the discipline and an inclination to pursue other Marketing electives and to consider majoring in Marketing. Those questions were not addressed in this study, but would offer an interesting opportunity for future research. Especially for an upper-level course, it might be critical to have students make presentations within an in-class setting to properly address certain material and to involve them in class exercises, case studies, or role plays. In such situations, video lecture capture might prove to be of limited or minimal value. On the other hand, if there were no compelling reason to meet with students face-to-face, it might be reasonable to organize the course in an online format exclusively. It would be most interesting for scholars to assess whether there are situations where an online format would be as effective in achieving course objectives, and the extent to which those objectives were influenced by person-to-person interaction between faculty and students.

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Using the Mega Millions Lottery in Your Principles of Finance Class

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ABSTRACT

The recent record-setting purse in the Mega Millions Lottery has sparked widespread interest in the game. People who had never previously purchased a lottery ticket bought one in the hopes of winning all or part of the $1.6 billion prize. The winner receives the entire $1.6 billion only if they choose to spread their prize over 30 payments. If the winner desires to take the prize as an immediate lump sum, the figure falls to $904 million, or 56.5% of the advertised prize. This event provides an excellent example of a "real-world" financial analysis that captures students' interest. It can be used to illustrate annuities, capital budgeting, the use of spreadsheets, and even the impact of taxes.

Key words: Lottery, Annuities, Time value of money

INTRODUCTION

Professors are constantly seeking new ways to make the material that they are teaching "come alive" to their students. The more that students are engaged in the topic, the easier the learning process is. Finance professors are no different than their colleagues in different disciplines in this regard. We sometimes find ourselves "crunching the numbers" of what we perceive to be an interesting and mentally stimulating problem, but the class is characterized by yawns and blank stares. The average student is thinking, "OK. If I deposit $6000 into my Roth IRA at 10% and leave it there for 40 years, I'll have $271,556 of tax-free income forty years from now. But where can I get the $6000 to deposit? I borrowed $30,000 to go to school this year. And where can I earn 10%? The rate on a 24 month CD is only 1.5% now." And then, you've lost them, as they begin to focus more on plans for the upcoming weekend, and less on the class.

Incorporating current events is one method to capture and maintain student interest. Starting with a topic that they are already keenly interested in captures their attention from the start. The trick is to seamlessly seque from the event to applying today's class topic to the event. When successful, students master the topic without even realizing it. They thought they were talking about something they were interested in, not the lecture topic for the day.

I found the recent Mega Millions lottery to be just such an attention-catching event. As the grand prize grew each day, students became more animated and enthusiastic in our discussions. For the $2 price of a lottery ticket, several students had a vested interest in this analysis, despite the astronomical odds against winning.

MEGA MILLIONS LOTTERY RULES

Lotteries are big business in the United States. Forty-four states have a state-run lottery, with revenues topping $80 billion in 2016. To put that sales amount in perspective, $80 billion in revenues would rank the cumulative state lottery sales at 34 on the 2018 Fortune 500. They would be slightly below Microsoft, with $89.9B in sales, but above Johnson & Johnson, with sales of $76.45B (Fortune 500). Mega Millions is a multi-state game with a minimum prize of $40 million. Tickets cost $2, with the player selecting 5 numbers between 1 and 70, and a sixth number between 1 and 25 (Wikipedia). The prize is expressed as the sum of 30 annual payments, with the payments increasing 5% each year. The winner can opt for an immediate lump sum payout at a significant discount from the stated prize value.

Life expectancy need not be a factor in determining whether to take the payment stream or the lump sum. If the winner opts for the annual payments and dies before all of the payments are made, the payments continue to their designated beneficiary. Should the beneficiary predecease the lottery winner, then the payments become part of the winner's estate, and are distributed in accordance with their will. If no will exists, then the state distributes the estate, including the winnings. Alternatively, the winner directs the annual payments into a trust for distribution. In his way, the trust continues as long as the winnings are being paid, regardless of whether the winner is still alive (Lottery Trusts).

CLASS APPLICATIONS

Annuities and calculating an interest rate

You have two options if you win the lottery: take a series of payments that sum to advertised value; or take an immediate lump-sum payout. There is an interest rate that makes the present value of the payments equal to the lump-sum. Assuming 30 equal payments that sum to $1.6B, the payments are $53,333,333.33, with the first payment right now. This situation is a perfect example of an annuity due. In the calculator (specifically, a Texas Instruments calculator) set to the BEGIN mode, the keystrokes are:

N = 30
PV = -$904,000,000
PMT = $53,333,333.33
FV = 0
CPT I/Y = 4.54%.

I prefer to avoid having my students switch between the END and BEGIN mode, as they invariably will forget to check which mode they are in before beginning the next problem. This problem can be calculated in the END mode (ordinary annuities) by subtracting the first payment from the lump-sum. This makes the first payment come in one year, and there are a total of 29 payments. The keystrokes are:

N = 30-1 =29
PV = $904,000,000 - $53,333,333.33 = $850,666,666.67
PMT = -$53,333,333.33
FV = 0
CPT I/Y = 4.54%.

The answer, 4.54%, is the same in either case. If you expect to be able to average earning more than 4.54% over the next 29 years, then you should opt for the lump-sum and manage your own payout. For instance, earning 6% would permit 30 payments of $61,957,185, over 16% more each year. However, if you think your will earn only 4% annually, your payment is only $50,267,702. In this case, you would do better letting the lottery officials handle your payments. The question that generates a lively discussion is which prize do you select, the payments or the lump-sum. One side will claim that the stock market returns greatly exceed the 4.54% level. Others will counter that the 4.54% is a risk-free rate, which may be preferred to the risky returns of the market.

Growing annuities and calculating an interest rate

If you accept your winnings as an annual payment, the payments are not the same every year but increase by 5% annually. Thus, the time value of money functions in a calculator will not calculate the rate of return, as the annuity feature requires a constant payment. However, the cash flow function (used for net present value and the internal rate of return) can handle uneven cash flows. Since the first payment occurs now (time period 0), the initial payment must be subtracted from the lump sum payment amount. This difference is then used as the initial cash outflow, with the subsequent payments as the cash inflows. For the recent $1.6 billion prize, the initial payment was $24,082,296 (USA Mega). This makes our initial cash outflow value $879,917,704 ($904M - $24,082,296), and the first cash inflow $25,286,411 (5% more than $24,082,296 paid in time period 0). Using the cash flows from Table 1 and the IRR function in a TI 83 calculator, the problem is set up so that this appears in the screen:

irr(-879917704,{25286411, 26550732, 27878268, … , 94405711, 99125997}); IRR = 3.448%.

While using the calculator will produce the correct answer, entering that many cash flows is quite labor-intensive and fraught with error. Using an Excel spreadsheet is a bit simpler. Although the spreadsheet's calculation will require the use of the same cash flows, it is not necessary to enter each cash flow individually. You merely need to enter the cash outflow, -$879,917,704, and the first cash inflow, $25,286,411. The next 28 cash inflows can be input by increasing each of the following cells by 5%. These successive 5% increases are easily completed by inserting the formula, =B3*(1.05), into cell B4. The remaining cash flows result from copying cell B4 and pasting the equation into B5 through B31. The Excel spreadsheet would look as follows:

	A	B
1	Time period	Cash flow
2	0	$ (879,917,704)
3	1	$ 25,286,411
4	2	$ 26,550,732
5	3	$ 27,878,268
:	:	:
:	:	:
29	27	$ 89,910,201
30	28	$ 94,405,711
31	29	$ 99,123,997

If these 30 cash flows are in rows 2 through 31 of column B in an Excel spreadsheet, the internal rate of return is found with the command, irr(B2:B31). I find that students appreciate this labor and time saving approach, especially if they have entered the 30 cash flows into a calculator. The additional Excel practice that students receive from this example is an added benefit.

Tax implications

Students are often surprised to learn that the lottery winnings are subject to income tax, and are astounded by the absolute amount of the tax liability. Table 2 shows the amount of the after-tax winnings after nearly 37% is claimed by the federal government. The winner's state of residency also impacts the amount of the prize. State income tax rates vary from 0% (seven states do not have an income tax) to a high marginal tax rate of 13.3% in California. New York's state maximum income tax rate is 8.82%. That tax liability is also shown in Table 2 for illustration. Several cities also levy a tax on income, which would further reduce the lottery winnings. For instance, New York City's income tax would take another 3.648% of the prize, an amount you would not have to pay if you were a New York state resident that lived outside of New York City (Moreno, 2018).

CONCLUSIONS

The lottery offers a myriad of examples that can be used teaching financial concepts. Students find the lottery fun to examine and enjoy the real-life application of the classroom topics. Because of their genuine interest, the students' level of understanding goes beyond comprehension and application to analysis, synthesis and evaluation, which makes this pedagogical tool extremely successful in the development of critical thinking. After all, where else can you spend $2 and have the possibility of being a millionaire?

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TABLE 1: Mega Millions: $1.6B Lottery payout

(Cash option: $904M)

Yr	Payout
0	$ 24,082,296
1	$ 25,286,411
2	$ 26,550,731
3	$ 27,878,269
4	$ 29,272,181
5	$ 30,735,790
6	$ 32,272,581
7	$ 33,886,210
8	$ 35,580,520
9	$ 37,359,546
10	$ 39,227,523
11	$ 41,188,899
12	$ 43,248,344
13	$ 45,410,762
14	$ 47,681,299
15	$ 50,065,365
16	$ 52,568,632
17	$ 55,197,064
18	$ 57,956,917
19	$ 60,854,763
20	$ 63,897,501
21	$ 67,092,376
22	$ 70,446,995
23	$ 73,969,344
24	$ 77,667,811
25	$ 81,551,203
26	$ 85,628,763
27	$ 89,910,200
28	$ 94,405,710
29	$ 99,125,997

TABLE 2: Mega Millions: $1.6B Lottery payout
(Cash option: $904M)
After federal tax cash option: $569,425,065
NY State tax liability (8.75%): $79,100,000
Net cash option if NY resident: $490,325,065

YR	Payout	After Fed tax Taxes	NY Taxes Owed	Net if NY Resident
0	$ 24,082,296	$ 15,206,156	$ 2,107,201	$ 13,098,956
1	$ 25,286,411	$ 15,964,749	$ 2,212,561	$ 13,752,188
2	$ 26,550,731	$ 16,761,271	$ 2,323,189	$ 14,438,082
3	$ 27,878,269	$ 17,597,619	$ 2,439,349	$ 15,158,271
4	$ 29,272,181	$ 18,475,784	$ 2,561,316	$ 15,914,468
5	$ 30,735,790	$ 19,397,858	$ 2,689,382	$ 16,708,476
6	$ 32,272,581	$ 20,366,036	$ 2,823,851	$ 17,542,185
7	$ 33,886,210	$ 21,382,622	$ 2,965,043	$ 18,417,579
8	$ 35,580,520	$ 22,450,038	$ 3,113,296	$ 19,336,742
9	$ 37,359,546	$ 23,570,824	$ 3,268,960	$ 20,301,864
10	$ 39,227,523	$ 24,747,649	$ 3,432,408	$ 21,315,241
11	$ 41,188,899	$ 25,983,316	$ 3,604,029	$ 22,379,288
12	$ 43,248,344	$ 27,280,767	$ 3,784,230	$ 23,496,537
13	$ 45,410,762	$ 28,643,090	$ 3,973,442	$ 24,669,648
14	$ 47,681,299	$ 30,073,528	$ 4,172,114	$ 25,901,415
15	$ 50,065,365	$ 31,575,490	$ 4,380,719	$ 27,194,771
16	$ 52,568,632	$ 33,152,548	$ 4,599,755	$ 28,552,793
17	$ 55,197,064	$ 34,808,460	$ 4,829,743	$ 29,978,717
18	$ 57,956,917	$ 36,547,168	$ 5,071,230	$ 31,475,937
19	$ 60,854,763	$ 38,372,811	$ 5,324,792	$ 33,048,019
20	$ 63,897,501	$ 40,289,736	$ 5,591,031	$ 34,698,704
21	$ 67,092,376	$ 42,302,507	$ 5,870,583	$ 36,431,924
22	$ 70,446,995	$ 44,415,917	$ 6,164,112	$ 38,251,805
23	$ 73,969,344	$ 46,634,997	$ 6,472,318	$ 40,162,679
24	$ 77,667,811	$ 48,965,031	$ 6,795,933	$ 42,169,097
25	$ 81,551,203	$ 51,411,568	$ 7,135,730	$ 44,275,838
26	$ 85,628,763	$ 53,980,431	$ 7,492,517	$ 46,487,914
27	$ 89,910,200	$ 56,677,736	$ 7,867,143	$ 48,810,594
28	$ 94,405,710	$ 59,509,907	$ 8,260,500	$ 51,249,408
29	$ 99,125,997	$ 62,483,688	$ 8,673,525	$ 53,810,163

Using Threat Vulnerability Asset (TVA) Methodology to Identify Cyber Threats and System Vulnerabilities: A Student Field Project Case Study

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ABSTRACT

Research demonstrates that the use of vulnerability assessment (VA) tools are critical in identifying cyber threats and system vulnerabilities. This paper presents a case study of a student field project that utilized the Threat Vulnerability Asset (TVA) matrix methodology, an open source and uncomplicated VA tool, to identify cyber threats and system vulnerabilities for a software engineering organization in the U.S. Southwest. The TVA methodology specifically helped the student project team identify and prioritize their client organization's most critical IT (information technology) resources, the cyber threats to those critical IT resources, the IT safeguards currently in place, and identify the resulting system vulnerabilities from the triangulation of these three TVA matrix components. Additionally, the TVA methodology assisted the student project team to identify clear imbalances in the allocation of IT safeguards to certain critical and vulnerable IT resources. The implications for practitioners and educators from the results of this TVA field case study is that open source and uncomplicated VA tools such as the TVA methodology increase the pedagogy for active student learning of cyber threats and system vulnerabilities in our current IT-intensive environments.

Keywords: TVA methodology, cyber threats, threat vulnerability analysis, system vulnerabilities, vulnerability assessment methodologies, information security risk, student cyber security field projects.

INTRODUCTION AND BACKGROUND

As networks become increasingly complex via open architectures, multi-tiered networks, global web services, and cloud computing storage, it has become increasingly difficult to protect critical organizational IT (information technology) resources and assets from new cyber attacks, data breaches, and system intrusions (Mejias and Balthazard, 2014; Sharmeli-Sendi et al., 2016). Approximately 90% of organizational information systems have been breached by unauthorized personnel (Ponemon Institute, 2018). Additionally, newer open information system (IS) architectures must increasingly allow external entities (i.e., vendors, contractors, suppliers) access to their internal networks, often inside of their organizational IS firewalls. In many cases these external entities require increased access to previously proprietary information that is critical to ongoing organizational operations and processes. Unfortunately, the demands of maintaining continued operations and profitability often take precedence over the protection of critical IT (information technology) resources and strategic data.

Multiple challenges continue to exist for organizations seeking to protect their IT resources and data from successful cyber attacks. The first challenge is identifying those IT resources and assets that are most critical to the core operations of their organization (Mattord and Whitman, 2018; Herath and Herath, 2014). Clearly, in order to remain competitive in a globally demanding environment, critical processes must continue to be productive and efficient without interruption (Ciampa, 2018). The second challenge is identifying those cyber threats most likely to affect or attack these critical IT resources and operations. If key IT resources, strategic data, and propriety information are not sufficiently protected, a successful cyber attack can quickly render an organization to be less competitive and non-operational for a significant period of time (Mejias and Balthazard, 2014). The third challenge is identifying the greatest vulnerabilities to these cyber threats by assessing whether current IT safeguards are adequately protecting these critical IT resources. Understandably, limited financial resources make it infeasible for IT management to protect all IT resources and processes while still maintaining profitability and continuity.

Protecting key IT resources may have an even greater effect for small-and-medium-sized enterprises (SMEs) (Osborn and Simpson, 2017), as is demonstrated in this current field case study. Shropshire, Warkentin, and Sharma (2017) found significant variance among SME executives between adoption *intention* and actual *adoption* of information security measures. Adoption intention by non-IT personnel (i.e., upper management) in non-IT intensive

industries was most influenced by IT budget limitations and the perceived severity of identified vulnerabilities (Osborn and Simpson, 2017). While executives were frequently found to be overconfident in the ability of their security systems to protect their key organizational resources, the use of periodic vulnerability assessment (VA) methodologies significantly increased their information security awareness (ISA) for potential cyber attack vulnerabilities (Bauer, Bernroider and Chudzikowski, 2017; Ponemon Institute, 2018; Shropshire, Warkentin and Sharma, (2017).

Research has demonstrated that the impact of cyber attacks may be reduced by the use of VA methodologies (Certified Ethical Hacker, 2017; Jenkins, Durcikova, and Burns, 2013; Mejias and Balthazard, 2014). A *vulnerability assessment* has been defined as the systematic identification of an organization's most critical IT resources, the threats against those resources, the current safeguards in place to protect those IT resources, and the identification of the most vulnerable IT resources for that particular information system (Ciampa, 2018; Mejias and Balthazard, 2014; Certified Ethical Hacker, 2017). However, previous research has been vague and non-specific in describing the specifics and utilization of VA methodologies, particularly the Threat Vulnerability Asset (TVA) matrix methodology, a free, open source, and readily available tool for identifying cyber threats and system vulnerabilities.

The paper presents a field case study of how a student project team, led by a faculty security expert, used the TVA methodology to generate a working TVA matrix that identified and prioritized critical assets and cyber threats, analyzed current IT safeguards, and identified system vulnerabilities from the triangulation of these three TVA components. The TVA matrix also provided useful insights for rebalancing the assignment of IT safeguards to better address the SME organization's greatest system vulnerabilities. We believe this field case study provides an uncomplicated but innovative approach to improve the current IT educational pedagogy for identifying cyber threats and system vulnerabilities.

REVIEW OF RESEARCH: VULNERABILITY ASSESSMENT METHODOLOGIES

Practitioners and researchers have examined numerous approaches to identifying cyber threat agents and system vulnerabilities. Effective VA methodologies, such as *OCTAVE* (Operationally Critical Threat, Asset, and Vulnerability Evaluation™), *VAMM* (Vulnerability Assessments & Mitigation Methodology), *CRAMM* (CCTA Risk Analysis and Management Method), and *TVA* (Threat-Vulnerability-Asset) have been utilized to facilitate the identification of critical IT resources, the threats to those IT resources, and the identification of related system vulnerabilities.

The OCTAVE® methodology as a VA tool provides a security framework for determining risk level and planning defenses against cyber attacks. OCTAVE® was originally developed as a VA methodology for U.S. military and logistics operations as a balanced approach to information security risk management. However, OCTAVE primarily focuses on organizational risk management and emphasizes strategic and tactical issues, with a lesser emphasis on the technological aspects of addressing information security risk (Alberts et al., 2003).

VAMM was created by the RAND Institute for the Defense Advanced Research Projects Agency (DARPA) and was developed to address the perceived weakness of other VA methodologies in identifying critical vulnerabilities and appropriate cyber security mitigation techniques (Anton, Anderson, Mesic, and Scheiern, 2003). VAMM primarily focuses on software development and identifies a taxonomy of system attributes that generate system vulnerabilities. These identified vulnerabilities are then mapped to an appropriate list of IT safeguards that would most effectively mitigate those system vulnerabilities. VAMM was designed not only to mitigate and eliminate *identified* vulnerabilities, but to also identify previously *unknown* vulnerabilities in order to establish appropriate IT safeguards. However, like OCTAVE, the VAMM methodology is extensive, time consuming, and requires trained evaluators and specialized software tools to implement. The developers of VAMM acknowledge that after the initial three steps of the process "the methodology's complexity increases greatly" (Anton et al., 2003).

CRAMM was developed by the Central Computer and Telecommunications Agency (CCTA) of the United Kingdom government with the goal of providing a methodology to conduct information system security reviews (CCTA, 1988). CRAMM uses a structured automated analysis tool to identify and value assets, identify threats and vulnerabilities, calculate associated risk, and identify appropriate countermeasures. The CRAMM process requires trained reviewers who gather data by interviewing organization personnel, which is then entered into the CRAMM

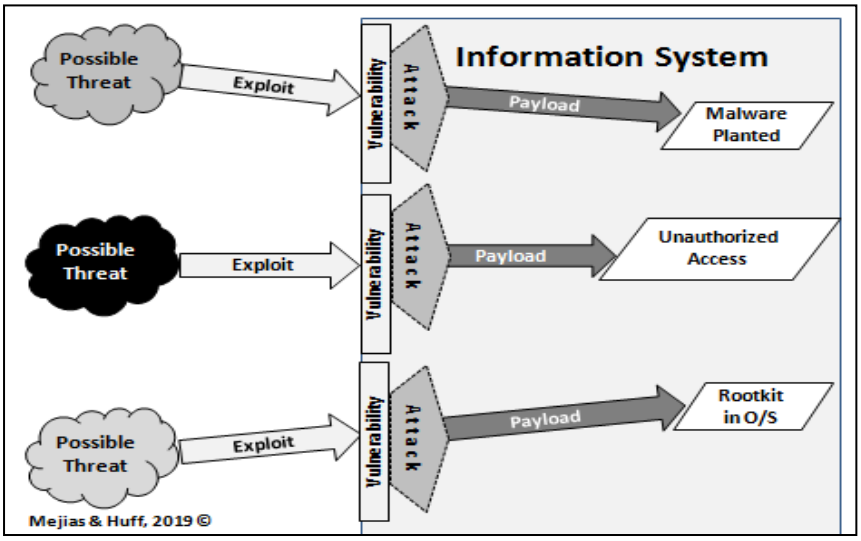
analysis tool. The CRAMM process then assigns risk values to the various threats and vulnerabilities and recommends a hierarchical set of applicable countermeasures from a database of over 4,000 potential countermeasures. CRAMM reporting includes the cost of the recommended countermeasures and their relative impact. However, the CRAMM application constitutes a relatively expensive software investment and requires a significant amount of lead time to train reviewers for data input (Elof, Labuschagne, and Badenhorst, 1993).

The TVA matrix methodology appeared to combine the best and most useful components of the OCTAVE, VAMM, and CRAMM methodologies and provided a free and relatively uncomplicated VA tool to systematically identify and prioritize IT assets, cyber threats, and system vulnerabilities. The TVA methodology was also selected for the current field project case study as it has been increasingly used by cyber security educational programs that seek an open source and readily available VA methodology tool for training students and practitioners in identifying cyber threats and system vulnerabilities (Mejias and Balthazard, 2014; Renfroe and Smith, 2014).

The TVA project team in our field case study used the following components to develop and implement the TVA methodology matrix:

1. Identification of the organization's cyber security mission,
2. Identification and priority ranking of critical IT resources,
3. Identification and ranking of threats to IT critical resources,
4. Analysis of current IT safeguards and identified system vulnerabilities,
5. Recommendations of new IT safeguards (to address identified vulnerabilities).

Figure 1: Relationship between Cyber Threats, Exploits, Vulnerabilities, and Cyber Attacks



In implementing a viable TVA methodology, it was critical for the project team to understand the differences between *cyber threats*, *cyber exploits*, and *cyber attacks* (see Figure 1). *Cyber threats* are defined as any potential action that may compromise the confidentiality, integrity, and availability of an information system (Mejias and Balthazard, 2014; Ciampa, 2018), or that may violate information security policy (Bulgurcu et al., 2010; Chen et al., 2012; Flowerday and Tuyikeze, 2016). Cyber threats include, but are not limited to viruses, network worms, Trojan horses, denial of service (DoS) attacks, XML and SQL injection attacks, botnets, ARP attacks, and SCADA (supervisory control and data acquisition) attacks, or a multi-dimension combination of the above (Ciampa, 2018).

Cyber exploits refer to specific techniques or methods employed by cyber attackers seeking to breach a particular IS vulnerability or weakness (Simpson et al., 2010; Certified Ethical Hacker, 2017). Examples of exploits are reconnaissance, footprinting, scanning, packet sniffing, phishing, social engineering, wardriving, and hacking/cracking. A *cyber attack* is the successful materialization of a cyber threat via the deliberate exploitation of a particular IS security vulnerability (Ciampa, 2018).

A *vulnerability* is a flaw or weakness in the organization's IS design, implementation, security procedures, or internal controls (William and Mattord, 2018; Ciampa, 2018). System vulnerabilities are "exposures" that may succumb to various cyber threats and attacks that exploit system weaknesses and transform a *cyber threat* into a successful *cyber attack* (Mejias and Balthazard, 2014). As Figure 1 illustrates, a threat becomes a cyber attack when a particular exploit is successfully executed upon a system vulnerability (Mejias and Balthazard, 2014).

PHASES OF THE TVA METHODOLOGY

As previously discussed, the OCTAVE, VAMM, CRAMM, and TVA methodologies possess similar components that relate to the identification of critical assets, threats, and system vulnerabilities. In the following sections we describe how our student project team used the TVA methodology as an uncomplicated VA tool to identify their client organization's critical assets, cyber threats, and specific system vulnerabilities.

Identification of the Organization's Cyber Security Mission

Before any identification of critical IT assets and/or cyber threats were undertaken, the TVA project team first sought to identify their organization's cyber security mission. Security mission statements are often completely absent or not clearly established by management. This was the case with our current TVA field project. As the strategic and business goals of the SME's organization were better identified and articulated (often with assistance from TVA project team members), the organization's cyber security mission and related policies were more clearly formulated as the TVA project team continued their implementation of the TVA methodology. (The security mission statement related to the SME organization featured in this case study could not be disclosed in this manuscript due to non-disclosure agreements).

Identification and Priority Ranking of Critical IT Resources

Identification of Critical IT Resources

Next, the TVA project team identified the core IT resources and processes that were critical to the ongoing operation and success of the organization. The systematic identification and prioritization of the organization's *most* critical IT resources allowed the TVA project team to focus on those critical IT resources that should receive the most protective attention (i.e., IT safeguards). Research, however, indicates that the identification of critical IT assets and resources is an evolving process and to date, there is still has no definitive or widely accepted standard (Ciampa, 2018). The following general categories however, provided an excellent "first pass" to identify, group, and rank critical the organization's critical IT resources (Ciampa, 2018):

- Personnel
- Processes, Operations
- Data and Information
- Software Applications (e.g., operating systems and security components)
- Hardware (e.g., system devices, network infrastructure components)

Priority Ranking of Critical IT Resources

While it is financially infeasible to safeguard all organizational resources, organizations must develop a prioritization criteria to identify those assets that generate the greatest impact to the success of their organization (Mejias and Balthazard, 2014; Mukhopadhyay, Chatterjee, Saha, Mahanti, and Sadhukhan, 2013). Sawilla and Oh (2008) propose that organizations use an asset ranking algorithm where vertex weights are used as inputs to identify critical organizational assets. For example, a vertex may represent a critical IT asset, such as a web server or operations data center. A more *heavily weighted* vertex represents a more important or critical asset. Asset rankings using vertex weights help organizations determine the best allocation of their IT safeguards to protect their most critical IT assets and resources (Sawilla and Oh, 2008). Following this heuristic, our TVA project team used a *Critical Resource Prioritization* table (see Table 1) to identify and prioritize the organization's most critical IT resources according to the ranking criteria established by the organization's management. The four ranking criteria was determined by the organization's management team as shown below.

The "Criteria Ranking Weights" (e.g., 40%, 20%, 20%, and 20%) assigned to each criteria were determined by the managerial and financial functions of the organization's management according to their relative importance to their organization:

Criteria 1: Assets most critical to *market share*
Criteria 2: Assets with the most impact to *revenue*
Criteria 3: Assets that would be *most expensive to replace*
Criteria 4: Assets with the *most impact to client trust*

Table 1 illustrates the Critical Resource Prioritization table developed by the TVA project team and represents the first pass at identifying and ranking the target organization's IT resources from most critical to least critical (i.e., last column). The relative *impact* or contribution of each of the Critical Resource Assets for each of the four ranking criteria was also determined by organizational management. For example, the weighted asset value for the first two assets would be:

(0.7 x 40%) + (0.5 x 20%) + (0.9 x 20%) + (1.0 x 20%) = *76%* Weighted Asset Value
(0.8 x 40%) + (0.9 x 20%) + (0.7 x 20%) + (0.8 x 20%) = *80%* Weighted Asset Value

As shown in Table 1, the Critical Resource Prioritization Table indicated that the #1 critical resource for this organization was their *software program patents*, followed by *engineering intellectual property*, *operations and data base servers*, etc.

Table 1: Critical Resource Prioritization Table (Adapted from Whitman and Mattord, 2018)

Critical IT Resource/Asset	Criteria 1: Most Critical to Mkt. Share	Criteria 2: Most Impact to Revenue	Criteria 3: Most Expensive to Replace	Criteria 4: Most Impact to Client Trust	Weighted Asset Value (%)	Rank
Criteria Ranking Weight (1-100%)	**40%**	**20%**	**20%**	**20%**	**100%**	
		Relative	***Impact***			
Patented SW Operations Process	0.70	0.50	0.90	1.00	**76**	**4**
Engineering Intellectual Property (IP)	0.80	0.90	0.70	0.80	**80**	**2**
Software Program Patents	0.90	0.90	0.90	1.00	**92**	**1**
Supply Chain Mgmt (SCM) System	0.70	0.70	0.80	0.70	**72**	**6**
Skilled Labor Force	0.70	0.60	0.80	0.90	**74**	**5**
Operations and Database Servers	0.90	0.80	0.50	0.80	**78**	**3**
Company Website	0.60	0.60	0.50	0.60	**58**	**7**
Nationally recognized Scientists, Researchers	0.30	0.40	0.70	0.60	**46**	**8**
Legal Team	0.30	0.40	0.40	0.80	**44**	**9**

Identification and Ranking of Threats to Critical IT Resources

Identification of Threats

Organizations face a wide range of cyber and non-cyber threat agents, including natural disasters, sabotage, theft, human error, software and system failure, and technological obsolescence. While the TVA project team realized that the threat landscape for any organization would be constantly changing as evolving threats would continue in real time, the identification and ranking of current threat agents was the next step in identifying system vulnerabilities. The TVA project team worked closely with the organization's IT personnel to identify and rank the range of threats

that would most compromise the security, confidentiality, and availability of the organization's most critical IT resources.

Priority Ranking of Threats

If every threat agent or exploit was expected to be a successful cyber attack, any I.S. security initiative would quickly become too complex to sustain. The TVA project team therefore worked with the organization's IT staff to prioritize and rank the threat agents they had previously identified. Researchers and practitioners have frequently used *threat modeling* and *threat prioritizing* techniques for ranking potential threat agents. Threat modeling analyzes exploits used by cyber attackers, the motivation for the attack, and the types of attacks that may occur (Ciampa, 2018). Threat prioritization may use simple classifications (e.g., low, medium, high threat) or more complex ranking techniques such as a *Threat Prioritization Matrix* as illustrated in Table 2.

Table 2 illustrates the development of a Threat Prioritization Matrix and is based upon the estimated impact of various threat agents upon the organization's most critical IT resources. The *Estimated Impact of a Threat Agent* (column 2) used an assessment scale of 0 to 100 and was based upon information gathered from industry benchmarks of similar organizations as a potential threat agent.

Table 2: Threat Prioritization Matrix (Adapted from Whitman and Mattord, 2018)

1. Identified Threat Agents	2. Estimated Impact of Threat Agent	3. Likelihood of Attack	4. Probability of Loss if Threat Successful	5. Threat Prioritization Rating (Col 2 x 3 x 4)	6. Threat Ranking
Software Design Vulnerability Error	57	20%	65%	7.4	**7**
Theft of Intellectual Property (IP)	94	30%	95%	26.8	**1**
Physical Damage to PCs, Hard Drives	89	10%	40%	3.6	**10**
Human Error in Software or Mfg.	30	10%	15%	0.5	**12**
DoS Attack / Website Outage	74	20%	53%	7.8	**6**
Loss of Supply Chain Vendors	80	75%	40%	24.0	**3**
Open Ports on Routers, Firewalls	53	10%	44%	2.3	**11**
Password Cracking of IS	59	60%	53%	18.8	**4**
Sabotage to Operations, Process	74	40%	90%	26.6	**2**
Key Vendor and , Contractors Loss	66	15%	45%	4.5	**8**
Eavesdropping on Corp. Network, IS	66	15%	45%	4.5	**9**
Social Engineering of Employees	70	60%	40%	16.8	**5**

The *Likelihood of an Attack* (column 3) was the estimated probability that a particular threat agent would be successful upon this organization. The *Probability of Loss if Threat was Successful* (column 4) was the estimated probability (by IT personnel) that critical operations would be severely affected if that threat agent developed into a successful attack. The *Threat Prioritization Rating* (column 5) was the product of the first three columns (i.e., columns 2 x 3 x 4) and produced a threat prioritization rating. From the *Threat Ranking* (column 6), the TVA project team was able to identify the relative ranking of threats from most probable to least probable.

Analysis of Current IT Safeguards and Identified System Vulnerabilities

Once the TVA project team identified and ranked the organization's critical IT resources and the greatest threat agents to those IT resources, the TVA project team was able to identify and analyze the organization's *current* IT safeguards for their individual capacity to safeguard the effects of the identified cyber attacks to those critical IT resources.

Table 3 presents a *TVA Matrix Template* that illustrates the triangulation of the three components from the TVA methodology: ranked critical IT resources, ranked threat agents, and current IT safeguards. In the first row of the TVA matrix template, the TVA project team listed their organization's most critical IT resources, ranked from most critical to least critical as previously prioritized in Table 1 (Critical Resource Prioritization Table). It is important to note that the TVA project team included only *six of the nine* critical IT resources originally listed from Table 1. While the organization in this field case study identified a wider range of additional critical IT resources, the TVA project team compelled the organizational and IT management to focus on the protection of only their *most* critical organizational IT resources, emphasizing that it would be operationally and financially infeasible to protect *all* organizational IT resources. Subsequent studies and research may include a wider range of critical assets and most probable threat agents within a TVA methodology matrix environment.

Table 3: TVA Matrix Template

	Ranked Critical IT Resources *(Most Critical ===> Least Critical)*					
Ranked Threat Agents *(most to least probable)*	1. SW Program Patents	2.Engineering Intellectual Property (IP)	3.Operation and Database Servers	4.Patented SW Ops Process	5.Skilled Labor Force	6.Supply Chain Mgmt. System
1.Theft of Intellectual Property (IP)						
2. Sabotage to Programs, IP, Ops SCM						
3. Loss of SCM, Vendors						
4. Password Cracking of IS						
5. Social Engineering of Employees						
6. DoS Attack / Website Outage						
Current IT Safeguards *(Unranked)*	**S1** Firewalls; **S2** IDS/IPS; **S3** Anti-Virus SW; **S4** Double Authentication; **S5** Encryption; **S6** SETA, Policies					

The TVA project team used Column 1 of the TVA matrix in Table 3 to illustrate the ranking of threat agents from most probable to least probable. The Threat Prioritization Matrix previously illustrated in Table 2 shows the threat agents (from most to least ranked) listed as column 1 of TVA matrix template. The current IT safeguards employed by the organization were identified in the bottom row of the TVA matrix. These IT safeguards included both technical safeguards (e.g., firewalls, intrusion protection, etc.) and non-technical safeguards (e.g., SETA (security education training and awareness) and security policies) (Bauer et al. 2017; Mejias and Harvey, 2012). Once the project team identified these three key components of the TVA matrix, the triangulation of these components would reveal the potential system vulnerabilities within the client organization.

The Vulnerability Rating Worksheet in Table 4 illustrates how the TVA project team identified and ranked the system vulnerabilities for the SME organization. Column 1 lists the ranked critical IT resources identified from Table 1 (Resource Prioritization Table). The *Identified Vulnerabilities* (column 2) relate to the various threat agents

identified from Table 2 (Threat Prioritization Matrix) that could affect the ranked critical IT resources (column 1). The *Weighted Asset Value* (column 3) is generated from the last column in Table 1. The TVA project team, together with the SME's IT staff, compiled the *Vulnerability Likelihood* (column 4) from the organization's IT audit logs, which detailed previous scanning and intrusion attempts of the organization's information system. The *Vulnerability Rating* (column 5) was the product of column 3 and column 4. Finally, the *Vulnerability Ranking* (column 6) prioritized the organization's *Ranked Critical IT Resources* from most (V-1) to least vulnerable (V-6).

Table 4: Vulnerability Rating Worksheet. (Adopted from Whitman and Mattord, 2018)

1. Ranked Critical IT Resource	2. Identified Vulnerabilities	3. Weighted Asset Value	4. Vulnerability Likelihood	5. Vulnerability Rating (Col 3 x Col 4)	6. Vulnerability Ranking
1.Software Program Patents	-Internal IP theft -External IP theft -Software failure -Social Engineering -SW design error	92	.25	23.0	V-1
2.Engineering Intellectual Property (IP)	-Internal theft -External theft -Social Engineering -Hacker Access	80	.20	16.0	V-3
3.Operations and Data Base Servers	-Brute force crack -Physical Damage -Hardware Failure -DoS Attack -SQL Injection -Power Failure	78	.15	11.7	V-5
4.Patented SW Operations Process	-Insider theft -Sabotage -SCM disruption	76	.25	19.0	V-2
5.Skilled Labor Force	-Competitor hire -Labor Strike -Social Engineering	74	.15	11.1	V-6
6.Supply Chain Mgmt (SCM) System	-Key Vendor Loss -Vendor IP Theft -Vendor failure	72	.20	14.4	V-4

The Vulnerability Rating Worksheet provided the TVA project team with a systematic approach to determine which critical organizational IT resources would require the most IT safeguards. However, the TVA project team noted that the *vulnerability rankings* in Table 4 were different from the *prioritized rankings* of the critical IT resources in Table 1. This finding was significant. It highlighted the perception that while certain critical IT resources had been prioritized higher than others, the calculated metrics of Vulnerability Rating Worksheet revealed that they were not as vulnerable to cyber threats as other critical IT resources. Based upon these previous matrices and iterations, the TVA project team generated the *Current State TVA Matrix* in Table 5. The organization's current IT safeguards are identified in the bottom row of the TVA matrix. Each intersection square of Table 5 specified the IT safeguard(s) that were assigned to each critical resource to address a particular threat agent.

For example, in Table 5 column 1, the #1 ranked critical resource ("SW Program Patents") indicates that the IT safeguards S1, S5, and S6 were assigned to address the "theft of intellectual property" threat. Likewise, the identified vulnerabilities for each cell of the TVA matrix indicated which critical IT resource utilized which IT safeguards and which critical IT resources were revealed to be completely unprotected (indicated by the large "Xs").

Another example in Table 5 indicates that the #3 critical IT resource *Operations and Database Servers* reveals several unprotected vulnerabilities to sabotage, loss of SCM system vendors, and social engineering, all of which did not appear be addressed by the current IT safeguards. Likewise, the #5 ranked threat agent, S*ocial Engineering of*

Employees, generated several vulnerabilities across five critical IT resources that are not addressed at all by the organization's current IT safeguards.

Table 5. Current State: TVA Matrix

	Ranked Critical IT Resources *(Most Critical =====> Least Critical)* ***"V-i" = Vulnerability rating***					
Ranked Threat Agents*(most to least probable)*	***V-1***: 1.SW Program Patents	***V-3***: 2.Engineering Intellectual Property (IP)	***V-5:*** 3.Operation and Database Servers	***V-2:*** 4.Patented SW Ops Process	***V-6***: 5.Skilled Labor Force	***V-4***: 6.SCM System
1.Theft of Intellectual Property	S1, S5, S6	S1, S4,	S1, S2, S3, S5,	S1, S4, S5, S6	S6	S1, S2, S3, S4, S5, S6
2. Sabotage to Programs, IP, Ops, SCM	**X**	**X**	**X**	S1,S2,S3, S4,S5,S6	N/A	S1, S2, S3, S4, S5, S6
3. Loss of SCM Vendors	N/A	N/A	**X**	S4	N/A	S1, S2, S3, S4, S5, S6
4. Password Cracking	**X**	S1, S4	S1, S2, S3, S4,	S1, S2, S4, S5	S6	S1, S2, S3, S4, S5, S6
5. Social Engineering of Employees	**X**	**X**	**X**	**X**	**X**	S1, S2, S3, S4, S5, S6
6. DoS Attack / Website Outage	N/A	N/A	S1, S2, S3, S4, S5	S4, S5,	N/A	S1, S2, S3, S4, S5, S6
Current IT Safeguards *(Unranked)*	**S1** Firewalls; **S2** IDS/IPS (Intrusion Detection, Intrusion Protection System, **S3** Anti-Virus SW; **S4** Double Authentication; **S5** Encryption; **S6** SETA, Policies					

V-*n* = Vulnerability Rank; S*i* = Safeguard; *DoS* = Denial of Service Attack; *SCM* = Supply Chain Mgmt; *SETA* = Security Education Training and Awareness

Recommendation of New IT Safeguards

Using the TVA methodology, the project team was able to quickly identify and prioritize critical IT resources and threats agents, analyze current IT safeguards, and provide their organization's management with a logical overview of the organization's current system vulnerabilities. The Current State TVA matrix (Table 5) also revealed an *imbalance* in the distribution of IT safeguards for the protection of its ranked critical IT resources. Specifically, certain critical IT resources may have been assigned too many IT safeguards while other, more highly ranked critical IT resources, were not assigned enough safeguards. For example, the lowest ranked critical resource, supply chain management (SCM) vendors, was assigned a larger number of IT safeguards as compared to other more highly ranked critical and vulnerable critical IT resources (e.g., SW Program Patents and Engineering IP). This imbalance resulted in higher vulnerability to sabotage, password cracking, and social engineering threats to the organization's highest ranked and most vulnerable critical IT resources.

The analysis of the vulnerabilities revealed in Table 5 allowed the TVA project team to develop the *Proposed TVA Matrix* in Table 6. This analysis resulted in the identification of several new vulnerabilities. The TVA project team identified one new threat (ransom-ware and data encryption) and re-characterized a previous threat (T*hreat to Intellectual Property)*, to be included as *Internal and External Theft of Intellectual Property (IP)*. Subsequent iterations of the Proposed TVA matrix suggested recommendations for additional and more strategically placed IT safeguards to address these newly identified vulnerabilities.

From Table 6, the TVA project team considered a range of additional technical and non-technical IT safeguards (denoted in bold face in Table 6), including a vendor-supported honey pot (S8) and a redundant database (S9) to reduce the newly identified vulnerabilities to ransom ware and data encryption threat. Additional non-technical safeguards included *enhanced* SETA, information security policies (S6) and non-disclosure agreements (S7) as deterrence measures to dissuade potential hackers from attacking vulnerable IT targets (Bauer et al., 2017; Flowerday and Tuyikeze, 2016; Jenkins et al., 2013).

Table 6. Proposed TVA Matrix

	Ranked Critical IT Resources *(Most Critical =====> Least Critical)* *"***V-*n*" = Vulnerability rating**					
Ranked Threat Agents	***V-1:*** 1.SW Program Patents	***V-3:*** 2.Engineering Intellectual Property (IP)	***V-5:*** 3.Operation and Database Servers	***V-2:*** 4.Patented SW Ops Process	***V-6:*** 5.Skilled Labor Force	***V-4:*** 6.SCM System
1.External & Internal Theft of I.P.	S1, **S2, S4**, S5, S6	S1, **S2**, S4, **S5, S8, S9**	S1, S2, S3 S5, **S8, S9**	S1, S4, S5, S6, S9	S6	S4, S5, **S9**
2. Sabotage to Programs, IP, Ops, SCM	S1, S2, S4, S5, S6, S9	S1, S2, S4, S5, S6, S9	**S1, S2, S4, S5**	S1, S2, S3, S4, S5, S6	N/A	S4,S5, **S9**
3. Loss of SCM Vendors	N/A	N/A	**S2, S5, S7**	S4	N/A	S7, S9
4. Password Cracking of IS	**S1, S2, S4, S5, S6, S9**	S1, S4, S8 S9	S1, S2, S4, **S5, S9**	S1, S2, S4, S5	S6	**S5,** S9
5. Social Engineering of Employees	**S2, S4, S5, S6, S7, S9**	S2, S4, S5, S6, S7, S9	**S2, S4, S5**	S2, S4, S5	NA	S4, S6, S7,
6. DoS Attack / Website Outage	N/A	N/A	S2, S3, S4, S5, **S8, S9**	S4, S5, **S8, S9**	S2, S4, S5	S6, S8, S9
7.Ransom-ware & data encryption	**S2, S3, S4, S5, S8, S9**	**S2, S3, S4, S5, S8, S9**	**S2, S3, S4, S5, S8, S9**	**S2, S3, S4, S5, S8, S9**	**S6, S7, S9**	**S4, S5, S8, S9**
Proposed IT Safeguards *(Unranked)*	**S1** Firewalls; **S2** IDS/IPS (Intrusion Detection, Intrusion Protection System; **S3** Anti-Virus SW; **S4** Double Authentication; **S5** Encryption; **S6** Enhanced SETA, Policies; **S7** Non-Disclosure Agreements; **S8** Vendor HoneyPots; **S9** Redundant Database					

V-*n* = Vulnerability Rank; S*i* = Safeguard; *DoS* = Denial of Service Attack; *SCM* = Supply Chain Mgmt; *SETA* = Security Education Training and Awareness

The TVA project team also recommended that the particular IT safeguards (e.g., S1 Firewalls, S2 IDS/IPS, S3 Anti-Virus software, and S6 Enhanced SETA, Policies) could be maintained by the supply chain vendors instead of client organization. The Proposed TVA matrix in Table 6 represented an improved and more balanced allocation of IT safeguards that would more effectively mitigate the system vulnerabilities identified by the TVA matrix.

Identification of Cyber Threats and Vulnerabilities

The threat-vulnerability-asset matrix feature of the TVA methodology provided the SME organization and the TVA project team with a logical and systematic framework for identifying and prioritizing the organization's most probable threat agents and the organization's greatest system vulnerabilities. The TVA matrix also proved useful in identifying significant *imbalances* in the allocation of IT safeguards. As previously discussed, the Current State TVA Matrix (Table 5) clearly revealed that the organization's highest *ranked* and most *vulnerable* critical IT resources had been assigned fewer IT safeguards than other less critically ranked IT resources.

This imbalance was *significant*. It revealed a critical misalignment in the protection of the organization's most vulnerable IT resources. The protection "imbalance" revealed by the TVA matrix also highlights a common misperception that while certain critical IT resources may be ranked higher than others, they may not be considered as vulnerable to cyber threats as other critical IT resources.

LEARNING IMPLICATIONS OF THE TVA METHODOLOGY

As malicious cyber attacks become more successful in breaching information systems and stealing intellectual property, organizations must become more judicious in protecting their critical IT resources (Mukhopadhyay et al., 2013; CyberEdge Group, 2016). The use of the TVA methodology as a free and uncomplicated VA tool for identifying cyber threats and system vulnerabilities has become increasingly appealing to both organizations and educators (Mejias and Balthazard, 2016). This implies that higher education courses in IT and cyber security have the opportunity to go beyond mere classroom lectures about cyber threats and how they may affect organizations. IT educators must provide an engaging pedagogy of applied projects and methodologies that interact with these important IT and cyber security concepts.

This field case study illustrates how the use of an uncomplicated vulnerability assessment tool (the TVA methodology) enables IT students to extend the pedagogy of simply identifying cyber threats and system vulnerabilities from classroom lectures into what Bloom's Taxonomy of Educational Objectives describes as learning that spans across several levels: *knowledge, comprehension, application, analysis, synthesis*, and *evaluation* (Bloom, 1956). A revision of this original taxonomy framework modifies and updates these learning levels to be *remember, understand, apply, analyze, evaluate*, and *create* (Krathwohl, 2002). Both taxonomies attempt to help instructors understand the various levels of learning with the goal of enabling students to progress to the highest level: *create*. The use of the TVA methodology described throughout this paper guides the student project team and its members through all six levels of Bloom's revised taxonomy framework and in particularly the last three levels: *analysis* (of critical IT resources, cyber threats and IT safeguards), *evaluation* (of current IT safeguards to address system vulnerabilities revealed by the TVA matrix), and *creation* (by the students of a series of artifacts and deliverables resulting in a workable set of recommendations for the organization).

Most organizations view cyber attacks as unlikely and do not fully comprehend the impact of how a successful cyber attack may result in the loss of proprietary data, strategic information, and competitive market share (Ponemon Institute, 2018). Traditionally, the focus of cyber security software vendors has been on the detection and removal of malicious software and less on the identification of critical system vulnerabilities. The TVA methodology used in this field case study allowed the student project team and IT management to clearly identify logical cyber threats and vulnerabilities to its most critical assets and strategic IT resources.

Student project team members realized first-hand that total cyber security of all critical IT resources is a myth and that not all IT assets are of equal value. The project team also realized how the readily available and uncomplicated TVA methodology could be quickly and efficiently used in a *non-invasive* manner to quickly identify critical IT resources and the threat agents most likely to exploit them. The TVA methodology and related TVA matrix outlined in this paper was able to be quickly employed by a relatively unsophisticated group of student project team members with little professional training in cyber security or vulnerability analysis. This suggests that other computer-related courses, particularly with regard to pedagogical application of cyber security concepts, would also be able to use the TVA methodology as an effective tool to identify cyber threats and related system vulnerabilities.

LIMITATIONS

As expected, a single case study may not provide the sample size, statistical power, or predictive nature generated by a controlled lab research study. However, because of their particularly appealing design across several applied fields (e.g., IT, computer security), case studies have their particular strengths. Field case studies provide valuable insights and a better understanding of what may improve the field's knowledge base as supported by actual field practices (Tomorrow's Professor, 2016). Additionally, case studies provide a rich and holistic means of investigating what is often a complex phenomenon. That is, readers can learn vicariously from a case study, the particulars and nuances of the researcher's narratives and descriptions (Stake, 2005). Because our field case study focused on a single illustration regarding the use of a particular VA tool (i.e., TVA methodology) to identify cyber threats and vulnerabilities, we cannot generalize the particular research findings from this field case study to the larger

population. However with regard to case studies, Erickson (1986) contends that "...the general lies in the particular..." and what we learn from a particular case study can be transferred or prove useful to similar applications. Therefore, while we cannot generalize our findings to the larger population of VA research, we believe the findings of our TVA field case study illustrate interesting details from a single research instance and context-dependent knowledge that may be valuable to both practitioners and researchers (Erickson, 1986).

Finally, while the TVA project team was guided by a faculty cyber security expert, it was comprised of and undertaken by undergraduate students. And although the TVA project student team was able to identify a wide range of critical IT resources, threat agents, and vulnerabilities for their SME organization, the limited finances and time commitment of the SME organization compelled the TVA project team to limit the scope of its TVA grid and its analysis. A more comprehensive VA evaluation, using licensed vulnerability and penetration test software, of known and unknown cyber threats and system vulnerabilities, would complement the current finding from this TVA case field study.

CONCLUSION

Research demonstrates that the use of vulnerability assessment (VA) tools are instrumental in identifying cyber threats and system vulnerabilities (Whitman and Mattord, 2018). This paper presents a field case study that focused on the description and development of an open source and uncomplicated VA tool, the TVA methodology, by a student project team analyzing a small-to-medium enterprise (SME) in the U.S. Southwest. The TVA methodology was selected as an open-source and effective VA tool that has been increasingly considered by cyber security educational programs that seek to increase the pedagogy for identifying cyber threats and system vulnerabilities. The TVA methodology was instrumental in helping the student project team identify and prioritize their client organization's most critical IT resources, the cyber threats to those critical IT resources, the IT safeguards currently in place to protect those IT resources, and the resulting system vulnerabilities identified from the triangulation of these three TVA matrix components.

The TVA matrix also provided useful insights for the student project team by identifying clear imbalances in the allocation of IT safeguards to certain critical IT resources. Specifically, the use of the TVA matrix revealed that many of the organization's highest ranked and most vulnerable critical IT resources had been assigned the fewest IT safeguards against the organization's most probable threats. For this particular student field project, the TVA matrix revealed that the *social engineering* threat appeared to create the greatest unaddressed system vulnerability across a majority of their client organization's critical IT resources. Educators are increasingly compelled to provide applied projects and methodologies that both interact with their classroom concepts and support the "higher learning levels" of *remember, understand, apply, analyze, evaluate*, and *create*, as presented by Krathwohl (2002) in his revision of Bloom's Taxonomy of Educational Objectives (1956). As one possible response, we believe this field case study provides an innovative approach to improve the current IT educational pedagogy for identifying cyber threats and system vulnerabilities in our current IT-intensive environment.

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A New Graduate Artificial Intelligence Course for Managers

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ABSTRACT

A seismic shift is in progress on multiple technological fronts that will force business schools to re-evaluate what they teach and how they teach it. Artificial Intelligence is one such technology that is up-ending many of the established models of business. This paper looks at how an artificial intelligence course that is traditionally offered in computer science and engineering departments, was taken out of its natural environment, remodeled and repackaged for business school students in pursuit of a new approach towards developing cross-over courses for business students. Based on this experience, we highlight some new course development opportunities for business schools.

Keywords: artificial intelligence, machine learning, deep learning, online education, business course

INTRODUCTION

Artificial intelligence (AI) is the new frontier of the fourth industrial revolution that dynamic 21st century companies and institutions alike are seeking to take maximum advantage of. AI is about harnessing the power of machines to perform physical and cognitive tasks that humans do, more efficiently. AI is all around us everywhere, in everyday life products and sophisticated unique products. It has wide application in familiar products, such as for example, chatbots, video game bots, voice-controlled television remote controls, self-driving vehicles, resume screening, medical diagnosis and treatment plans, etc. The use of AI machines achieves three goals of; expanding human capacities, increasing user convenience, and replacing humans in some functions. Therefore, AI machines deliver cost, time, effort, and personnel savings. In a word, they deliver more efficiency.

Academic institutions have contributed to the AI revolution through research and development and through teaching programs that create technical specialists in various strands of AI. However, few AI-related programs have been taught in MBA programs. The case has not been made for widespread teaching of AI-related material to executives and other non-technical personnel that typically enroll in MBA programs. However, there is both a logical and business case for integrating AI with the graduate business education curriculum. Many MBA programs currently teach "technical" courses, such as, decision sciences, operations management, and data analytics, as well as, product development and entrepreneurship-related courses. AI is the next level up from these courses because it seeks to help students explore ways of simplifying or automating processes and decision-making using machines or creating intelligent products that offer something more than what existing products offer. In that sense, AI is the new battleground for developing and securing an organization's sustainable competitive advantage through the use of intelligent processes and products that are enabled by AI machines. Mithas *et al.* (2018) estimate that, *"over time ....more advanced concepts such as AI and machine learning will extend beyond computer information and science degrees into other majors such as business and the natural sciences".* This is a view that we share. However, the key to this development in our estimation, is that the AI subject in graduate business schools should not be approached from its traditional technical point of view as it is taught in college and university computer science departments and engineering departments. Rather, it should be taught from a business perspective that seeks to help executives and staff in other functional areas of organizations, understand how AI can be harnessed to simplify business processes, decision-making and new product development within their areas of operation or within their businesses as a whole. Therefore, a pilot AI course was launched at a large public university in the US targeted at non-technical graduate students the results of which are the subject of this paper.

This paper is organized as follows: we first discuss the motivation for the AI course and related work, this is followed by a discussion of the course objectives and the format of the course, and we then present the results together with a discussion. We highlight some potential implications of this case study as well as its limitations, before presenting our conclusions.

BACKGROUND AND MOTIVATION

Much of the research published on the subject of teaching AI focuses on three areas: firstly, teaching AI through the use of *robots* (Kumar & Meeden, 1998), (Klassner, 2002), (McKee, 2002), (Imberman, 2003), (Greenwald & Artz, 2004), and secondly, teaching AI through the use of *games* (Hartness, 2004), (Zyda & Koenig, 2008), (Ribeiro, Simões, & Ferreira, 2009), (Wong, Zink, & Koenig, 2010), (DeNero & Klein, 2010), and finally, teaching AI through the use of *software agent* frameworks (Pantic, Zwitserloot, & Grootjans, 2005). According to Wollowski *et al.* (2016), there are thirteen topics under which AI may be studied and these are listed in Table 1 below. The Knowledge Representations and Reasoning topic includes search techniques.

Table 1: Major Artificial Intelligence Topics

Applications	Philosophy
Cognitive Science	Knowledge Representation and Reasoning
Ethics & Social Issues	Robots
Games & Puzzles	Speech
History	Vision
Machine Learning	Others
Natural Language	

We opine that the reason for the popularity of using robots and games as AI teaching tools is that these approaches more easily capture the imagination of students and thus, help increase student engagement in AI classes. Some of these teaching methods involved the use of the Web (McKee, 2002), or were based on team and individual projects that involved some software programming activities (García, Román, & Pardo, 2006), (Pantic, Zwitserloot, & Grootjans, 2005).

Wollowski *et al.* (2016) conducted two surveys of current practice and teaching of AI. The first survey was of AI educators which sought to capture current practice of teaching an introductory AI course, as well as, the topics that the educators were focusing on. The second survey was of AI practitioners which had the aim of gathering information about the topics and techniques that were being used in practice. The top 6 topics that were being covered by educators were: Knowledge Representations and Reasoning (81%), Games & Puzzle (68%), Machine Learning (64%), Applications (49%), Natural Language (49%), and Philosophy (49%). However, according to the practitioners the top 6 topics and techniques that were in actual use were: Knowledge Representations and Reasoning (61%), Applications (55%), Machine Learning (52%), Natural Language (25%), Other (12%), and Robots (10%). 89% of the courses delivered by educators had prerequisites and these ranged from courses in: discrete mathematics, probability or statistics, knowledge of data structures, to a year-long sequence of courses on software development.

Many AI courses being taught at college and universities are primarily offered by the computer science department (92% in the Wollowski *et al.* (2016) educators survey) or the computer engineering departments, such as, the ones by (Ben-Miled, 2019) and (Rozenblit, 2016). These courses were presented in a technical manner, making them inaccessible to anyone without the prerequisite mathematical and computer programming background.

Given the rising importance of AI to enterprises, we wanted to develop an AI course that would introduce graduate business students to the subject in a thorough but non-technical manner. In designing our course we first looked at other similar offerings, which were not many as shown in Table 2 below. These courses all tended to only focus on 3 of the 13 categories from Table 1. They focus on Applications, History, and Machine Learning categories. With that in mind, we developed a 2-credit AI graduate level course that was targeted at students in the MBA and Masters in Business Analytics programs. There were no prerequisites for our course. The course was delivered online in the winter term of 2019, over a four-week period from December 2018 to January 2019, at a large public university.

The objective of this paper is to show how a cutting-edge AI course traditionally offered in a computer science department can be remodeled and repackaged as a business course that can be delivered to a diverse group of non-technical MBA students. Secondly, to show how this group of students responded to it and the implications for business schools.

Table 2: Artificial Intelligence Courses for Business Students

Institution, Course Title	Prerequisites	Delivery	Credits	Focus	Type	Duration
Columbia Business School, *B8147-001: Artificial Intelligence for Business* (Maskey, 2018)	Technical / *Python*	On-Campus	1.5	Hands-on ML work	MBA	7 weeks
Frankfurt School, *Certified AI Business Advisor* (Ellsaesser, Szabados, & Szertics, 2019)	Management / *Teams*	On-Campus	7	Business Applications	Executive	10 days
INSEAD, (AI for Business, 2019)	None	On-Campus	None	Business Applications	Executive	3 days
MIT Sloan School of Management, *Artificial Intelligence: Implications for Business Strategy* (Malone, Lo, & Pentland, 2019)	None	Online	2	Business Applications	Executive	6 weeks
University of Toronto School of Continuing Studies (Artificial Intelligence, 2019)	Technical / *Basic Statistics & Python*	Online	None	Hands-on ML work	Certificate	N/A
Zigurat Innovation & Tech Business School via Udemy (Artificial Intelligence for Business, 2018)	None	Online	None	Business Applications	Certificate	Video Lectures (3.5 hours)

COURSE OBJECTIVES

The course objectives were to:

1. Define artificial intelligence from a number of perspectives.
2. Outline the history of artificial intelligence.
3. Describe some of the main AI techniques.
4. Discuss the drivers behind the recent rise in the popularity of AI, particular focus was placed on machine learning (ML) and deep learning (DL).
5. Discuss the limitations of current AI techniques.
6. Have students read business articles on AI and relate them to the definitions, history, and AI techniques covered in the course.
7. Discuss opportunities where AI can be applied in business today.

Upon completion of this course, students were expected to be able to: (1) identify areas where AI may be applied in their workplace or industry, together with the potential AI techniques that may be used in the applications, (2) distinguish hype from real AI features when given an article or business proposal touting some new AI capabilities. Furthermore, they were expected to be able to distinguish between AI and machine learning.

COURSE FORMAT

The course was divided into five modules with each module covering one or more related topics. These are shown in Table 3. Each module consisted of a series of brief video lectures that we recorded, lecture slides, assigned readings from the course textbook (Harvard Business Review, 2018), links to web-based hands-on exercises, web links to third-party videos, a self-assessment/practice quiz, and a graded quiz. Table 3 also shows the primary mapping of the course objectives to the course modules.

Assigned Readings & Videos

The course textbook, *The Latest Research: AI and Machine Learning* (Harvard Business Review, 2018), was a compilation of 22 Harvard Business Review articles on AI, ML and DL. Students were assigned 2-4 articles to read for each module, they were required to read a total of 12 articles from the textbook. We generated quiz questions from each of the 12 articles that were used in the course. Students were assigned 5 third-party videos to watch in the first two modules. These videos averaged 14 minutes each. We also generated quiz questions for each of these 5 videos.

Lectures

The assigned readings from the course textbook focused on AI applications. The introduction of AI topics and techniques was done primarily through the lectures. Lecture slides were detailed and well cited, with a references section at the end of each slide deck. The number of slides for each topic was kept below 15. Each slide deck was then recorded into a video lecture. There were 16 lecture videos, with the longest at 23 minutes and the average was 15 minutes long. We generated quiz questions for each of the 16 lectures.

Course Content

This AI course introduced students to 8 out of the 13 categories from Table 1. We covered the Applications, Games & Puzzles, History, Machine Learning, Knowledge Representation & Reasoning, Vision, and Others (Expert Systems) categories. Unlike in the courses highlighted in Table 2, our course exposed students to a wider variety of topics that are traditionally covered under the subject of AI. We also exposed them to different definitions of the subject and important concepts, such as, knowledge and learning. This we believed would help our students better in distinguishing between the hype and genuine AI applications.

Graded Quizzes

There were 5 graded quizzes, one after each module. The five graded quizzes together constituted 60% of the final grade. Each module's graded quiz was based on the module's assigned readings and videos, and the module lectures. Each graded quiz consisted of 15 multiple choice, true/false, ordering, and matching questions and could only be taken once anytime within the allotted time for the module. The graded quizzes were timed and had to be completed in a single sitting, students were given 25 minutes to complete the quiz. All quizzes were open book.

Class Discussions

There were two discussion boards that were not part of the assessed materials, and participation in these discussion boards was optional. The first allowed students to introduce themselves to the class and the second was for general questions that students had during the course.

There was one graded discussion where all students were required to participate. This discussion board had a start date and a closing date, during this period there were two due dates. In the first part of the discussion each student had to write a definition of AI in their own words. They would only be allowed to see the definitions by other students once they had submitted their own definition. They could then discuss the differences, similarities, and ask questions of each other's definitions. This part of the discussion closed on the first due date to any new submissions. However, students that had submitted their own definitions could still view the discussion postings after the first due date. In the second part of the discussion, each student was required to submit an initial posting that discussed at least two potential applications of AI in their current work role or industry. They had to relate (and cite) their applications to the AI techniques covered in the lectures and in the assigned readings from the course textbook. Again, in this part students would only be allowed to see the AI applications postings by other students once they had submitted their own initial posting.

Class discussions were graded based on the quality of the contributions, as well as, on satisfying a minimum of 4 thread posts for both parts of the discussion. Participation in the discussion constituted 20% of the final grade.

Hands-On Exercises

Students were required to complete two web-based machine-learning hands-on exercises. In the first exercise, students used a couple of "seeds" from the Google Seedbank, which is a collection of interactive machine learning examples (Google AI, 2018). For the second exercise, students were required to use the cameras on their computers to train a neural network-based image classifier (Google Creative Lab, 2017) using a training set of 3 different objects of their choice. The different objects placed in front of the camera could, for example be, a book cover or a smiling face or a cat. Once the classifier was trained on the 3 objects, it was then presented with a larger test set of

objects by placing each test set element individually in front of the camera. The objective of the test was for the classifier to identify any elements from the training set that were in the test set. None of the hands-on exercises required any computer programming experience. Students were required to take screenshots at designated points during the exercises and to submit these screenshots together with answers to a few written questions about the relationship between the hands-on exercises and the material that had been covered in the assigned readings and lectures. The hands-on exercises constituted 20% of the final grade.

Table 3: Course Modules and Coverage

Module	Topic	Coverage	Mapped to Course Objective
1	Definitions & Background	Course Introduction	
		AI Definitions	1, 6
		History of AI	2, 6
2	Traditional AI	Physical Symbol System Hypothesis	1, 6
		Task Categorization	3, 6
		- Mundane Tasks Paradox	
		Knowledge Representations	3, 6
		Game Playing	3, 6
		- Outline of *Minimax* Algorithm	
		Introduction to Expert Systems	3, 5, 6, 7
		Introduction to Natural Language Processing	3, 5, 6, 7
3	Machine Learning I	Definitions of Learning	1, 6
		Introduction to Artificial Neural Networks	3, 4, 5, 6
		Introduction to Deep Learning	3, 4, 5, 6, 7
4	Machine Learning II	Introduction to Data Mining	3, 6
		- Data Partitioning	
		Unsupervised Learning Models	3, 6
		- Outline of *K-Means* Algorithm	
		- Outline of *Apriori* Algorithm	
		Supervised Learning Models	3, 6
		- Time Series Analysis	
		- Classification Models	
		-- *Decision Trees*	
		-- *KNN*	
		-- *ANN*	
		- Classification Metrics	
5	AI Applications	Student definitions of AI	7
		Student discussion of AI applications	7

RESULTS

The course was taught using the Blackboard LMS. Forty nine students enrolled in the class, one student dropped the class after the second module. Based on the class introductions discussion board, 44 students provided sufficient data for us to determine their job function and industry. We used this data to prepare Table 4 and Table 5, which show the diversity of the students in the class in terms of job functions and industry.

Table 4: Students by Industry

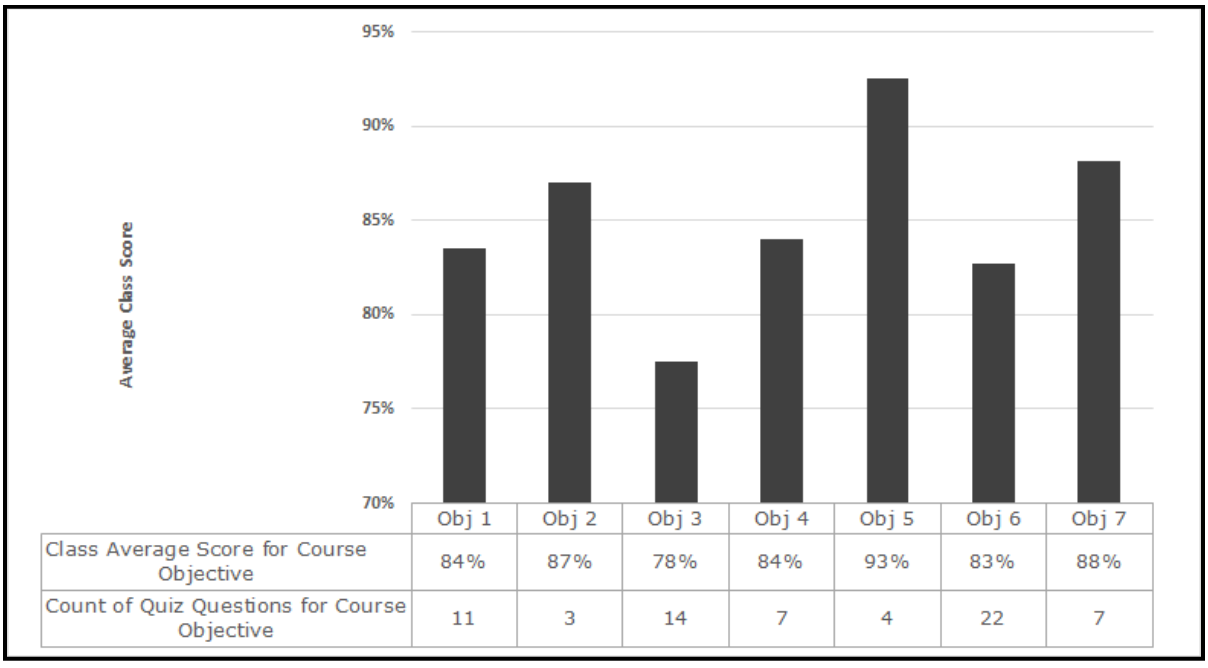
Industry	
Healthcare	7
IT/ Consulting	6
Government Agency	5
Manufacturing	5
Aerospace	4
Higher Education	3
Insurance & Financial Services	3
Pharmaceutical/Biotech	3
Energy & Engineering	2
Entertainment & Hospitality	2
Research	2
Other	2

Table 5: Students by Job Function

Job Function	
Engineer	12
Manager	12
Finance	4
Physician	3
Researcher	3
Accounting	2
Self-Employed	2
Supply Chain	2
Other	4

Each of the 5 course modules in Table 3 had a graded quiz. We used these quizzes to assess the students' performance against the course objectives. The total number of questions in the 5 quizzes was 68. We mapped each of these questions to one of the 7 course objectives. Appendix A provides some sample quiz questions and their assigned course objectives. The average score for each course objective in Figure 1 is the aggregate of the students' average scores of the quiz questions that were mapped to that course objective. Figure 1 also shows the number of quiz questions that were mapped to each course objective.

Figure 1: Average Student Scores for Each of the 7 Course Objectives



	Obj 1	Obj 2	Obj 3	Obj 4	Obj 5	Obj 6	Obj 7
Class Average Score for Course Objective	84%	87%	78%	84%	93%	83%	88%
Count of Quiz Questions for Course Objective	11	3	14	7	4	22	7

The students' scores in the 5 graded quizzes were used to calculate the student performance metric in Table 6 below, while the other 3 metrics were derived from the students' course evaluations. High levels of student engagement were observed for the course, as evidenced by the student participation and student performance metrics in Table 6. Given the relative newness of the learning material to students, we had expected that the average performance of students might have fallen at the lower end of the scale. In fact, the reverse was true, as depicted in Table 2. The average quiz score for the course was 88% with 69% of the students at least attaining that score.

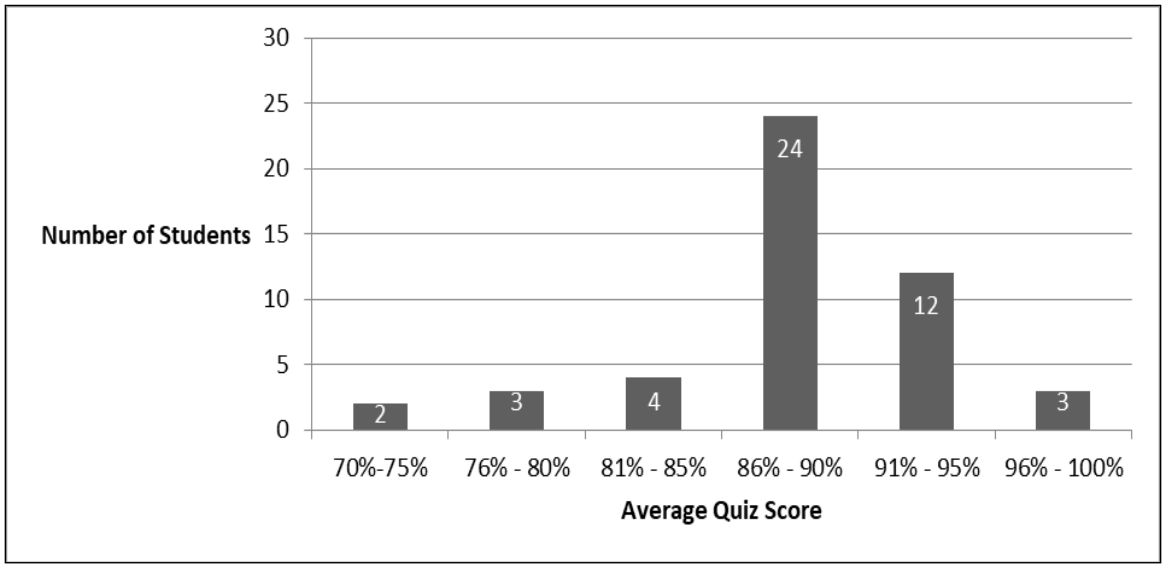
Table 6: Key Course Evaluation Parameters

Label	N	90% Mean Avg.	Mean	Avg.SD
Familiarity with the course subject matter	48	1.04- 4.7	3.8	0.73
Student performance	48	3.7 - 4.7	4.4	0.81
Student participation	48	3.8 - 4.7	4.5	0.76
Course impact	48	3.1 - 4.1	4.0	0.92

DISCUSSION

The key course evaluation parameters were based on a 5-point Likert scale. A score of 5 would indicate the highest level of agreement or conformance with the characteristic under investigation while a score of 1 would indicate the reverse. On the dimension of student familiarity with the course material, the mean evaluation scored was 3.8 which would be equivalent to a score of 76% in percentage terms. Compared with other course evaluation dimensions, student familiarity with the course materials had the lowest score. This was not surprising given the academic background of most students that came on to the course who were not only non-technical as indicated in Table 4, but more than that, they had not taken any foundational computer science courses as prerequisites to qualify them for their enrolment in the AI course. This interesting because at face value, students that are faced with such a scenario would generally not be expected to do well in a technical course for which they had received little or no preparation for as is common practice for such courses of a technical nature.

Figure 2: Overall Average Student Scores for the 5 Graded Quizzes in the AI Course



However, the results of the next course evaluation parameter which was on student performance contradicts this assumption. Students that came on to this course performed very well with an average course score of 88%. The technical nature of the course material did not seem to overwhelm students. This could possibly be a testament to the student's own interest in the subject matter as reflected in the high student participation mean score of 4.5 that would translate to a percentage score of 90%. The students certainly appear to have been highly engaged in this course partly because of the course structure that required student participation for which they were graded and also because of the student's own interest in the course since they took it voluntarily as an elective. The second dimension that could possibly account for the high student engagement in course was the reduction of course materials into a format that was palatable to a non-technical audience. The focus of the course was on application of the subject matter to providing solutions to identified business problems and opportunities.

The course evaluation parameters also considered the impact of the course on students and on their career prospects. This dimension was also measured using a Likert Scale. This part of the evaluation received a mean score of 4.0 translating to 80% in percentage terms. While this was a high score, it was somewhat lower than what we had expected given the high level of student engagement. Anecdotal evidence suggested that a possible explanation for

this result is that while students on the course may have found it valuable, it was not likely to have an immediate effect on their careers. It would appear that the objective for taking this course on the part of students may not necessarily have been for career advancement opportunities but rather for personal knowledge growth and personal skills development in the short-term, even though it might result in some benefits accruing to their careers over the long term.

In the assessment of course objectives, under objective 3 where students were required to describe some of the main AI techniques, students scored the lowest on this parameter at 78%. This was not surprising since this was the first time many of the students had been presented with outlines of the different AI techniques and their application areas. Objective 5 on the articulation of the limitations of current AI techniques had the highest score of 93%. This result was somewhat unexpected, especially given the lower score for the related objective 3. This may be due to the fact that students could relate more easily to applications of AI technology in existing devices and therefore could more readily articulate the limitations that they have observed in the usage of AI-enabled devices.

STUDY IMPLICATIONS

There are opportunities for business schools to revamp their business curriculums with cross-over courses in such areas as artificial intelligence and robotics. These have long been in universities and colleges but confined to computer science, engineering and natural sciences departments and also taught from scientific and technical perspectives. The reality of the new business world demands multi-skilled individuals more than ever before. This means that in order to adequately prepare their students for new roles in the world of business, institutions of higher learning need to offer more courses that cross-over into other scientific and technical domains (Glass, 2018). In a sense, institutions of higher learning should be looking to create a new digital age "Renaissance man" that is complete and eloquent in data science, artificial intelligence and machine learning, social media, economics, finance, entrepreneurship, internet of things, cloud computing, etc. and be able to apply this knowledge in their work roles of the 21st Century. These work roles more often than not require solutions to problems from a vast array of knowledge areas. This means that traditional roles for which students are being prepared by most educational programs in higher educational institutions may now be out of sync with the real world of work in the 21st Century. New technologies are reshaping roles and even eliminating some roles, meaning that, the workforce of the future will be quite different to what we have known in the past and institutions of higher learning need to become more enthusiastic in how they embrace and prepare for this transformation that is already in progress.
That being the case, it is also necessary to put in place programs that specifically retrain, reskill and develop staff in institutions of higher learning with cross-over skills so as to prepare them for this new challenge of teaching cross-over courses and to outsource these skills where necessary.

On the question of whether students are ready for this new approach, further evidence is required from other studies on cross-over courses. However, in the case of students enrolled on the MBA Program at our university, they were.

Walowski *et al.* (2016) identified time constraints as the major drawback to the delivery of good quality AI courses. While time constraints were certainly a factor in the delivery of this course, its modular structure helped cover a relatively wide breath of subjects that students found not only useful but digestible. The teaching method was a mixture of multiple methods that also included web-based machine-learning hands-on exercises using Google Seedbank, some individual projects and some software programming concepts (in the form of outlines of gaming and ML algorithms) similar to what previous studies by (McKee, 2002), (García, Román, & Pardo, 2006), (Pantic, Zwitserloot, & Grootjans, 2005) observed. This multiple method approach helped to keep students engaged in the subject as did the frequent work output that was expected of them.

From a technical feasibility and viability perspective, our experience also demonstrates that a strong business case exists for such courses. The key is to develop these courses from a business person's perspective and not from a technical scientific perspective. Our institution made a significant financial gain from the pilot course and indications from other schools that have adopted a similar approach suggest the same trend.

STUDY LIMITATIONS

This course was only taught in an online format. Our university has a large online MBA program. The full-time on-campus MBA program is much smaller in comparison and accounts for roughly 10% the size of the online program. Therefore, it was easier to run this new elective in the online format. However, more data from a study of face-to-

face classes would be useful in providing external validity for this case study. While there are some face-to-face classes in the studies reported in Table 2, their student numbers are however small. In addition, to our knowledge, there is no published data from these studies against which to compare our results.

Secondly, our course was offered as an elective course and so there was some self-selection which might have affected our results. The results of this study may well have been significantly different if our AI course was in fact a core course that was required of all MBA students. Therefore, our experience may not be representative of how MBA students everywhere would behave generally.

CONCLUSION

The fact that AI, machine learning and other technologies are growing is not in doubt. These are not passing fads that can be ignored. Our dependence on these technologies is growing rather than shrinking and the question is how business schools can adapt their teaching and research curriculums to better prepare their graduates for this new era. Our case study demonstrates one attempt at updating the business school teaching curriculum. The observation by Mithas *et al.* (2018) that AI and machine learning will also extend to business education is not only prophetic but is supported by our experience.

Our AI course for managers was a four-week course consisting of 5 modules. What has been learned from our experience with this course is that 4-weeks is too short a time period for such a course. The optimum duration for such a course should be between 8-weeks to a full 14-weeks semester course in order for students to derive maximum benefit from it. A similar course in Human – Machine Intelligence offered by Kellogg School of Management is delivered over a 10-week period (Simons, 2016). This is compared to others cited in Table 2 and our own.

The second major lesson that has come out of our experience through delivery of this cross-over course is that it is not adequate to simply transmit AI knowledge to business students but that it is important to follow this up with a second part of the course. The second part of the course should create cross-functional teams of students with technical knowledge from different professional backgrounds that work together on specific practical assignments to give students robust hands-on experience in the application of AI knowledge to solve identified problems and even to develop specific prototype products to address business or customer needs. Our course did have hands-on practical exercises. However, these could not go to the depths that we propose here because of the limited time that was available for the course.

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Appendix A: Sample Quiz Questions

Below are 16 sample quiz questions taken from the 5 quizzes, one quiz for each module. The course objectives assessed are highlighted in square brackets at the end of each question, while the correct answer is highlighted by an asterisk.

1. For this course we have divided the history of AI into ____ epochs. [Obj 2]

A. 2
B. 4*
C. 3
D. 5

2. According to the Brynjolfsson & McAfee article, Herbert Simon predicted that computers would beat humans at chess within 10 years. In which era was this prediction realized? [Obj 6]

A. Pre-historic era
B. AI 1.0 era
C. AI 2.0 era
D. AI 3.0 era*

3. The goal of predictive analytics is to provide a decision or recommendation for a specific action. [Obj 1]

True
False*

4. After watching the "A Brief History of AI" YouTube video by Robin Bordoli and reviewing the four definitions of AI in Lecture 1b. Which of the Lecture 1b definitions most closely matches the definition of AI given in the YouTube video. [Obj 6].

A. Definition 1
B. Definition 2
C. Definition 1'
D. Definition 3*

5. Formal tasks suffer most from the Polanyi paradox. [Obj 3]

True
False*

6. Which business leader recently said that "Humans are underrated"? [Obj 5]

A. Thomas Watson
B. Tim Cook
C. Elon Musk*
D. Satya Nadella

7. Which of the following is NOT a physical symbol system. [Obj 1]

Trigonometry
Checkers
English Alphabet*
Formal Logic

8. Every zero-sum two-person game has a solution (that is, it has a pair of optimal strategies, one for each player). [Obj 3]

True
False*

9. Alan Turing proposed an "imitation game" as a test to find out if machines can think. [Obj 5]

True*
False

10. According to Candela at Facebook, you can do 3 things to get value from AI and machine learning. Which 2 of these things did Candela focus on? Select all that apply. (Graded right minus wrong) [Obj 6]

Better algorithms
Better data *
Better speed *

11. FBLearner is Facebook's own AI backbone. [Obj 7]

True*
False

12. In Berinato's article detecting sarcasms is listed as a challenge for natural language processing systems. From the NLP 1 lecture by Prof. Sack under which area does detecting sarcasm fall in the study of linguistics? [Obj 6]

A. Syntax
B. Semantics
C. Pragmatics*
D. Context

13. Convolutional Neural Networks can be used to achieve near-human levels of handwriting recognition. [Obj 4]

True*
False

14. Big Data depends on deep learning to successfully function. [Obj 5]

True
False*

15. According to the Ramaswamy article, the low hanging fruit when it comes to AI implementation are: [Obj 7]

A. Driverless Trucks
B. Robotic Restaurant Order Takers
C. Machine-to-Machine Activities*
D. Automobile Assembly Line

16. In the Teachable Machine hands-on exercise, the image recognition component could best be implemented using which of the following ML techniques. [Obj 3]

A. K-Means
B. CNN*
C. KNN
D. Apriori

The Convergence of AAC&U Value Rubrics, Assessment, and Experiential Learning

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ABSTRACT

With the advent of a new MBA program, a school of business engaged in the development of an accompanying assessment system in compliance with accreditation requirements. After establishing program outcomes, the Graduate Committee began working on the means to assess those outcomes. The school's experience with other assessment efforts indicated that existing processes and instruments needed improvement. Thus, the committee sought a more robust system, to include qualitative assessment artifacts rooted in applied learning. Because such artifacts would require effective rubrics, one team member suggested the Association of American Colleges and Universities VALUE Rubrics. The AAC&U rubrics are oriented toward integrative and applied learning. In this article, we suggest that rubrics have the potential to assess the extent of experiential learning. It is important to assess the effectiveness of experiential methods because graduate business students generally prefer real-life application opportunities. Rubrics that are employed in 'closing the loop' and supporting continuous improvement can help impact learning when employed as program assessment tools. We propose that the relationship between AAC&U Value Rubrics, assessment, and experiential learning impacts continuous improvement efforts.

Keywords: Rubrics, assessment, experiential learning, continuous improvement

BACKGROUND

The Association of American Colleges and Universities (AAC&U) "is the leading national association dedicated to advancing the vitality and public standing of liberal education by making quality and equity the foundations for excellence in undergraduate education in service to democracy" (AAC&U, n.d.). To assess a new online MBA program, a school's Graduate Committee determined that the AAC&U VALUE Rubrics would be appropriate for use in program learning outcomes assessment. Arguments supporting the efficacy of the rubrics include the following: (a) over 11,000 downloads indicates that content validity may exist (Finley, 2011); (b) the rubrics contribute to the development of assignments that support improved learning and evaluations that reduce bias (Baker, Cooperman, & Storandt, 2013); (c) the rubrics were designed to be used across a full liberal arts curriculum, at the program or course level (McConnell, Horan, Zimmerman, & Rhodes, 2019); and (d) the rubrics address the authentic application of content knowledge (Bolton, 2006; McConnell et al., 2019).

AAC&U VALUE rubrics were developed because universities needed to assess student learning outcomes and compare those outcomes to other universities. VALUE is an acronym for Valid Assessment of Learning in Undergraduate Education (see: https://www.aacu.org/value). McConnell et al. (2019) state that professors from 44 universities adopted a multi-disciplinary approach toward developing rubric protocols that:

1. Create "a robust system of learning outcomes" which focus on "authentic student work" (p. 5)
2. Articulate "shared standards for student learning" (p. 5)
3. Create transparency for assessment and provide appropriate data to help benchmark learning
4. May help produce policies to make course transfer credit between institutions more accurate and efficient.

The top three reasons that educators reference the AAC&U VALUE Rubrics include: (a) developing rubrics or other assessment materials, (b) learning outcome development, and (c) as part of their assessment process (McConnell et al., 2019). The top three users are faculty, assessment professionals, and campus committees (McConnell et al., 2019). When not used for institutional-level comparison, users may adapt the performance descriptors, dimensions, and names of the levels found in the original AAC&U VALUE Rubrics.

The VALUE initiative, begun in 2007, culminated in the development of 16 value rubrics. The AAC&U VALUE Rubrics are grouped into three main categories organized by 16 learning outcomes. The three categories include

intellectual and practical skills, personal and social responsibility, and integrative and applied learning. In addition to the three learning categories, Table 1 displays the learning outcomes for each category.

Table 1. AAC&U Value Rubrics by Category and Learning Outcome

Intellectual and Practical Skills	**Personal and Social Responsibility**
Inquiry and analysis	Civic engagement—local and global
Critical thinking	Intercultural knowledge and competence
Creative thinking	Ethical reasoning
Written communication	Foundations and skills for lifelong learning
Oral communication	Global learning
Reading	**Integrative and Applied Learning**
Quantitative literacy	Integrative learning
Information literacy	
Teamwork	
Problem solving	

Finley (2011) studied three AAC&U VALUE rubrics using forty-four study participants from the four disciplines (humanities, natural sciences, social sciences, and professional and applied sciences) and several institutions. The participants engaged in a calibration process to compare their results with those of experts while attempting to "establish a common of understanding of student work" (Baker, Cooperman, & Storandt, 2013, p. 47). While more research is warranted, the evidence to date points toward the efficacy of the VALUE Rubrics. In sum, Finley and McConnell et al. (2019) support the notion that VALUE rubrics have validity, reliability, and efficacy across institutions.

WHY RUBRICS ARE USEFUL

Bolton (2006) states that andragogy requires learners to use and apply their content knowledge to projects with real-life meaning. In turn, rubrics help to reduce the uncertainty associated with experiential course assignments. Rubrics articulate the most important issues, link content with application, and link assignments to the learning outcomes. Further, Montgomery (2002) indicates that the authentic assessment achieved through a rubric helps to reduce evaluator bias and provide clear feedback. Additionally, rubric evaluation bridges the gap generated by passive responses. Students are given the opportunity to demonstrate knowledge through the production of assessable artifacts. In order to achieve authentic assessment, rubrics should assess "real-life tasks, performance or challenges that mirror those faced by experts in the particular field" (Montgomery, 2002, p. 35).

In addition to offering uniform guidance, rubrics can contribute to faculty development. As a focal point, rubrics bring faculty together in development efforts to improve lessons, courses (McConnell et al., 2019), and the promotion of effective teaching practices (Blumberg, 2016). Additionally, faculty engage in various processes, such as the norming and scoring processes (Baker et al., 2013) to enhance the coordination and accuracy of assessment efforts.

Since some faculty might eschew rubrics for various reasons, we must also consider whether any disadvantages associated with rubrics will impact their acceptance. Bolton (2006) notes that while rubrics may be helpful for scoring adult learners, the use of rubrics could limit student creativity. Some faculty believe that rubrics provide too much information, akin to spoon-feeding (Luchs, 2015) and that faculty may be further disappointed when students do not achieve all the criteria specified in a rubric during its first use. McConnell, Horan, Zimmerman, & Rhodes (2019) note that if a student cannot meet the lowest level or minimum requirement, it means that the lesson may need revision, thus requiring more input and effort from the faculty member. Further, Baker, Cooperman and Storandt (2013) indicate that the rubric norming and scoring process might be considered time-consuming because it includes the following seven steps: (a) Review the Process, (b) Discuss the Prompt, (c) Review the Rubric, (d) Review the Anchor Papers, (e) Score Practice Papers, (f) Compare Scores and Discuss, and (g) Compare Scores to Expert. The seven-step process is repeated until a high level of agreement is reached. Once the agreement between

raters is high, then the actual scoring of artifacts begins. In the end, despite challenges associated with employing rubrics, clear guidance and objective grading criteria can be beneficial to students (Bolton, 2006) and help faculty provide richer feedback (Luchs, 2015).

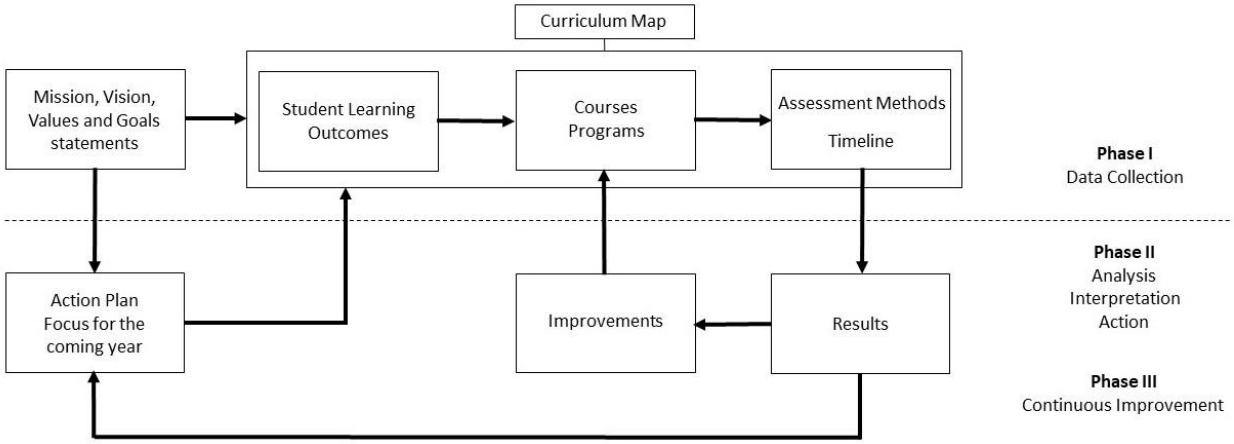
DEVELOPING AN ASSESSMENT SYSTEM

The school's MBA program outcomes require students to attain:

1. Core business knowledge of the theories and practices of accounting, finance, management, and marketing.
2. Advanced business knowledge and skills relevant to managing in dynamic environments, including diversity, sustainability, globalization, and ethics.
3. The analytical skills necessary for effective management of business operations.
4. A strategic view of business organizations by engaging in an integrative experience.

Figure 1 illustrates the school's assessment process. The objective of the assessment process is to: (a) evaluate the educational impact of one's programs, and (b) improve one's programs. The fundamental question driving this process is: What do you want the student to be able to know or do as the result of completing your program?

Figure 1. Program Assessment Process



The routine focus of this assessment process concerns phases one, two, and three in which data is collected, and then analyzed for interpretation and action to determine and support continuous improvement efforts. The flow of activities also illustrates that the assessment process is driven by the organization's mission and related statements. Various feedback loops provide direction for change in all the processes as driven by the results of the data analysis. A continuous improvement loop, that includes using the program assessment results, can be used to create the annual action plan that supports program and course assessment and learner improvement.

Based upon Bolton (2006), the Graduate Committee agreed that it was important to give MBA students the opportunity to apply their knowledge, and thus the committee employed the AAC&U VALUE Rubric categories for Integrative & Applied Learning and Problem-Solving Ability (see Table 1). As supported by Baker et al. (2013), Bolton (2006), and McConnell et al. (2019), the AAC&U VALUE Rubrics contribute to effective learning experiences, and in turn, support the use of experiential learning methods. Experiential learning is also critical for career success (Baldwin, Pierce, Joines, & Farouk, 2011; Carlston, Szyliowicz, Ouyang, & Sablynski, 2018; Kosnik, Tingle, & Blanton, 2013). Experiential activities are not new to business schools. Groups like the Association for Business Simulation and Experiential Learning (ABSEL) have promoted simulations, experiential learning, and related research for over 45 years and various experiential activities are in use by business schools (Reising & Dale, 2017). For example, see the resources at www.absel.org for a repository of 46 years of conference proceedings addressing simulations, experiential learning, and innovations.

Figure 2 illustrates the convergence of VALUE Rubrics, assessment, and experiential learning. McConnnell et al. (2019) discussed the importance of giving students the opportunity to apply their content knowledge through integrative and applied learning activities, which in turn impacts student problem-solving ability. As previously discussed, this conclusion points to the importance of experiential learning and engaging students in real-life, relevant activities, thus, we propose:

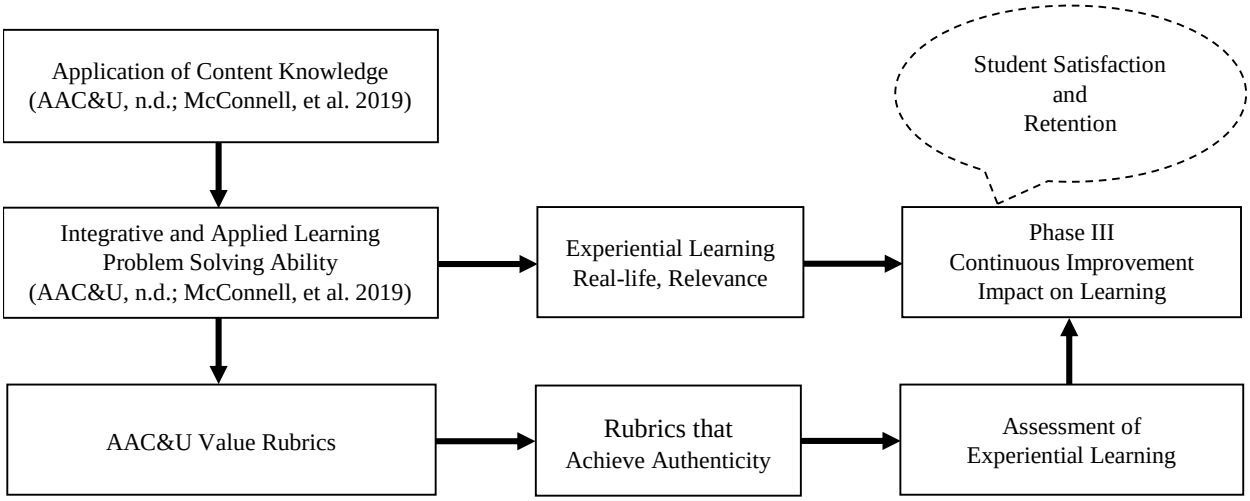
Proposition 1: Experiential learning activities improve student learning.

Because accreditation agencies expect continuous improvement efforts to be data driven, experiential learning must be accompanied by a parallel assessment process. Integrative and applied learning, as well as problem-solving ability (see Table 1) point toward the use of AAC&U VALUE Rubrics. In turn, the rubrics point toward the capability to achieve authenticity in the learning process and provide the opportunity to assess experiential learning. Therefore, we propose:

Proposition 2: AAC&U VALUE Rubrics can be used to assess the extent to which experiential learning impacts improvement in student learning.

If rubrics contribute to improved learning, then students may be more satisfied with their program when rubrics are effectively employed. As noted in Figure 2, using rubrics in the continuous improvement process may improve student retention and program completion. Confirmation of the student satisfaction link is a topic for future research.

Figure 2. The Convergence of VALUE Rubrics, Assessment, and Experiential Learning



TOWARD A MODEL FOR CONFIRMING EXPERIENTIAL LEARNING THROUGH VALUE RUBRICS

Figure 3 shows an abbreviated version the components of the AAC&U Integrative Learning Value Rubric. This version includes the criteria to determine the students' ability to make connections to experience, connections across disciplines, and to be able to transfer their knowledge to new situations. Figure 3 omits the communication and reflection criteria of the original rubric, as less illustrative of experiential learning for our purposes in this article. In order to align principles of experiential learning with this rubric, two zones are superimposed on the rubric. The Zone of Concept or Content Learning comprises those items in column one, Benchmark and the column two Milestone. In this zone, students are assessed as being capable of comparing, describing, identifying, articulating, and performing some actions only when prompted. In contrast, the Zone of Experiential Learning captures the student's capability to engage in activities which represent applied and integrated learning. These activities also reflect the principles associated with experiential learning. Five of these examples are identified by the underlined sections in Figure 3.

The intersection of Capstone 4 and Connections to Experience aptly reflects Kolb's (1984) definition of experiential learning as the "process whereby knowledge is created through the transformation of experience" (p. 41). The idea that active learning processes develop skills and application ability (Bonwell & Eison, 1991; Morgan, Martin, Howard & Mihalek, 2005) is represented in the underlined text at the intersection of Capstone 4 and Transfer to New Situations. Since AACSB standards require that students engage in their learning experience (Biggs & Gulkus, 1988; Boscia & McAfee, 2008), Figure 3 illustrates the intersection of Milestone 3 and Connections to Experience, which provides the means to assess engagement through various contexts. Further, the intersection of Milestone 3 and Connections to Discipline illustrates the student's capability to connect ideas from among varying disciplines. Employers value the capability to perform tasks even if the academic confirmation of learning is not always empirically validated in the use of experiential exercises (Bernard, 2004). Finally, the intersection of Milestone 3 and Transfer to New Situations provides the opportunity to confirm the students' learning experience through their ability to carry forward knowledge and experience from prior exercises into future projects (Leong & Crowley, 2007). While we have not exhaustively covered each component of the rubric, we assert that many of the components in the Zone of Experiential Learning align with the principles found in the experiential learning literature.

Figure 3. Zones of Learning in a Value Rubric (Abbreviated AAC&U Integrative Learning Value Rubric)

	Zone of Experiential Learning		**Zone of Concept/Content Learning**	
	Capstone 4	Milestone 3	Milestone 2	Benchmark 1
Connections to Experience	Meaningfully synthesizes connections among experiences outside of the formal classroom (including life experiences and academic experiences such as internships and travel abroad) to deepen understanding of fields of study and to broaden own points of view.	Effectively selects and develops examples of life experiences, drawn from a variety of contexts (e.g., family life, artistic participation, civic involvement, work experience), to illuminate concepts/ theories/ frameworks of fields of study.	Compares life experiences and academic knowledge to infer differences, as well as similarities, and acknowledge perspectives other than own.	Identifies connections between life experiences and those academic texts and ideas perceived as similar and related to own interests.
Connections to Disciplines	Independently creates wholes out of multiple parts (synthesizes) or draws conclusions by combining examples, facts, or theories from more than one field of study or perspective.	Independently connects examples, facts, or theories from more than one field of study or perspective.	When prompted, connects examples, facts, or theories from more than one field of study or perspective.	When prompted, presents examples, facts, or theories from more than one field of study or perspective.
Transfer to New Situations	Adapts and applies, independently, skills, abilities, theories, or methodologies gained in one situation to new situations to solve difficult problems or explore complex issues in original ways.	Adapts and applies skills, abilities, theories, or methodologies gained in one situation to new situations to solve problems or explore issues.	Uses skills, abilities, theories, or methodologies gained in one situation in a new situation to contribute to understanding of problems or issues.	Uses, in a basic way, skills, abilities, theories, or methodologies gained in one situation in a new situation.

SUMMARY AND IMPLICATIONS

In summary, we believe that the VALUE Rubrics have the potential to do more than assess learning outcomes according to their category. In examining the Integrated Learning Value Rubric, we discovered that its terminology aligns with experiential learning principles. We proposed that the AAC&U VALUE Rubrics can be used to assess the extent to which experiential learning occurs and influences continuous improvement in student learning. We also proposed that experiential learning activities will achieve continuous improvement in student learning. This is important because integrative and applied learning and problem-solving capabilities are not only what adult learners desire, these capacities are also important for career success in business.

Schools of business can benefit by adopting the appropriate VALUE Rubrics for their assessment programs. As Finley (2011) discovered, the rubrics have become nationally accepted. The rubrics provide a means for authentic learning experiences and assessment. Authenticity is best achieved through applied learning, which generally involves experiential methods.

LIMITATIONS

We have offered two propositions for consideration in this article. We have also illustrated the flow of relationships between concepts within two figures, but these are not intended to be causal models subject to testing. Finally, we described the intersection of experiential learning principles with descriptors in only one VALUE Rubric. Our examination of the integrative learning value rubric is not exhaustive, and we have not examined all the VALUE Rubrics. Thus, our propositions might not be universal among the myriad descriptors in all the VALUE Rubrics. The reader should apply the VALUE Rubrics appropriately to their situation, while giving some consideration to the potential for the assessment of applied learning through experiential methods, since those are deemed best for MBA students.

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An Aesthetic Approach to Online MBA Student Engagement

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ABSTRACT

Online MBA programs pose unique challenges to student engagement in both virtual teams and learning communities. "Getting to know you" activities are vital for building virtual relationships. The purpose of this paper is to explore how an aesthetics-based experiential approach has the potential to build early 'aesthetic connections' that foster both virtual teamwork and online participation.

Keywords: Online MBA, Aesthetics, Engagement, Teams

INTRODUCTION

The rapid growth of online MBA programs has prompted an interest in team experiences and experiential elements (Hwang, 2018) that engage learners in the virtual classroom. Establishing connections and developing interpersonal relationships are deemed crucial for student engagement (Ngoyi, Mpanga & Ngoyi, 2014). A "getting to know you" activity is commonly cited as an important first step for both team development and online community-building. The aesthetic dimension associated with these types of 'ice-breaking' practices has been largely overlooked in online business education.

The online MBA Management and Organizational Behavior course taught by the author draws inspiration from the field of organizational aesthetics to design an aesthetics-based experiential process for students to focus their initial team interactions. Team member experiences are then crafted into a multimedia artifact shared within the online community. Aesthetic experiences of these events impact students' subjective perceptions of online teamwork. In the process, students form 'aesthetic connections' (Taylor & Hansen, 2005) that foster engagement in the overall learning community.

THEORETICAL BACKGROUND: ORGANIZATIONAL AESTHETICS

Strati (1992) introduced organizational aesthetics as an alternative to logical-analytical perspectives in management and organizational studies. Informed by numerous aesthetic philosophies (Baumgarten, Dewey, Kant, Pareyson and Vico to name a few), aesthetics provides legitimacy to knowledge based in the senses (sight, sound, smell, taste and touch). Sensory perceptions give rise to aesthetic feelings, judgments and sentiments about organizations and work that are both individually experienced and socially constructed (Strati, 1999). For example, work that some members enjoy, others may find disgusting. Aesthetic understandings involve studying how individuals and groups navigate organizational life by attuning to their feelings and tastes (Strati, 2010).

Cunliffe and Coupland (2012) suggest that people 'make sense' of work and organizational life through emotionally and bodily 'felt' experiences ignored by traditional cognitive views of 'sensemaking' (Weick, 1995). Sutherland and Jelinek (2015) prefer the term 'aesthetic sensemaking' to account for sensory-aesthetic aspects. Gagliardi (2006) underscores how the rush to 'sensemaking' often neglects the key role that the senses play in grasping an organization's aesthetic dimension. The aesthetic dimension brings into focus the sensible aspects of human interactions and non-human artifacts encountered and produced in the context of work (Gaglardi, 2006). Perceiving, understanding and enjoying artifacts and people (Strati, 2007) afford opportunities for organizational members to build 'aesthetic connections' (Taylor & Hansen, 2005); further sharpen their aesthetic tastes, preferences and sensemaking.

This paper describes components of an online MBA course designed to heighten awareness of sensible knowledge; encourage student engagement through an aesthetics-based experiential activity. 'Sensible knowledge' (Strati, 2007) refers to the capacity of individuals, groups and communities of practitioners to use their sensory faculties for the purposes of learning. Virtual teams make and share artifacts grounded in team members' sensory-aesthetic experiences. Early aesthetic connections (Taylor & Hansen, 2005) emerge through team-produced artifacts understood and enjoyed by virtual classmates. Students' aesthetic feelings and connections have the potential to

impact both individual perceptions and shared meanings of the online learning community.

EXPERIENTIAL ACTIVITY: BUILDING SENSORY AWARENESS AND AESTHETIC CONNECTIONS

Prelude to the Experience

The Management and Organizational Behavior course described in this paper is a foundational course in an online MBA program at a state university. Students in the MBA program have some relevant work experience and most are currently working professionals. Courses in the program are compressed into an eight-week mini semester. For many students, the course is their first MBA course—and it can also be their first online education experience. Some students opt to take two courses per eight week term. The course is required of all students.

Students introduce themselves in a discussion post prior to the course start date. Introductions offer students a chance to describe their educational backgrounds, work experiences and online course experiences, preferred times for online teamwork and any other aspects of their life experience that they may want to share. Module 1 begins with an overview of management and organizational behavior; foregrounds the notion that much of what happens in organizational life is a matter of sensemaking (Weick, 1995). Students supplement their 'textbook' with outside readings that introduce them to sensory-aesthetic ways of knowing. Assignments for the first module include discussion posts and blogs posted to the Blackboard platform. The initial blog is a forum for students to mull over interconnections between the senses and sensemaking. Students consider how sensory perceptions inform management and organizational practices. Sample student blogs are provided in the following section.

Examples from Student Blogs

Recently I was met with a few tough decisions. I was losing good employees and couldn't figure out why. It wasn't until I started noticing those same employees working for my competitors. Those guys now had beards. They were no longer complaining about their long sleeve dress shirts covering their tattoos. I sensed that I needed to make a change. Although I paid more than the competition, they were less strict on the comfort rules. Overnight I switched our uniforms from a dress uniform to a breathable polo. Two months later I allowed facial hair again. I saw old employees start coming back. I mostly eliminated the tattoo policy. I sensed this would retain employees and possibly bring back old.

Chefs learn their trade through observation of master chefs while developing their own creative signatures through different senses. While their sense may determine a particular dish to be exceptionally noteworthy or appear aesthetically pleasing, patrons may sample the dish and think otherwise. This may cause a shift in the chef's or organization's practices. What others think and sense impacts creativity and innovation.

It is common to say that Nursing is both an art and a science. I would argue that the use of one's senses is what makes up the art component. Through smells, what we could see, and what we could touch often triggered in our minds what was going on with a patient. The use of our senses helped us in our sensemaking and allowed us to initiate care that was needed.

In manufacturing, snazzy is not always the feel of the day. But we reached out to our marketing director and got posters of the products we make being used in normal daily lives. The new showcase pieces really got the employees talking and allowed people to see the impact they make through their work.

Getting to Know the Virtual Team and Online Community

The 'getting to know you' virtual team activity is introduced after students explore the senses and sensemaking. Team wiki spaces are established for members to collaborate and communicate. The task of each team is to participate in a 'fun' sensory activity. Since students are geographically dispersed, they need not be physically together. A few suggestions are offered such as taking a walk, having a meal, watching a film; however, students make their own aesthetic choices based on tastes and preferences. As part of the experiential activity, students craft their experiences into a multimedia artifact to share with other teams. Student produced artifacts afford opportunities for online classmates to both 'perceive and enjoy their sensory qualities' (Strati, 2007:63). Sensory experiences evoke students' 'aesthetic sensemaking' (Sutherland & Jelinek, 2015). As 'objects of reflection' team artifacts can generate 'memories with future momentum' (Sutherland, 2013:31-36) in support of online participation.

Students consider elements such as balance and harmony to fashion their artifacts. They may also select a metaphor or theme to frame their experiences. Teams load their assignments to a shared blog space. Virtual team experiences include cooking, going to favorite places and cafes, walking, game playing, and doing a 'virtual happy hour'. Teams choose from a wide variety of tools (e.g. Animoto, PowerPoint, Prezi and Sway) to aesthetically communicate their experiences. Finally, each team is asked to activate their senses, experience and respond to at least two other teams. Individuals are also free to weigh in. Sample responses are provided below.

Examples of Students' Aesthetic Sensemaking

The project gives us a full virtual experience of eating bacon while having a cup of coffee. We had a pleasant reminder of growing up eating bacon…we enjoyed hearing it sizzle!

This experience travels …through three states and downtown locations… allows you to take in the sight, imagine the sounds, smells and tastes of Downtown! Aspects of sensemaking are brought into the video by using the sights of the street art, sound of the festival band, then the smells, taste and feel of the food in the restaurants.

It is hard to believe that you were not all in the same location due to this. I think this assists with advocating for group work and how it is possible to execute tasks effectively without being physically in the same location. Love for fun experiences around town can also help to maintain lasting friendships.

Meeting virtually and playing trivia games is an awesome concept. Looks like a great time. It provided a closer look into the group and a personal feel to the project. The team was able to compete and build stronger relationships from the comfort of their own homes. Without being able to meet physically, what are the chances that your group would have done a trivia meet-up?

The virtual journey allowed each team member to showcase their own experiences. Individuality facilitates self-expression while at the same time, enhancing the group experience. After completing this project, we feel we have found our "groove."

We were totally down for the virtual happy hour! You had us wishing our peppermint mochas had a little more of a kick to them than just the peppermint! The scenery invoked the perfect fall day for a wine-tasting. We look forward to seeing what your team does next. If it's another virtual happy hour, Team 5 would like an invite!

DISCUSSION AND CONCLUDING REMARKS

As blog reflections indicate, students develop a new aesthetic awareness of the role of the senses in 'sensemaking'. They are able to establish connections between the outside reading and their own organizational life experiences. The preliminary work is an important aspect to the present course design. It sets the stage for an aesthetics-based experiential process as set forth in this paper. Others may find that a sensory-aesthetic 'getting to know you' experiential process stands alone as a fun way to initiate online MBA student engagement; establish memorable moments that impact students' sentiments and preferences for future team assignments and community participation.

The aesthetic-based experiential process provided these students an opportunity to make aesthetic choices surrounding both initial sensory activities and subsequent artifact making. Student generated 'aesthetic artifacts' engage the senses and evoke aesthetic feelings. As teams actively sense and make sense of these experiences, online aesthetic connections emerge.

Students seemed to appreciate the creative space to come up with unique and surprising 'virtual sensory experiences'. Thus, it is important not to be too prescriptive with this type of experiential activity. Student produced artifacts trigger the memories and imaginations of their peers. When the artifact performs as an 'object of reflection' some students consider how the virtual environment need not impair future team work and online involvement. Although such activities may seem trivial at first glance, online MBA students engaged in both playful and meaningful ways. Future research might explore how aesthetic tastes and preferences are socially negotiated (Gherardi, 2009) in process of choosing sensory experiences and crafting artifacts for aesthetic communication.

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Appendix A: Individual Blog Assignment

Objectives: Bring awareness to the interconnections between sensory perceptions, aesthetic experiences and making sense of organizations and organizational life.

1) Read and respond to the outside reading.
2) Describe the role of the senses in 'sensemaking'.
3) Respond to two other Blog posts.

Outside reading: Panayiotou, A. (2017). Introduction to the Virtual Special Issue on Sensory Knowledge. *Management Learning*.

Textbook: *Managing and Organizations* by Stewart Clegg, Martin Kornberger and Tyrone Pitsis, Thousand Oaks, CA: Sage Publications.

Recommended Readings:

Steirand M. (2015). Developing creativity in practice: Explorations with world-renowned chefs, *Management Learning (*46), 598-617.

Strati, A. (2007). Sensible knowledge and practice-based learning, *Management Learning*, (38), 61-77.

Appendix B: Getting to Know Your Virtual Team

1) Plan a 'fun' sensory activity with your team.
2) You do not need to be physically present to complete this assignment.
3) Examples could include: watching a film, taking a walk or having a meal.
4) Capture sensory images of your experiences.
5) Select a 'form' to aesthetically communicate your experiences to other teams. For example, you may want to consider a video or other 'presentation' medium. Videos should be no more than 2-3 minutes or equivalent to 5-6 'slides'.
6) Consider elements such as theme, balance and harmony to aid viewers.
7) Select one member to upload the assignment to the shared blog space.
8) Engage your senses and respond to at least 2 other teams. Note: you may want to select one team member to upload your responses.

Business Internship Management Using Salesforce.com

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ABSTRACT

While most business schools administer an internship program, practices vary widely, and many internship coordinators look for more efficient ways to manage the large volume of students and companies hoping to be matched with the right fit. In this paper, the authors review common approaches to internship administration and their inherent inefficiencies. Recommending Salesforce.com as an effective vehicle for administering an internship program, the authors explain how programs can obtain and use Salesforce.com while elaborating on benefits programs may experience by utilizing this popular and powerful CRM program.

Keywords: Internships, salesforce.com, business students, administration

INTRODUCTION

Internships are well-recognized for their value in preparing students for the workforce, enabling them to engage in pre-professional work and apply discipline-specific learning before graduation. Because of their demonstrated benefits to students, employers, and colleges, many business schools require internships while others report strong participation levels. The increasing interest in internships is attributable to a number of factors. Students benefit from internships in several ways. Internships enhance the employability of students upon graduation (Gault, Leach, & Duey, 2010; Weible & McClure, 2011) and provide students with real-world exposure to a potential career path (Coco, 2000). Further, Holmberg-Wright, Hribar, and Tsegai (2017) suggest that internships are an example of "high impact learning experiences" (p. 16) that are particularly effective in appealing to today's undergraduate student. Additionally, employers benefit from internships by gaining inexpensive, qualified labor and helping them evaluate candidates for longer-term employment (Divine, Linrud, Miller, & Wilson, 2007; Gault et al., 2010). Schools themselves can benefit from internships, as well. For instance, internships are a vehicle through which schools can strengthen ties with the business community (Divine et al., 2007; Weibel & McClure, 2011), which, in turn, may lead to fundraising opportunities (Gault et al., 2010; Weibel & McClure, 2011).

With both supply of and demand for business internships increasing, many schools struggle to efficiently manage their internship programs. There is a number of reasons for efficiency issues in internship programs. Often, human resource constraints are a factor. In many schools, staffing of internship offices has not kept pace with rising enrollments and increased demand for internships. At other schools, the management of the internship program is a secondary function for a staff person charged with other responsibilities. Still other programs are more-or-less self-managed by students, who are tasked with finding, vetting, then arranging their own internship opportunities.

Another obstacle to an efficient internship program is the poor use – or lack of use – of technology that could improve operations. It is this particular issue that serves as the focus of this article. Accordingly, it is the objective of this paper to present a framework for using Salesforce.com (henceforth, "Salesforce") as a technological tool to more efficiently manage internship programs and processes. Our goal is to help business programs (as well as university-level internship and job-matching programs) more efficiently manage the entirety of the internship process – from prospecting and matching to post-internship follow-up.

The remainder of this article is organized as follows. First, we summarize some examples and consequences of commonly-used internship management processes that incorporate inadequate technologies – or perhaps no modern business technologies at all. This initial summary shows areas of potential deficiency where Salesforce can be implemented to add great value for all parties involved with internships. We proceed to provide an overview of Salesforce and detail the process by which a nonprofit college or university can acquire free Salesforce licenses. We then explain how the "out of the box" Salesforce product may be customized for optimal use for internship program management. Next, we provide suggestions and steps for using Salesforce to efficiently manage internships,

including examples from one university's experiences over a period of three years. Lastly, we conclude with ideas for further development and more advanced uses of Salesforce for internship program management.

EXAMPLES AND CONSEQUENCES OF POOR TECHNOLOGY USE IN INTERNSHIPS

From both personal experiences and conversations with colleagues at other U.S. universities, we understand that many methods of administering an internship program are being employed – from the highly manual to the technologically advanced. Here, we note some common methods of managing a business internship program and potential negative consequences when processes are largely informal.

Pen and Paper

Perhaps the oldest and most basic method of internship administration and management is using a written, "pen and paper" organization system. For decades, faculty and staff have used a handwritten internship administration and management system where internship forms have been completed by hand, correspondence was written, documented, and updated by hand, and then stored in some type of secured filing cabinet within a coordinator's or faculty member's office. This type of method is often used for internships because it is traditional, and many faculty have years of experience handling internships this way. Thus, there is little desire to change or adapt to another method – even if there are more technologically efficient methods available.

A challenge of this type of method, though, is that if one staff or faculty member keeps track of all documentation, forms, and correspondence by hand within a locked student's file, it can be difficult for other personnel to access these forms in a timely manner if they need to help a student with related academic concerns (advising, graduation applications, credit hour issues related to financial aid, etc.). In addition, if there is a transition in leadership or responsibility amongst faculty members or internship supervisors, there may be challenges for the new leader to locate or make sense of his/her predecessor's system of handwritten notes, forms, and documentation. Consequently, even though "pen and paper" methods are easy to implement when an internship program is in its early stages, they present longer-term obstacles that can lead to inefficiencies and even security issues (e.g., unauthorized access, theft, misplacement, etc.).

Spreadsheet

Another common method of internship administration and management is spreadsheet software, such as Microsoft Excel. Excel has often been used in internship administration and management given its ability to categorize and store a large volume of student internship data within one file. Excel gives faculty the ability to store internship data in a centralized way that addresses some of the problems inherent in the pen & paper method. Using cloud storage, an internship coordinator can make such a file accessible to other appropriate parties, who can then add their own notes, grades, or other input.

Despite its advantages over pen & paper, spreadsheet methods have their drawbacks. While a cloud or online spreadsheet can allow multiple parties to access a file, managing appropriate levels of editing authority is cumbersome at best. For example, a staff person in the internship office might need editing abilities for company data and note-taking but not a column where grades are input. Perhaps only faculty should be able to edit grade data in the spreadsheet yet should not be able to see other student data, such as employer feedback from a previous internship.

Creating these multiple levels of access and editing capabilities by user is problematic with a spreadsheet. Further, tracking changes to the spreadsheet's data is difficult. If the coordinator sees that the primary internship contact at a company has changed, there may be no way for him/her to find out who changed that cell in the spreadsheet and follow-up with that school employee. Even worse, is something is changed incorrectly, or if historical data is inappropriately changed, this can be difficult to notice – much less track the person who made the adjustment.

Although a large amount of internship data can be saved in Excel, the familiar rows and columns layout if often not the most efficient way to view data, as one might scroll through column after column before locating that particular field of interest. And when multiple people are managing and editing a single spreadsheet, the potential for problems related to differences in use, duplication of data, erroneous input, and general miscommunication increases. Understandably, as the amount of information stored grows, the problems of spreadsheet clutter and disorganization become even more salient.

Excel files also can have issues being shared then opened in the right format or software version. If other faculty and staff want (or need) to view a student's internship work or progress, they not only have to be sent the file (or shared with them), they need to have the correct version of Excel and computing power able to open it. These problems can compound when users attempt to go back and forth between cloud and desktop versions of software.

Outlook, Google Suite, and Other "Lite" CRM

Since virtually every college uses software that is centered on email management (Microsoft Outlook, Google Gmail), it is easy to adapt these types of applications into a "lite" customer relationship management (CRM) program since they also contain a contact manager, calendar, and task list. By creating cabinet folders, category tags, and/or labels, email management programs provide the opportunity to organize communications and information on both students and companies. Being online, such a system can reduce paper usage and provide multiple users with electronic access to records. This type of system also provides the benefits of an electronic paper trail (e.g., when did a student reply to the coordinator's email; which staff member sent a calendar invitation or completed a task and when). Additionally, this method provides a higher level of security than pen & paper when backups and strong login credentials are in place.

While adapting an email management program for use as a lite CRM holds advantages over the pen & paper method, it has its drawbacks. As more students and organizations are added to the program, the system can quickly expand to an overwhelming list of folders, subfolders, and disconnected notes and activities. These programs are also limited in their ability to provide a comprehensive history of activity on the account. Whereas a full CRM system would show all communications, meetings, tasks, and notes in a single place and in chronological order, it may take viewing several places with the email management system to track down all aspects of activity for a student or company. Conversely, true CRM programs are designed to accumulate, aggregate, organize, and present information is intuitive ways that users can further customize to meet their specific needs.

OVERVIEW OF SALESFORCE AND HOW TO OBTAIN IT

Salesforce overview

Salesforce.org, the philanthropic unit of Salesforce, provides nonprofits, including educational institutions, the opportunity to obtain the Salesforce platform without financial cost. Salesforce refers to its core product as a platform rather than a CRM system because the product's capabilities have expanded far beyond its CRM origins. For nonprofits, various base versions of the platform exist, such as the Philanthropy Cloud and Education Cloud products. Through powerful customization options, end users can use the platform manage a broad array of business functions. In fact, many universities are using Salesforce for student recruitment, admissions, enrollment management, fundraising, and more. Here, we focus on Salesforce's core relationship management features.

As the name Education Cloud implies, Salesforce is a cloud-based platform, working through the user's web browser and not requiring any software to be installed. This can aid in overcoming issues related to lengthy installation processes, different operating systems, and other start-up complexities that often require an IT professional to commence or troubleshoot. And being hosted in the cloud, an organization's data is accessible at any time and from most any web-enabled device, from computers to smartphones.

Indeed, the Salesforce platform is somewhat analogous to a smartphone. Any smartphone will, out of the box, make calls, send text messages, connect to your email accounts, maintain a to-do list, offer a calculator, and perform many other basic functions. But many of the more powerful and meaningful capabilities of one's smartphone are accessed by obtaining an app, such as exercise trackers, project management tools, and graphic design tools. Likewise, the Salesforce platform provides many key CRM functions without the user having to make any customizations. However, there are countless ways to customize the platform and thousands of apps to make the tool even more powerful.

Apps are obtained from Salesforce's AppExchange (https://appexchange.salesforce.com), and many of the apps are free. Others require a subscription or one-time purchase. Of the apps that require payment, approximately half offer discounts to nonprofit organizations. Additionally, paid apps generally offer a free trial period to help an organization determine if the app's functionality works for the organization.

Obtaining Salesforce

Through its "Power of Us" program, Salesforce grants up to 10 free user licenses of its CRM platform to nonprofits – including educational institutions – and deeply discounts additional subscriptions. To be eligible for the grant of 10 free licenses, an organization must provide documentation that demonstrates it is a nonprofit – or in this case, an educational organization. A more complete list of qualifications can be found at https://www.salesforce.org/power-of-us-eligibility-guidelines/.

One person in the internship program should take on the Salesforce role of administrator and primary contact person. While it is not essential that the administrator have extensive IT experience, it will be helpful for the person taking on this role to have basic proficiency with technology, as this person will setup users and be able to customize the platform. However, some of all administrator privileges can be delegated to an IT professional at the college, if desired. We will discuss user roles in the next section. After Salesforce reviews and approves an organization's application to the Power of Us program, the administrator will receive login instructions.

SETTING UP AND CUSTOMIZING SALESFORCE FOR AN INTERNSHIP PROGRAM

Outside of any customization steps that the school takes, one of the first actions for the administrator will be to create up to nine additional user accounts. As noted earlier, Salesforce provides deeply discounted licenses when more than 10 are needed by a nonprofit. However, we believe most internship programs can be effectively run with 10 or fewer licenses. A typical user portfolio within an internship program may consist of the following users:

- *Program coordinator.* The internship program coordinator would receive administrator privileges in Salesforce, allowing him/her full access to all functionality and data.
- *Technology professional.* We recommend providing access to an IT professional on your school's staff in the event there is more sophisticated customization needed or other technological issues that may be more effectively addressed by a specialist. This individual should also be given administrator privileges. Salesforce provides great flexibility in role assignment. Thus, an IT professional could have the ability to make extensive customizations yet be restricted from editing student and company records.
- *Dean or other high-level member administration.* For compliance purposes, we suggest having a high-level member of the school's administration as a user who can view all information but not necessarily make data edits.
- *Department chairs or other faculty who oversee internships.* Other standard users would include any faculty or other internship office staff that plays a role in sourcing, managing, or overseeing internships. For example, the head of a school's entrepreneurship program may wish to have "view only" access to see where a local business stands in the process of obtaining a student intern. A marketing faculty member might be given access to view the records of marketing majors but not students outside the major.
- *Student worker.* Some internship offices may have a student worker or volunteer who could be given limited access to internship data. For example, this person may have the ability to update contact information and upload scanned documents but not be able to add or remove internship openings from the system. Salesforce makes it easy to set highly-specific access restrictions for users.

While the Salesforce program can be intuitive to use, the initial setup – particularly the customization process – will require a considerable investment of time; however, this is an investment that can easily and quickly be recouped by future time savings. For schools that have time and technology-friendly personnel to dedicate to the initial setup process, we recommend this route, which may require several hours within Salesforce's setup environment. However, hiring a consulting partner is also an option that can speed up the implementation process. Salesforce provides a list of certified partners (https://www.salesforce.org/highered/find-partner/) as well as best practices on selecting the right partner. Regardless of the setup path chosen, users always have access to Salesforce help features, including a robust "Power of Us" user community for self-help.

Lastly, we note that the university of one of the authors began using Salesforce before the introduction of the Education Cloud. Instead, it began with the standard Marketing Cloud platform. As all the platforms are customizable, the processes and recommendations that follow in this manuscript can be applied to any Salesforce CRM platform. However, the Education Cloud should, in theory, be more ready for education use "out of the box" than other versions.

Once the licenses are acquired and users are setup, the process of customizing the base product begins. We next explain some recommended customizations to make the platform more conducive for internship office use. These customizations include the edit or creation of record types, fields, objects, reports, and processes.

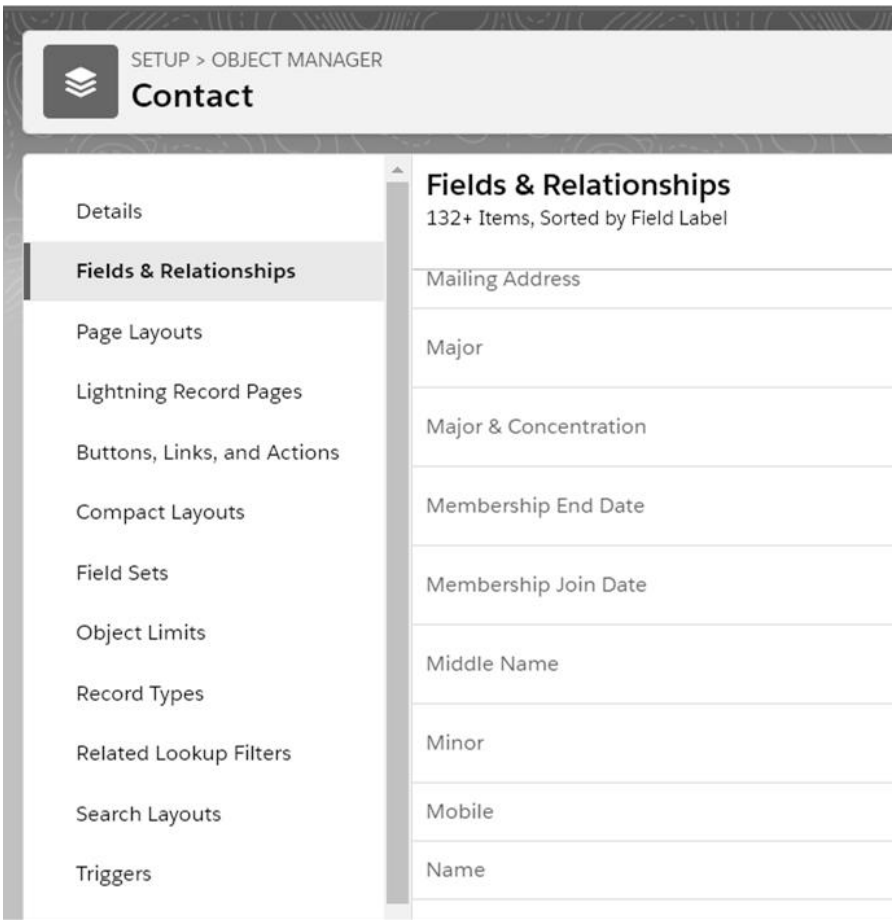
RECOMMENDED CUSTOMIZATIONS

The term "record" refers to a grouping of fields. For example, all the information related to student John Q. Doe would comprise his record. In the context of an internship program, we suggest having at least two ***types*** of records: Students and Professionals. The reason to create differing record types is so that the information displayed to the user can be customized to the record type. For example, while a student will have Major, Minor, Class Year, GPA, and other student-specific fields, such fields would go unused or provide little value when viewing a professional's record. Thus, setting up multiple record types allows the administrator to customize the user's view (i.e., page layout) of each record type so that screen space is used more efficiently.

Next, the administrator should consider the fields that should be created to optimize use for internship management. As noted above, basic student demographic information, such as Major and Minor, should be included in student records. This type of information will be used later to aid in the matching process.

Exhibit 1 shows a view of a Contact setup screen in Salesforce, where an administrator can easily edit page layouts, set record types, create new fields, and more. In the exhibit, the "Fields & Relationships tab is highlight, showing some Salesforce default fields as well as custom fields we created specifically for use in internship program management, such as "Major" and "Minor."

Exhibit 1: Contact Setup screen in Salesforce



The tables below offer some recommended, internship-specific fields that can be created in Salesforce to help facilitate internship management and matching:

Table 1: Examples of Student-Related Fields to Add to Salesforce

Year in School	Major	Minor
Concentration/Focus	Expected Graduation Term	Type of Internship Sought
GPA		

Table 2: Examples of Company-Related Fields to Add to Salesforce

Industry	Company Size	Class/Year Desired
Paid?	Major Desired	Type of Internship Offered
Concentration/Focus Desired		

"Object" is the term used by Salesforce for what one might call a tab within a software program's menu set. In its Marketing Cloud product, Salesforce has an object called Opportunities, which is essentially a salesperson's pipeline, showing where potential deals lie in the sales process – from prospecting to closed business. We recommend that internship coordinators create a new "Internships" object based on the concept of the Opportunities object.

The Internships object is where the actual management of internships will be performed, providing a process for managing open and active internships that is far more efficient than spreadsheet- or paper-based methods. In lieu of Salesforce's standard sales opportunity stages, the administrator should create stages reflective of the process of obtaining and completing an internship. For example, whereas a life insurance salesperson's opportunity stages might include Prospecting, Needs Discovery, Paperwork, Order Health Records, etc., an internship office might utilize stages such as Prospecting, Open [seeking a match], Matching [an employer and student are talking through the opportunity to determine if it is a fit], Filled, and Withdrawn.

Next, the administrator should create reports that will facilitate the management of prospective, current, and past internships. For example, a report query can be set up that returns internship opportunities that meet certain criteria (e.g., an organization seeks a female marketing major who is at least a junior) along with students that match those criteria. Another report could list all companies with an active internship in the current semester and the students that are filling them. Further, reports can be set to run at specified intervals, and output can automatically be emailed to relevant parties. Our lists of reports are continually evolving to become more refined and informational. Consider these examples where reports can quickly and easily provide valuable information:

- In the first week of a semester, an internship provider from a previous semester asks how many senior class marketing majors are still looking for an internship that features sales responsibilities.
- The dean wants to report at his annual breakfast meeting of donors how many students engaged in an internship in the last academic year.
- The president of the university wants to recognize the three companies that have provided the most internship-based learning opportunities for the university's students.

ENTERING DATA

The next step in readying Salesforce for internship administration is to populate it with both student and internship provider information. Schools using a spreadsheet or a email/contact manager to maintain their lists of internship providers will find it easy to import this information into Salesforce through a process of field mapping. For "paper-based" programs, the process of getting company information into Salesforce will require some manual data entry, which may be performed directly into Salesforce or first into a spreadsheet that can later be imported.

There are multiple paths for the addition of student information. Institutional databases can be linked to Salesforce so student information can be shared, or student data via spreadsheets can be manually imported. With student and

internship provider data in Salesforce, adding new opportunities, promoting existing and open internships, and matching students with internships becomes simpler than spreadsheet- or paper-based methods.

THE MATCHING PROCESS

We refer to the process of connecting internship providers and qualified students as the matching process. And an efficient matching process is one of the top reasons to adopt Salesforce or another strong CRM program to facilitate an internship program. Matching can be facilitated by running reports, as noted in the previous section. Assume a coordinator has a walk-in appointment with a junior marketing major whose goal, upon graduation, is to get a full-time job with an advertising agency. The coordinator recommends an internship with such a company to ensure the student understands the nature of work in an agency. Within seconds, the coordinator runs and reviews a report showing all open internships offered by advertising agencies. Let us further assume that there are no open internships meeting the student's criteria. The coordinator could quickly run a report showing agencies that have offered an internship in the past five years. Then, the coordinator or student could reach out to those companies to explore the possibility of an internship for the current semester.

Exhibits 2 and 3 are screen shots from Salesforce showing a hypothetical internship opportunity and a fictitious student. Opportunity fields such as Semester, Majors Sought, and Concentrations Sought can be matched with student record fields to make appropriate connections between providers and students.

Exhibit 2: Internship opportunity within Salesforce

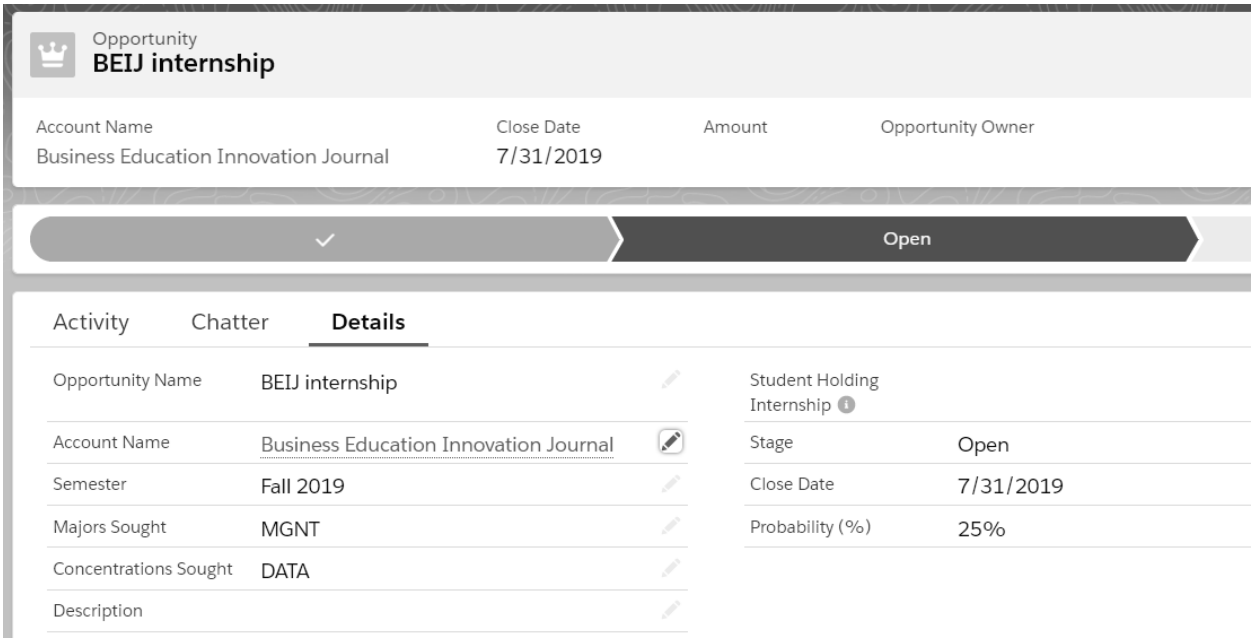
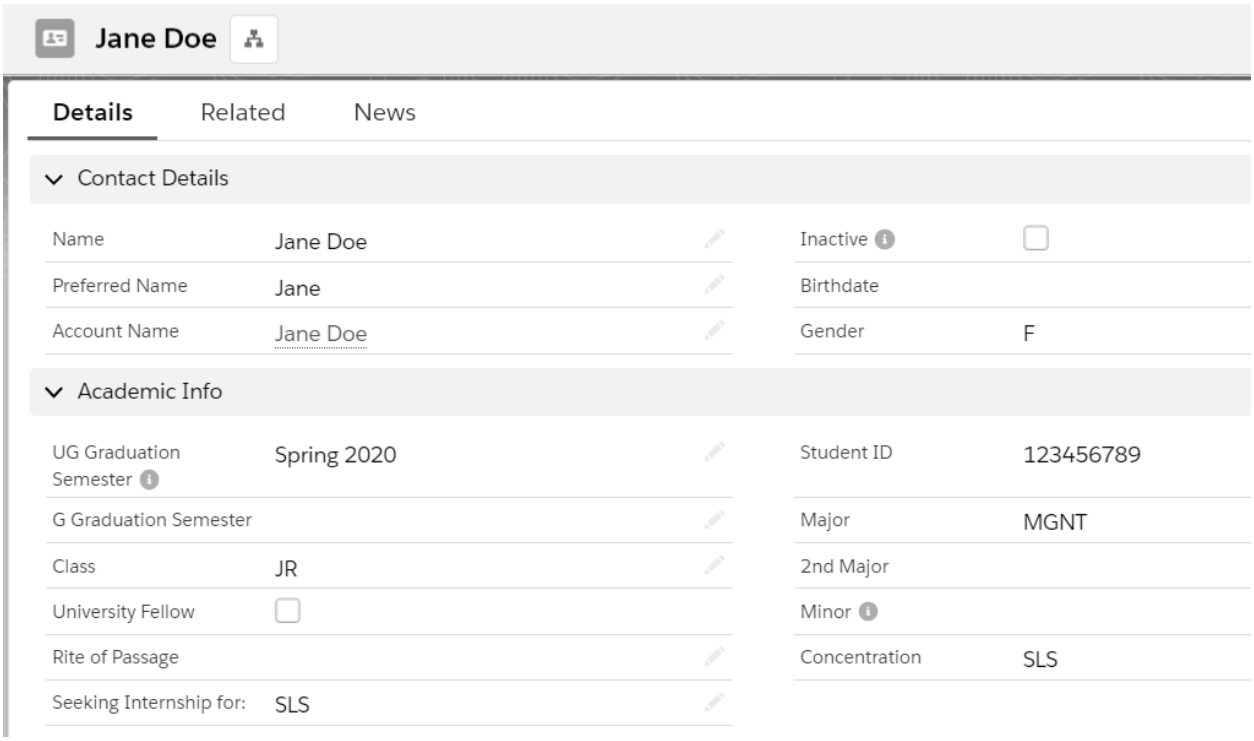


Exhibit 3: Student record within Salesforce



A BRIEF NOTE ON ADVANCED PRACTICES

While expounding upon more advanced capabilities of a Salesforce-enabled internship program is beyond the scope of this article, we will note a few advanced features that a coordinator may find appealing. Certain advanced uses of Salesforce will require the installation of an app – some of which may require payment. It is common for apps to charge by the month and based on the number of users, and we have explored apps costing as little as $1 per user per month to as much as a flat fee of $300 per month. Fortunately, most paid apps offer a free trial period during which a school can use an app to determine if it provides enough value to justifying paying for it. As noted earlier, discounted pricing for nonprofits is often available, as well.

Once an internship match has been made, Salesforce can be used to streamline the paperwork process. For instance, obtaining signatures from the company, student, supervising faculty, etc. can be handled electronically using an app such as DocuSign. DocuSign provides verified, electronic document signing and allows the coordinator to see the status of unsubmitted paperwork (e.g., the student has signed but the sponsor has not). And by residing within Salesforce, the paperwork is automatically associated with the appropriate records.

Salesforce can also assist with paperwork and processes once an internship is complete. Consider the case of a program that requires evaluations from both the providers and students at the conclusion of an internship. Using the Qualtrics app, the coordinator could send brief surveys to sponsors and students. The results of the surveys are stored within Salesforce and can be used to help evaluate internship sponsors over a period of time. For instance, a program may have four companies that routinely provide human resources internships for its students. A review of the ratings from students over the past few years may reveal that one company has been rated consistently lower than the others, suggesting the need for a review of the opportunity with the provider.

SUMMARY OF BENEFITS

Adopting Salesforce as the backbone of an internship program's administration can provide many meaningful short- and long-term benefits. We begin by reiterating that Salesforce can be obtained at no direct cost when limited to 10 or fewer users. Thus, the affordability issue, which many educational institutions face, becomes a non-factor. We

do note, however, that programs with limited technology experience may wish to employ a Salesforce "implementor" to handle the initial setup and customizations.

Another critical benefit of internship administration via Salesforce is the substantial reduction in paperwork. In fact, paper can be eliminated altogether. The paperless benefit extends itself to other benefits, as well. For instance, programs will no longer produce volumes of paper that must be stored in file cabinets or, worse, cardboard boxes that constitute an informal "archives." This leads to a reduction in the use of paper, printer ink, file cabinet, and storage space. Additionally, old files can be scanned and uploaded into Salesforce, freeing up additional cabinet/storage space. Going paperless also has the side benefit of security. Paper filing systems are subject to theft, viewing by parties that should not have access, acts of nature such as fire and water damage, and decaying over time.

With paperwork being online, it becomes much easier to access historical information. We have heard from internship coordinators who, when needing information that is more than a couple of years old, must dig through unorganized paperwork in storage closets. These informal storage practices are even more problematic when a program has been managed by multiple people over the years, and each faculty or staff member had his/her own system for storing and archiving.

As data accumulate within Salesforce over time, an internship program will find itself with invaluable information that can help it improve the program. For example, a program coordinator may want to explore if there is a relationship between successful internship outcomes and certain student-related variables, such as GPA, year in school, or gender. Or the coordinator may wish to determine if employer feedback varies significantly by company industry or a student's major. The possibilities for identifying trends and learning new insights about a program are limitless. Further, data is secure, and changes to records are easily tracked. If a particular user notices a change to a record, such as what majors a company is seeking, that user can look at that field's history to find which user changed this criterion and when.

A Salesforce-based internship program allows all interested parties to see internship statuses in real-time. For instance, a Sales instructor who wants to know where her top student stands in internship discussions with ABC Co. and XYZ, Inc. can see the history of meetings, email exchanges, and current statuses in Salesforce without having to take time from the internship program coordinator or check in with the specific student. Likewise, a staff member wondering if the paperwork he is waiting on was ever sent to the student could find in Salesforce that the forms were sent to the student four days ago. Such conveniences reduce the number of phone calls and emails between interested parties, reducing wasted time and improving operating efficiencies.

Without the aid of a good CRM program, the process of connecting students to internships is highly manual and generally relies largely on the memory and judgment of the internship coordinator. No faculty or staff member is perfect and oversees internships flawlessly, and problems with a human matching all internships and candidates can arise due to employee turnover, days out of the office (e.g., vacation and sick days), and subconscious bias. Rather than having one brain to serve as master matchmaker, it is very rewarding to have an easy-to-use program that matches students and internship opportunities objectively and without bias.

Lastly and related to matching, we note the virtually unlimited application of reports in streamlining internship management functions. From isolating companies that may fit a student's criteria to understanding students' feedback from past internship experiences to identifying which internships are consistently failing to match with a student, reports quickly provide meaningful information to aid coordinators in improving the quality of their programs.

CONCLUSION

As with any new process or technology, a learning curve will apply. New users should spend time exploring Salesforce and, if necessary, taking advantage of its free online tutorials, training, and nonprofit help community. At the least, an internship program adopting Salesforce or any other CRM tool should expect to invest time in learning to use the program to maximize its potential for creating efficiencies. And in some cases, program administrators may wish to incur the expense of hiring a professional implementor or trainer to assist in the process of customizing Salesforce and to provide more formal training to users.

However, for programs willing to invest some time in setting up a CRM tool and learning its features, using a program like Salesforce to manage a business internship program provides institutions with a centralized hub of information, improving communication efficiencies both within and outside the institution. Interested parties can be provided differing levels of access to Salesforce to ensure data integrity while allowing the correct amount of access to the right people. And since appropriate users at the school can check in on internships on their own at any time, it greatly reduces the number of emails and phone calls asking for updates. Serving as a centralized data and "paperwork" repository, all internship documents are easily accessed by all parties and can be retrieved for auditing purposes. Thus, matching students and sponsors becomes a more efficient process that relies on the quality of data input into Salesforce rather than memory or a cumbersome system of paperwork or spreadsheets. Ultimately, Salesforce provides efficiency, accountability, transferability (from one coordinator to another), and ease of use – to name a few of the many advantages of CRM-based internship administration.

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An Integrated Case to Teach Healthcare Reimbursement

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ABSTRACT

Healthcare reimbursement is a significant component of the healthcare revenue cycle and management processes. Many healthcare management programs both at the undergraduate and graduate levels include competencies and outcomes related to healthcare reimbursement. An example healthcare-reimbursement competency is "Manage the use of clinical data required by various payment and reimbursement systems." To teach this competency effectively, educators need to emphasize both the detailed processes and the computational methods for reimbursement. However, often multiple situations related to reimbursement are taught using separate problems without an integrated case. Students often do not make connections between individual problems and have difficulty grasping the myriad aspects of healthcare reimbursement. In this paper, we present an integrated case to teach multiple reimbursement methods and to analyze national healthcare data. Educators have the ability to use different parts of this case in assignments related to healthcare management, healthcare reimbursement, and revenue cycle management, according to the needs of their programs.

Keywords: Healthcare management, healthcare reimbursement, revenue cycle management, prospective payment systems, integrated cases

1. INTRODUCTION

Since healthcare is nearly 18% of the Gross Domestic Product in the United States, there is a significant need for employees trained in healthcare management. In the past five years, many educational programs in healthcare management and/or healthcare administration have been implemented at both the undergraduate and graduate levels in the United States. Healthcare management programs need to teach revenue cycle management and healthcare reimbursement. One of the key competencies for the bachelor's level programs suggested by American Health Information Management Association (AHIMA) are the following (CAHIIM 2018):

- "IV.A.1: Manage the use of clinical data required by various payment and reimbursement systems." (2014 Version of Competencies)
- "IV.3. Evaluate compliance with regulatory requirements and reimbursement methodologies." (2018 Version of Competencies)

Programs need to demonstrate that students are learning the above competency at the appropriate Bloom's taxonomy level to successfully obtain accreditation from the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM). Teaching concepts related to healthcare reimbursement is complex because of the number of different processes used by the Center for Medicare and Medicaid Services (CMS) for reimbursement. CMS typically uses prospective payment systems (PPS) for reimbursing hospitals and other healthcare facilities such as clinics, outpatient surgery units, and skilled nursing facilities. Students need to understand the nuances of different prospective payment systems. For example, the reimbursement processes for Inpatient Prospective Payment System (IPPS) are different from those of Inpatient Psychiatric Facility Prospective Payment System (IPFPPS) and End-Stage Renal Disease Prospective Payment System (ESRDPPS).

An additional complexity in teaching healthcare reimbursement is the need to utilize technology. Many healthcare processes including reimbursement have been significantly transformed by technology in recent years. Typically, spreadsheets (e.g. Microsoft Excel and Google Sheets) have been used to teach reimbursement methods. However, each different technique requires a different spreadsheet technique and a different problem scenario. Textbooks often include different problems to teach each reimbursement technique (Casto and Forrestal, 2015).

Thus, multiple situations related to reimbursement are taught using separate problems without an integrated case. A disadvantage with this approach is that students view individual problems separately and are unable to make connections between individual problems, and have difficulty grasping the myriad aspects of healthcare

reimbursement. An integrated teaching case is defined as one single case scenario that is utilized to teach multiple competencies/learning goals for a significant duration of the course. Typically, integrated teaching cases have the following characteristics:

- One overall case scenario related to an organization and protagonist(s) that presents an authentic, real-world example; further, the same case scenario is used in majority of the course lessons/modules.
- Inclusion of additional details and evolution of the case in each module/lesson to emphasize different learning goals (or competencies) in each lesson.
- Connections among modules/lessons as the case progresses by emphasizing the learning goals and the work completed in the previous lessons for the case.
- Ability for students to compile a portfolio of their work on the integrated case and present it as an exemplar to key stakeholders (e.g. evaluators in a job interview; transfer credit evaluators while seeking other educational opportunities, etc.)

In this paper, we present an integrated case to teach multiple reimbursement methods and to analyze national healthcare data. We are using different aspects of this case in our CAHIIM accredited health information management and technology programs. Educators have the ability to use different parts of this case in assignments related to healthcare management, healthcare reimbursement, and revenue cycle management, according to the needs of their programs.

The rest of this case is organized as follows. Section 2 presents the integrated case centered around a health information management professional grappling with the need to understand and compute healthcare reimbursement for different scenarios. Though this is a fictionalized account, it is based on the clinical, consulting, and teaching experiences of the authors. The authors observed a few health management professionals in the local area hospitals and clinics, and these observations led to the case presented in this paper. Section 3 presents the learning objectives and possible courses in which this case can be used. Section 4 presents solutions for a few questions of the integrated case. Section 5 concludes this paper.

2. SUPER QUALITY HOSPITAL SYSTEM CASE

2.1 Background Information

Super Quality Hospital System (SQHS) is a multi-specialty hospital system located in a suburb near Milwaukee, WI. SQHS has two acute-care facilities, an outpatient surgery center, an inpatient rehabilitation center, five affiliated clinics, and a skilled nursing facility. It has very well qualified physicians, specialists in different specialty areas, experience and well-qualified nursing staff, and adequate administrative staff. SQHS system serves nearly 200,000 patients per year, and the patient volume is expected to grow about 6% per year for the next ten years.

SQHS has been using homegrown clinical information systems (CIS) since its inception in the 1970s. SQHS hired IT and technical staff to develop its own clinical information systems beginning in 1982. The homegrown CIS systems have been functioning well in some areas such as (1) patient in-take; (2) managing patient information including patient history, test results, and medications; (3) patient referrals. However, SQHS lacks a full-fledged Electronic Health Records (EHR) system and its components for managing physician orders, managing results, and making clinical decisions. Many in the organization feel that the clinical information systems they have are legacy systems, and do not compare well with the modern EHR systems such as Epic. Top management in the organization has decided that the CIS system is at least 15 years past the end of its lifecycle.

Another issue at SQHS is that it has a significantly higher rate of coding errors compared to other similar hospital systems in the region. Coding accuracy is one aspect, and SQHS also discovered that coding productivity is low as well. With an increasing number of patients, the workload of everyone including staff continues to rise at SQHS, and the administrative expenses are on the rise as well. SQHS is looking to improve the productivity, efficiency, and accuracy of its internal processes including coding and billing. The coding issues have a direct impact on reimbursement. SQHS is experiencing significant delays in reimbursement compared to the regional competitor hospitals as well as the national averages. One measure that SQHS used to understand the delays in reimbursement is “discharged, not final billed” (DNFB) days. The average DNFB days at SQHS was much higher compared to regional and national averages. The main factor for this is the relatively high number of coding errors and the limited integration of the homegrown CIS systems with the systems that manage the revenue cycle. High coding

errors caused either rejection of claims or forced their staff to check and double-check the codes multiple times to ensure accuracy before billing.

Donna Smith, the CEO of SQHS, Jim Hastings, Senior Vice President, and Katie Cassel, CIO, spent half a day on a fall afternoon reviewing the situation and meeting with key personnel including management and staff. They met with the personnel in the coding department, with key physicians, with nursing staff, and with administrative staff to listen, review and reflect on the problem. One thing was clear: low accuracy, high errors, low productivity, and slower reimbursement meant that they would not be able to sustain the financial health of the organization for too long.

There are two projects that the senior administration --- Donna Smith, Jim Hastings, and Katie Cassel --- considered as the priorities for the next 18 months. Replace the homegrown CIS system with a state-of-the-art EHR system; improve coding accuracy and productivity using automated tools such as Computer Assisted Coding (CAC). The senior administration created a brand new position, Director of Strategic Projects (DSP), who will directly report to the CIO. The primary responsibilities of the director will be to undertake and complete the two projects: implementing a new EHR system and implementing a CAC system. Though they considered hiring someone from outside for the DSP position, they found who they believed to be an excellent internal candidate in Aisha Summers.

Aisha Summers worked at SQHS for nearly a decade. When she started, she had a two-year nursing degree and worked as a nurse. She was very self-motivated, and she obtained a four-year Bachelor's degree in health information management and technology. Within the last two years, she obtained an MBA as well as a certificate in project management. With her background as a nurse and these additional educational qualifications, she has been able to move up in the organization. She is currently filling two roles: nursing supervisor, and manager of quality improvements. Her nursing background enabled her to manage and supervise nurses in terms of scheduling, assigning nurses to various units, and dealing with issues. In her role as manager of quality improvements, which she assumed about a year ago, she has been responsible for projects aimed at improving their processes including the coding process.

Though she has been able to implement some changes to the coding process, it became very clear to Aisha that SQHS lacks adequate technologies to assist in the coding and reimbursement processes. She has been critical of the homegrown CIS system and its deficiencies. When she met with the senior administration, she demonstrated the manual effort that goes into coding, billing and reimbursement processes at SQHS.

Given Aisha's qualifications, experience, work ethic, and deeper understanding of the processes and their shortcomings at SQHS, the senior administration offered the DSP position to Aisha Summers. Aisha Summers accepted the position under the condition that the administration will continue to support bringing in new technologies to improve organizational processes and their efficiency at SQHS.

During the first week in her new role as DSP, Aisha did something unusual. She met with some key staff on an as-needed basis. Instead of the customary "meet and greet" with all departments and staff, she told her secretary to limit her meetings for the week. She gathered a lot of literature on process improvements in healthcare organizations and the latest technologies that are currently in use in hospital systems similar to SQHS. She was especially interested in understanding healthcare reimbursement and how the federal government (Centers for Medicare and Medicaid Services or CMS) reimburses hospitals and clinics for various services.

The first week felt as if she was back in school earning her bachelor's degree. Reading, reading, taking notes, understanding, more reading, and more note taking. Some of the more recent articles she came across were the articles by the Medicare Payment Advisory Commission (MedPac) on different types of prospective payment systems: Inpatient Prospective Payment System (IPPS) are different from those of Inpatient Psychiatric Facility Prospective Payment System (IPFPPS) and End-Stage Renal Disease Prospective Payment System (ESRDPPS). As she reviewed the MedPac sheets summarizing these payment systems (IPPS 2016; IPFPPS 2017; ESRDPPS 2017), she reviewed pictures of the processes related to payment systems. She reviewed the IPPS payment system process diagram.

A few observations she reproduced in her digital diary from the MedPac articles included the following:

- Do my staff need to understand the differences among these payment systems?

- Do my staff utilize technology effectively to compute reimbursement under different payment systems?
- What are the differences between patient and facility level payment adjustments for different systems?
- How do payments change with geographic locations?
- How well do reimbursement processes integrate with revenue cycle management at SQHS?

After what appeared to be an endless week of studying and research, Aisha came out of her office looking for some coffee. She looked at her watch, it is 8 PM, and it is the third Friday of December. Holiday lights are glowing brightly, and she can sense the festive mood while gazing the lights from the large windows in her fifth-floor office. She stared at her research materials and her laptop and thought: "These processes are very complex - no wonder we have issues with reimbursement. … I need to take my mind off this project at least until Monday. Perhaps, I can get a quick sandwich and watch a Christmas movie at home on Netflix ..."

2.2 Case Integration with Payment Systems

On Monday, after returning to work, Aisha called Health Information Management (HIM) staff involved with revenue cycle management at SQHS into her office. She inquired how well they understand CMS reimbursement processes.

Her tone was cordial, but she also indicated that they need to improve the revenue cycle at SQHS and reimbursement is a top priority at SQHS. She designed multiple scenarios and shared them with the staff. Some of these cases were published in the federal register by the CMS (e.g. Federal Register, 2010). Aisha wanted to see how well her HIM staff responsible for revenue cycle management can apply their competencies to the cases suggested in the federal register by the governmental agencies.

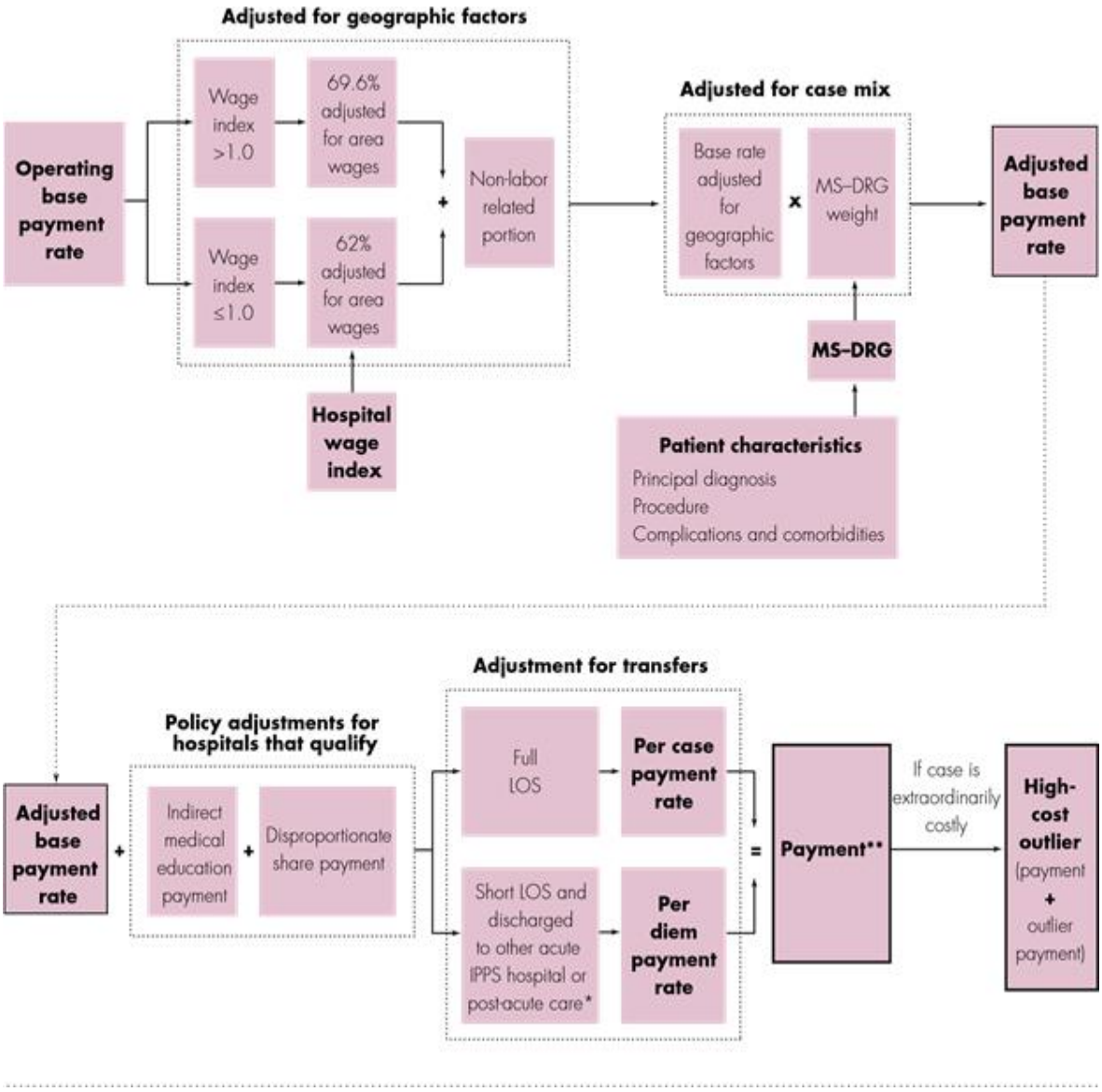


Figure 1. A process Diagram for Reimbursement under the Inpatient Prospective Payment System (IPPS) (Source: IPPS 2016 from MedPac).

IPPS Scenario: Patient John Smith was treated for heart failure and shock with major complexities/comorbid conditions. MS-DRG code is not yet assigned for the encounter. Table 1 provides the details of the encounter for the IPPS scenario.

Table 1: IPPS Patient Scenario for the Integrated Case.

Facility Information		
Bed size: 300 beds	Location: Some City, WI	
Classification: Urban	Wage Index: 0.9806	
Full Service Emergency Department?: Yes		
Patient Claim Information		
Admit Date: February 1, 2014	Discharge Date: February 5, 2014	Patient Length of Stay: 4 days
Patient Age: 64		
MS-DRG Code:	Documentation indicated heart failure and shock with major complexities/comorbid conditions.	

IPFPPS Scenario: A patient Jane Doe was admitted with the principal diagnosis of acute adjustment reaction and psychosocial dysfunction. Table 2 provides the details of the encounter for the IPFPPS scenario.

Table 2: IPFPPS Patient Scenario for the Integrated Case.

Facility Information		
Bed size: 350 beds (not a teaching hospital)	Location: Some City, WI	
Classification: Urban	Wage Index: 0.9806	
Full Service Emergency Department?: Yes	Per diem unadjusted rate (Year 2015): $728.31	
Patient Claim Information		
Admit Date: March 1, 2015	Discharge Date: Mar. 18, 2015	Patient Length of Stay: 17 days
Patient Age: 68		
Principal Diagnosis	Acute adjustment reaction and psychosocial dysfunction	
Secondary Diagnosis (307.1)	Eating and conduct disorders	
Secondary Diagnosis (391.1)	Cardiac Conditions	
MS-DRG Code:		
ECT (Electroconvulsive Therapy) treatments: 90870	Number of units: 5 units	Cost per unit: $313.55 per unit (Year 2015)

ESRDPPS Scenario (Federal Register): Agnes, an 82-year-old female, is 168.02 cm. (1.6802 m.) in height and weighs 62.36 kg. She has longstanding type II diabetes mellitus and was diagnosed with End Stage Renal Disease ESRD in 2008, and has been on HD since that time. Since 2015, she has been receiving outpatient dialysis treatments at a facility that qualifies for the LV adjustment, because it has never had a treatment volume exceeding 4000 treatments since it opened in 2005. On April 1, 2015, Agnes was hospitalized with bacterial pneumonia and remained hospitalized until April 6. She resumed outpatient dialysis on April 10. Agnes was declared free of bacterial pneumonia on May 5, 2015, after post-hospitalization treatment with antibiotics. The facility submitted monthly claims for dialysis treatments. For dialysis treatments given to Agnes during the month of April, the facility reported the co-morbidity of bacterial pneumonia. Assume a wage-index of 0.9560 and a base payment rate of $239.21. Assume the PM (Payment Modifier Multiple) for LV adjustment is 1.189. Assume a national average body surface area (BSA) of 1.87.

2.3 Case Questions

You are a member of the revenue cycle management staff at SQHS and Aisha Summers asked you to address the following questions for the case scenarios.

Question 1: For the IPPS scenario, assume FY 2014 Operating Base Payment Rate of $6078. Documentation indicated heart failure and shock with major complexities/comorbid conditions. What is the MS-DRG code will you assign based on the documentation? Using the MS-DRG code that you selected, compute the IPPS reimbursement amount. How will the reimbursement amount change if the location's wage index changes to 0.9582?

Question 2: Based on the above documentation, what MS-DRG code will you assign to this case? Compute the IPFPPS reimbursement amount for the above scenario. How will the reimbursement amount change if the location's wage index changes to 0.9582? How will the payment change if the secondary diagnosis "Cardiac Conditions" (391.1) does not exist for the patient?

Question 3: Agnes received dialysis for a total of 20 days in April 2015. Compute the ESRDPPS payment. What comorbid condition(s) will you use in arriving at the payment? If Agnes's weight increases to 69.80 kg, how will the payment change?

Question 4: To understand the payment systems better, Aisha asked you to compare and contrast different payment systems. She constructed the following table, Table 3, and asked you to fill out the table indicting the differences among the payment systems. How would you fill this table?

Table 3: Distinguish IPPS, IPFPPS, and ESRDPPS using Case Data, Codes, Patient, and Facility Characteristics.

	IPPS Payment Process	**IPFPPS Payment Process**	**ESRDPPS Payment Process**
Type of code used to determine the payment and the process by which the code is arrived at (write a few sentences for the process)			
Patient data that must be presented with the claim			
Facility level adjustments			
Patient level adjustments			
High cost outlier payment process, if applicable (write a few sentences for the process)			
Other adjustments, if any			

Question 5: Aisha Summers is interested in finding out whether SQHS is receiving payments for the above scenarios comparable to those received by the regional hospitals. She is well aware that CMS publishes hospital reimbursement data every year by DRG codes. She asked you to conduct research and download the files with hospital reimbursement data from CMS. She also asked you to compare the reimbursement amounts for the above scenarios with the reimbursement amounts paid to the regional hospitals in the area that are competitors to SQHS. Prepare a brief report comparing the SQHS reimbursement amounts with those of the competitor reimbursement amounts.

Question 6: What techniques and technologies did you use to address the previous questions? How do technologies help with automatic computations of reimbursement amounts? How does the analysis in Questions 1 through 5 help Aisha in implementing new technologies and processes for helping improve reimbursements at SQHS? What role do reimbursement processes play in healthcare revenue cycle management?

3. LEARNING OBJECTIVES & RELEVANT COURSES

After successfully completing this case, students will be able to:

1. Identify and differentiate various types of Medicare and Medicaid prospective payment systems.

2. Apply principles of reimbursement and compute reimbursement amount for Hospital Acute Care Inpatient Prospective Payment System (IPPS) under federal government rules.
3. Apply principles of reimbursement and compute reimbursement amount for Inpatient Psychiatric Facility Prospective Payment System (IPFPPS) under federal government rules.
4. Compute reimbursement amount for End Stage Renal Disease Prospective Payment System (ESRDPPS) using federal government regulations.
5. Evaluate the impact of factors such as geography, patient characteristics, and facility characteristics on reimbursement amounts under different systems.
6. Utilize technology tools to identify the data needed and arrive at reimbursement for practical scenarios.
7. Compare and contrast reimbursements and payments for a given scenario with the payments received by comparable hospitals and healthcare facilities.
8. Explain the role of reimbursement in revenue cycle management.

Relevant Courses

This case has been assigned to students in a healthcare billing, coding and reimbursement course taught at the junior-level (undergraduate) within an online classroom setting. Parts of this case have also been used in graduate-level courses on healthcare management and healthcare technologies. The learning objectives of this case make it a very effective case for a variety of courses ranging from healthcare billing, healthcare reimbursement, to healthcare management and revenue cycle management. This case is not appropriate for freshman students as prerequisite knowledge on healthcare processes and reimbursement techniques is needed.

4. SAMPLE SOLUTIONS

In this section, we provide sample solutions for the first two questions of the case.

Solution to Question 1: The following figure (Figure 2) shows solutions for question (1) of the case. A detailed spreadsheet with computations will be made available upon request.

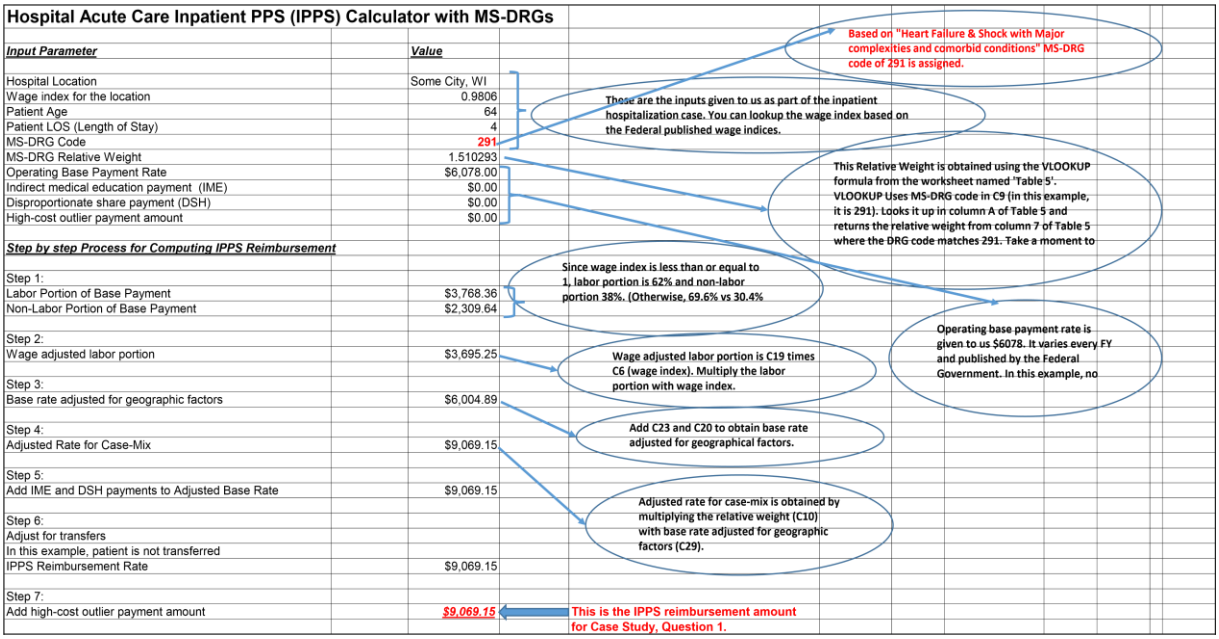
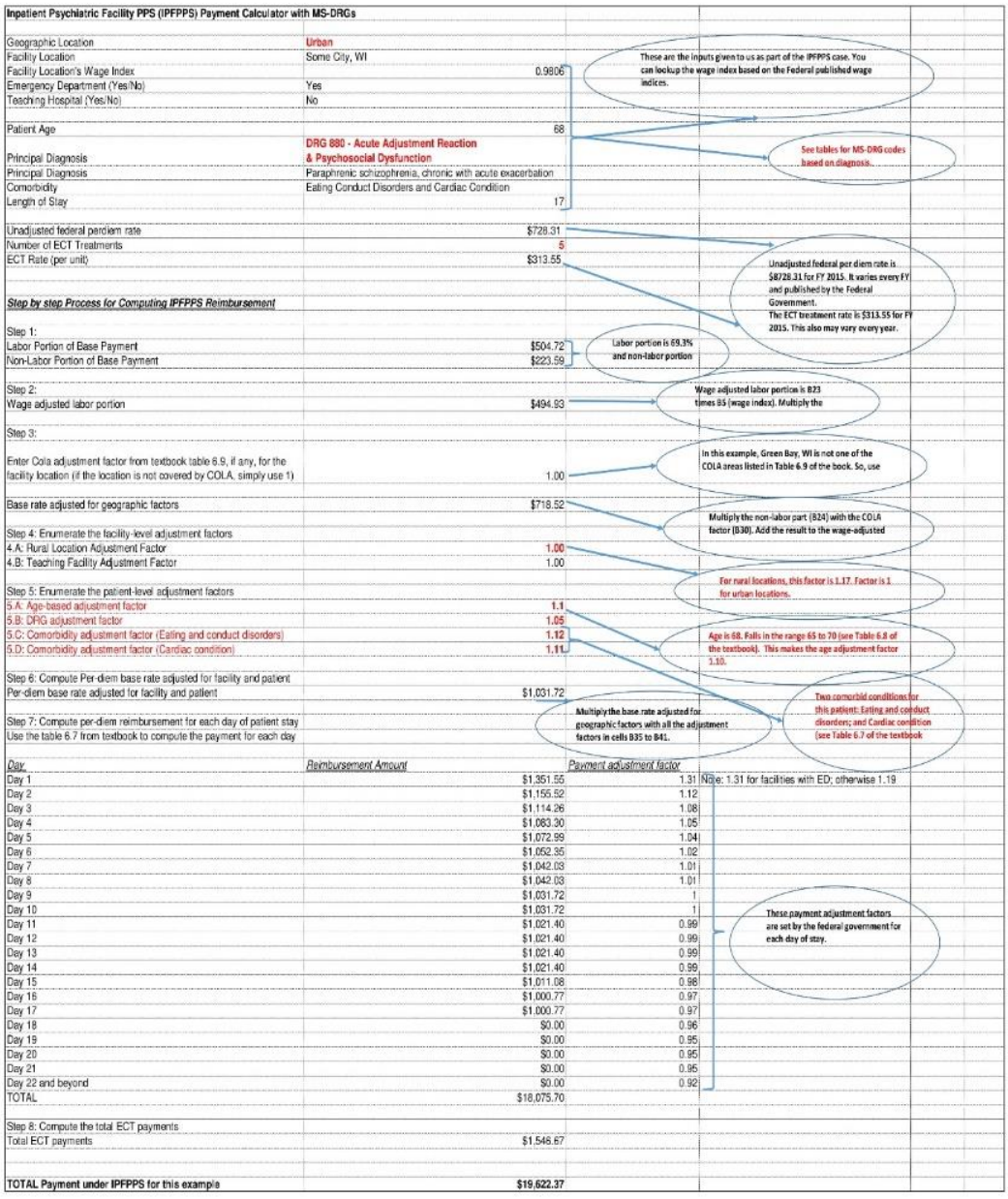


Figure 2: Solution to Question 1 of the Case.

Solution to Question 2: The following figure (Figure 3) shows the solution for Question (2) of the case. A detailed spreadsheet with computations will be made available upon request.



Inpatient Psychiatric Facility PPS (IPFPPS) Payment Calculator with MS-DRGs			
Geographic Location	Urban		
Facility Location	Some City, WI		
Facility Location's Wage Index		0.9806	
Emergency Department (Yes/No)	Yes		
Teaching Hospital (Yes/No)	No		
Patient Age		68	
Principal Diagnosis	DRG 880 - Acute Adjustment Reaction & Psychosocial Dysfunction		
Principal Diagnosis	Paraphrenic schizophrenia, chronic with acute exacerbation		
Comorbidity	Eating Conduct Disorders and Cardiac Condition		
Length of Stay		17	
Unadjusted federal perdiem rate		$728.31	
Number of ECT Treatments		5	
ECT Rate (per unit)		$313.55	
Step by step Process for Computing IPFPPS Reimbursement			
Step 1:			
Labor Portion of Base Payment		$504.72	
Non-Labor Portion of Base Payment		$223.59	
Step 2:			
Wage adjusted labor portion		$494.93	
Step 3:			
Enter Cola adjustment factor from textbook table 6.9, if any, for the facility location (if the location is not covered by COLA, simply use 1)		1.00	
Base rate adjusted for geographic factors		$718.52	
Step 4: Enumerate the facility-level adjustment factors			
4.A: Rural Location Adjustment Factor		1.00	
4.B: Teaching Facility Adjustment Factor		1.00	
Step 5: Enumerate the patient-level adjustment factors			
5.A: Age-based adjustment factor		1.1	
5.B: DRG adjustment factor		1.05	
5.C: Comorbidity adjustment factor (Eating and conduct disorders)		1.12	
5.D: Comorbidity adjustment factor (Cardiac condition)		1.11	
Step 6: Compute Per-diem base rate adjusted for facility and patient			
Per-diem base rate adjusted for facility and patient		$1,031.72	
Step 7: Compute per-diem reimbursement for each day of patient stay			
Use the table 6.7 from textbook to compute the payment for each day			
Day	*Reimbursement Amount*		*Payment adjustment factor*
Day 1		$1,351.55	1.31
Day 2		$1,155.52	1.12
Day 3		$1,114.26	1.08
Day 4		$1,083.30	1.05
Day 5		$1,072.99	1.04
Day 6		$1,052.35	1.02
Day 7		$1,042.03	1.01
Day 8		$1,042.03	1.01
Day 9		$1,031.72	1
Day 10		$1,031.72	1
Day 11		$1,021.40	0.99
Day 12		$1,021.40	0.99
Day 13		$1,021.40	0.99
Day 14		$1,021.40	0.99
Day 15		$1,011.08	0.98
Day 16		$1,000.77	0.97
Day 17		$1,000.77	0.97
Day 18		$0.00	0.96
Day 19		$0.00	0.95
Day 20		$0.00	0.95
Day 21		$0.00	0.95
Day 22 and beyond		$0.00	0.92
TOTAL		$18,075.70	
Step 8: Compute the total ECT payments			
Total ECT payments		$1,546.67	
TOTAL Payment under IPFPPS for this example		**$19,622.37**	

Figure 3: Solution to Question 2 of the Case.

Solutions for additional questions in the case will be made available by the authors upon request.

CONCLUSION

Healthcare management is emerging as a significant discipline within Business Management. Integrated cases have been shown to be effective in teaching in various business disciplines such as Economics (Boyte-Eckis, 2017; Carrell and Manchise, 2016). In this paper, we presented an integrated case on reimbursement processes in healthcare revenue cycle management. Often, teaching these reimbursement processes is complex and requires considerable effort because the processes are quite different from one prospective payment system to another. Without an integrated case, students often lose the larger objectives of healthcare revenue cycle and reimbursement processes. Good textbooks exist in healthcare reimbursement (Casto and Forrestal, 2015); however, they do not have integrated cases. We developed the integrated case presented in this article based on our teaching experience in health information management programs and clinical experience serving patients in an urban healthcare setting. This case is comprehensive and addresses several key objectives of healthcare reimbursement that prestigious agencies such as CAHIIM include in their accreditation criteria. The integrated case presented in this paper uses one overall real-word scenario and provides additional details for different lessons focusing on different reimbursement methods. It also connects multiple lessons by emphasizing learning outcomes and work done in the previous lessons to the current lesson. Students can use the work they completed for the integrated as part of their portfolio of projects during job interviews. This case can be adapted in its entirety or in different parts to several courses in healthcare reimbursement, healthcare management, healthcare technologies, and revenue cycle management both at the undergraduate and graduate levels.

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Collegiate Online Education for Accounting: A Boon or A Fallacy?

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ABSTRACT

This paper is on an accounting education area that is transforming the landscape of US higher education including accounting education; the significance of this paper on collegiate online education for accounting (COEA) is enhanced by the paucity of accounting research in this area. Online education (OE) is characterized as a tsunami and a disruptive innovation for US higher education. This paper contributes to knowledge on contemporary accounting education and research through its review of COEA/OE literature and an evaluation of its central purpose of addressing whether COEA is a boon or a fallacy as well as through its conclusions and recommendations. The paper concludes that COEA, the "second curve" (Handy 2015a) of accounting education, is taking off and offers immense opportunities to contemporary accounting education and may pose grave risks if these opportunities are not availed.

Keywords: accounting education, online education, student-learning, pedagogy, blended learning

1. INTRODUCTION

The internet and other information and communication technologies (ICT) and their applications are major disruptive innovations (Christensen, Raynor & McDonald 2015; Handy 2015a; Regaldo 2012) in our time. They are transforming the world and higher education including accounting education (AICPA 2014; Anderson, Boyles & Rainie 2012). This transformation is resulting from innovations like online education (OE) (Avent 2017; Christensen & Eyring 2011; Goodman, Melkers & Pallais 2019; Wilcox, Sarma & Lippel 2016) that have been characterized as a tsunami of higher education (Brooks 2012). Calls for reforming accounting higher education have come from accounting profession as well as academy (AICPA 2014; Behn et al. 2012). However, critics believe that the environmental pressures on collegiate accounting education in the US are exacerbating and that accounting education has not responded effectively to these challenges so far (Behn et al. 2012; Pincus et al. 2017; Sarosh & Krahel 2017). Collegiate online education for accounting (COEA) may represent a candidate for "opportunities for renewal" (Behn et al. 2012, 598) for current theory and practice of accounting education, as explored in this paper.

The above discussion of the potential impact on accounting education of OE and other environmental pressure highlights the importance and urgency of research on this area. However, despite this urgency there is a shortage of research on this facet of accounting education, as would be evident from the following observations by the scholars in this area. Chen, Jones & Moreland (2013, 2) states that "much of the research about online education is in liberal arts, with relatively fewer studies having been performed with respect to technical topics such as accounting." Arbaugh (2010, 111) contends that in "the research on online teaching and learning… 'hard' disciplines [including accounting] of the business school…have substantially less research activity". Duncan, Kenworthy & McNamara (2012, 434) asserts that "while the practice of using Internet-based classroom environments continues to rise, research in this area is lacking".

Thus, there is an urgent need for prioritizing this area on accounting research agenda; this paper aims to take a step in the direction of this important research agenda. Specifically, this paper comprises a literature review of COEA/OE in the US that addresses its thesis or central purpose: is COEA a boon or a fallacy? There are five parts of the paper. The next part discusses OE/COEA in US higher education, taking an inside-out slant to OE/COEA outside the US. Against the backdrop of the discussions in the previous parts, the third part provides an evaluation of this literature review's central purpose of addressing whether COEA is a boon or a fallacy. The fourth part comprises conclusions, contribution and limitations, and recommendations. Concluding remarks appear as the last part of the paper.

2. OE/COEA IN THE US HIGHER EDUCATION

This part of the paper is divided into four sections: (1) nomenclature in OE practice and literature, (2) the state of OE, (3) COEA in the US, and (4) MOOC and related initiatives.

2.1. Nomenclature in OE Practice and Literature. What, then, is online education? There is no consensus on a definition of OE (Anderson 2008; Means et al. 2014). Many terms are used currently to describe OE, at times

interchangeably (e.g., online learning, E-learning, ICT-mediated learning) and other times to describe a type of education which is akin to OE but different in some respects (e.g., education employing limited online learning resources). Regarding the distinction between OE and online learning, many scholars contend that the term online learning emphasizes the *learning* focus of online learning/teaching. However, in common parlance the term 'online education' is used as the term which subsumes both 'online learning' and 'online teaching'. This paper follows this tradition.

Based on the above discussions and descriptions of OE given by various scholars, this paper defines OE as follows: OE is a progeny of distance education that (1) uses ICT (Anderson 2016; Franklin, ed., 2017) as appropriate, (2) employs learning sciences/engineering (Harasim 2017; Wilcox, Sarma & Lippel 2016), and (3) is pure online (PO) (which is delivered 100% online), or blended (hybrid that is delivered 25% to 'less than 100%' online), and differs from contemporary face-to-face (F2F) education (less than 25% online). Hence this paper classifies OE, and COEA, in binary terms as either (1) F2F courses (that are less than 25% online) or (2) OE courses that are 25% to 100% online. OE is further subdivided into two parts: (1) 100% or pure online (PO) and (2) blended learning (BL). Thus, a blended course that is say 50% online will be classified as OE/COEA. It may be noted that there is a range of differences in OE terminology, especially regarding blended learning (Arbaugh 2010; Castro 2019; Picciano & Dziuban, eds. 2007). (For further exploration of BL see Castro 2019, and Picciano & Dziuban eds. 2007.)

2.2. State of OE. As indicated earlier, OE has entered a stage that has prompted some scholars to equate it to a tsunami in higher education (Brooks 2012). Despite a declining or at best a flat enrollment in F2F, OE is on the rise and public institutions have seen the most recent gains (Allen and Seaman 2016; Friedman 2018; Lederman 2018). Friedman (2018) notes that "enrollment in online courses rose at a faster pace between fall 2015 and 2016 …More than 6.3 million students …took at least one online course in fall 2016… Two-thirds of all online students enroll in … public schools". Lederman (2018) observes that "number and proportion of college and university students taking classes online grew solidly in 2017, as overall postsecondary enrollments fell…a third of all students now take at least one online course… proportion of all students who were enrolled exclusively online grew to 15.4 percent". Some insightful statistical information on the worldwide OE market is reported by Statista: "[This] market worldwide is forecast to surpass 243 billion U.S. dollars by 2022…A considerable share of faculty worldwide has shown willingness to support less traditional and digital education models …Students have also shown willingness to embrace digital learning technologies…and practices" ("Statista/E-learning and Digital Education" Website). Gardner (2019) points out that "[Mega Universities] Southern New Hampshire… Liberty, Grand Canyon, and Western Governors Universities, along with a few other nonprofit institutions, have built huge online enrollments and national brands in recent years". Many for-profit universities, for instance the University of Phoenix, also offer PO degree programs.

2. 3. COEA in the US. A major overhaul of accounting higher education was recommended recently by the *Pathways Commission on Accounting Higher Education*. Their final report concluded that "vital programs, courses, and approaches require systematic attention to curriculum, pedagogy, and opportunities for renewal" (Behn, et al. 2012, 598). COEA represents such an opportunity for the accounting academy and leadership today. Numerous US colleges and universities offer blended COEA, while numerous have 100% online accounting programs. Some examples (non-exhaustive) of US institutions offering PO collegiate accounting education appear next. The University of Illinois offers "a top three Master of Science in Accountancy [which is] 100% online" (iMSA/About). Indiana University's master's in accounting is another top-ranked PO M.S. in Accounting (edx.org). Besides, several other state universities also offer PO accounting programs, both graduate and undergraduate. Western Governors University, a nonprofit 100% online university employing a competency-based approach, offers a bachelor's and master's in accounting, and so does the University of Phoenix. COEA is evolving gradually in the US, as evidenced by the findings of a survey conducted during "2017 meeting of the Accounting Program Leadership Group (APLG) of the AAA". These findings are: "six schools initiated online degree programs… [five of these] report their online programs as a significant source of new revenue. Five additional schools plan to offer new online programs in the next year or two…. Nine schools initiated new certificate programs" (Pincus et al. 2017, 10-11). A corroboration of these findings on COEA comes from the study by the "AICPA Taskforce on Future of Learning" (AICPA 2014) that found that "[50%] of students believe they don't need a physical classroom to learn…[39%] view the future of education as being more virtual" (p. 4). However, they also found that "78% of students still believe that it's easier to learn in a traditional classroom than online" (p. 5).

2.4. MOOC and related initiatives. MOOC (Massive Open Online Courses) provide "free large-scale [digital] distance learning" (Losh, ed., 2017, 1) that employs ICT and diversified ways and interactions for facilitation/learning. They have existed for about a decade and came to limelight when Stanford University offered a free MOOC on AI in 2011 that had an initial enrollment of 160,000, later dropping to 45,000, from 190 countries (Means et al. 2014). The caliber of the students in this course was high, with "the distribution of points for online and Stanford students as being overall quite similar" (Means et al. 2014, 56). A new venture Udacity established in 2012 offers "nanodegrees" in ICT and other areas. Another venture Coursera was established in 2012 to offer the online "access to the world's best education, partnering with top universities [e.g., Illinois, Penn and Stanford] and organizations to offer courses online" (Coursera/About). Another prestigious milestone for MOOC reached in May 2012 (Majcher 2015) when Harvard University and MIT formed edX "to increase access to high-quality education for everyone, everywhere" (Goulart 2016).

The popularity and potential of MOOC prompted *New York Times* to name 2012 as the "Year of the MOOC" (Pappano 2012, quoted in Means et al. 2014, 55). Subsequent experience with MOOC has been a mixed bag, however. On the one hand, some scholars conclude that "the future of MOOCs may lie in other types of learning rather than providing entire courses" (Picciano 2019, 50, referencing observations of the authors of a University of Pennsylvania study on MOOC). On the other hand, MOOC continue to live; for instance, several high-ranked institutions (e.g., Georgia-Tech) are offering MOOC-based accredited master's programs in computer science. Pincus et al. (2017, 9) provides additional examples of employment of MOOC in contemporary higher education, including "MITX's Micromasters", Arizona State University's ''Global Freshman Academy'', and "Harvard Business School's HBX…a proprietary [interactive] online platform". Credentialing of MOOC courses has been an issue for them since their inception, though it is ameliorating gradually (Mehta et al. 2013). Another drawback of MOOC is their high drop-out rates, which are to some extent a result of their open-enrollment policy giving students a chance to explore the area with little risk-sharing. Lucas (2016) "[views] MOOCs as the utility infielder of education." (See Losh, ed., 2017, and Picciano 2019 for detailed accounts of MOOC.)

A related development in "democratization" of education was the establishment of nonprofit Khan Academy in 2006 (Khan 2012). The goal of Khan Academy is to make "world-class" courseware comprising videos and software on a variety of subjects as a "personalized learning resource for all ages" (Khan Academy/About). Another development in this area is MIT's Open Course Ware (OCW) initiative to globally offer MIT courses free-of-charge; other universities (e.g., Carnegie-Mellon University) followed suit. The next part of the paper comprises the evaluation.

3. EVALUATION: IS COEA A BOON OR A FALLACY?

This part addresses the paper's central purpose of evaluating findings and viewpoints on whether COEA is a boon or a fallacy; conclusions based on this evaluation are presented in the paper's next part. Quality education is undoubtedly the prime goal of higher education in any form or delivery mode and a basic test of its efficacy and accountability to stakeholders. What, then, is quality education? There is no consensus on a definition of quality education as "quality is a subjective concept…open to interpretation" (McCroskey et al. 2011, 231). According to Parker (2008, 307) "quality necessarily rests in the eye of the beholder [stakeholders]". This paper defines quality education as education that conforms to or exceeds the expectations/specifications of the stakeholders-students, employers, educational institutions, government, and the society at large. The evaluation in this part is divided into four sections based on the criteria affecting education quality adapted from 'Sloan-C quality framework' (McCroskey et al. 2011; Means et al. 2014): (1) learning outcomes (LO), (2) access, (3) cost/equity, and (4) employers' perceptions.

3.1. Learning Outcomes. Student-learning is the focal point of accounting education (Abraham 2008; AICPA 2014). Accordingly, assessment and enhancement of perceived LO become the *sine qua non* and the litmus-test of such education (AACSB International 2018). According to Schaefer & Stevens (2016, 19), "the learning goals [*ex ante* measures set at curriculum planning stage] are linked to 'measurable learning outcomes' [*ex post* measures, e.g., test scores and course grades], which can then support an assessment of learning goal achievement". The ultimate role of this area in education quality should be the enhancement of LO (McCroskey et al. 2011) by closing-the-loop through feedback and feedforward. Since its inception distance education, the forebear of online education, is criticized as achieving lower quality LO than F2F (Parker 2008). OE inherited this feature of its antecedent (Deming et al. 2015; Means et al. 2014). "Equivalency Theory recognizes that the *method* of attaining the knowledge may be different…however, learning outcomes should be equivalent" (Chen et al. 2013, 3). However,

there is a controversy surrounding this position and thus findings from prior research on this area become important and are discussed next in this section, which is sub-divided into two sub-sections: (a) LO of COEA/OE are superior to or at least equal to F2F LO, and (b) LO of COEA/OE are inferior to F2F LO. Empirical research studies in COEA are "relatively few" (Chen et al. 2013, 1). Accordingly, this part of the paper describes and evaluates both the empirical research in accounting (COEA) and in other disciplines (OE); related observations from some relevant descriptive research appear here also.

3.1.1. LO of COEA/OE are superior or at least equal to F2F LO. There are three subdivisions in this sub-section: (1) research in accounting, (2) research in other business disciplines and (3) research in non-business disciplines.

3.1.1.1. Research in accounting. Some COEA studies have indicated that BL may be a better modality than F2F in achieving LO (Dowling, Godfrey & Gyles 2003; Du 2011; Jones & Chen 2008). A study by Chen et al. (2013) had mixed findings but indicated that "blended learning, i.e., offering a few on-campus class meetings for a predominately online course, may be desirable regardless of course level" (p. 1). A recent study of two accounting courses delivered in OE (BL and PO) and F2F modalities found that OE "outperformed" F2F in both the courses: "Intermediate Accounting III students in the online and hybrid modes significantly outperformed students in the face-to-face mode. Auditing students in the online mode significantly outperformed students in the…[other] modes. The findings lend support for the legitimacy of online accounting education" (McCarthy et al. 2019, 26).

However, there is a stronger evidential support for "no significant difference" (NSD) in LO of COEA and F2F from numerous accounting studies (Basile & D'Aquila 2002; Chen and Jones 2007; Chieu et al. 2014; Dereshiwsky & Rich 2011; Dunbar 2004; Gagne & Shepherd 2001, quoted in Chen et al. 2013, 3; Keller et al. 2009; Watters and Robertson 2009). (For an elaboration of NSD in this context, see Clark 1994 and "No Significant Difference/About" Website.) Many accounting studies have shown that online learning tools/environment are more effective in achieving LO than the manual paper-based systems (Arbaugh 2010; Basioudis and de Lange 2009; Massoudi et al. 2017). In his literature review of COEA research in this area, Arbaugh (2010, 112-117) reports and opines that "comparison studies in accounting show…. [that] performance outcomes generally are comparable with those of classroom-based courses…. There is evidence supporting the use of online tools and content in accounting courses.… and that accounting could be taught online".

3.1.1.2. Research in other business disciplines. Following is an account of some OE research in non-accounting business disciplines. In their multi-disciplinary study comparing BL and F2F, Klein et al. (2006) "found that blended learners…had a higher motivation to learn…[which] was associated with course outcomes" (Arbaugh et al. 2009, 81). Arbaugh et al.'s review of OE research in business disciplines concludes that "outcome comparison studies with classroom-based learning…suggest generally that online courses are at least comparable to classroom-based courses in achieving desired learning outcomes, while there is divergence in findings of comparisons of other course aspects" (Arbaugh et al. 2009, 1). (See Arbaugh (2010) and Arbaugh et al. (2009) for a detailed literature review of OE in accounting and other business disciplines.)

3.1.1.3. Research in non-business disciplines. The research base on OE in non-business disciplines is richer and broader than OE research in business disciplines and is described next. Means and her colleagues at SRI performed a well-regarded meta study (Means et al. 2013; US Department of Education 2010), commissioned by the US Department of Education, comprising 1132 articles published between 1996 and 2008. They found that OE "on average produces stronger student learning outcomes than learning solely through face-to-face instruction…studies of blended instruction found a larger advantage relative to face-to-face instruction than did studies of purely online learning" (Means et al. 2013, 29). A meta study of BL and CI (Classroom Instruction) conducted by Bernard et al. (2014) found "that, in terms of achievement outcomes, BL conditions exceed CI conditions by about one-third of a standard deviation" (Bernard et al. 2014, 87). Other comparative studies in non-business disciplines too have indicated that BL may be a better modality than F2F for achieving LO (Castro 2019; Lopez-Perez et al. 2011; Vo, Zhu, & Diep 2017).

Wilcox, Sarma & Lippel, the authors of the MIT's Online Education Policy Initiative (OEPI) Report, find (2016, x) "that blended learning can enhance learning, and requires reorganizing the learning experience to apply the different strengths of online and face-to-face learning". They also "conclude that there are a number of significant and unique affordances provided by online education. These affordances allow for customization of learning, remote

collaboration, just-in-time scenarios, continuous assessment and blended learning" (Wilcox, Sarma & Lippel 2016, ix). A meta study by Lack that extended Means et al.'s aforementioned study comprised a literature review of approximately 30 comparative studies "that were not included in the DOE meta-analysis and that satisfy a set of basic criteria" (Lack 2013, 9). The conclusion of this study is that "a holistic look at the literature assembled…yields little, if any, evidence to suggest that online or hybrid learning, on average, is more or less effective than face-to-face learning" (Lack 2013, 11). Similarly, another meta study found that "there is robust evidence to suggest online learning is generally at least as effective as the traditional format" (Nguyen 2015, 309). Besides, many other comparative studies too in non-business disciplines have indicated NSD in LO of OE and F2F. (For detailed reviews of the comparative studies in non-business disciplines see: Bernard et al. 2014; Bowen et al. 2015; Lack 2013; Means et al. 2013; Nguyen 2015; Sitzman et al. 2006; U.S. Department of Education 2010.)

3.1.2. LO of COEA/OE are inferior to F2F LO. Some accounting studies have indicated that COEA may be inferior to F2F modality at achieving LO (Schwartz 2012; Varmosi et al. 2004, quoted in Chen et al. 2013). (For a description of some non-accounting studies in this category, see Chen et al. 2013, 2-4). Several studies have shown that in achieving LO online learning tools are at best equal to the manual paper-based systems (e.g., Hahn et al. 2013). A criticism of OE comes from "the interpretations made by Figlio, Rush & Yin (2010) and Jaggers (2011) that low-income, less well-prepared students, Hispanics, and males may suffer when courses are taught online" (Means et al. 2014, 71). For this demographic category, Means et al. (2014, 164) "believe that blended learning approaches…will be the preferred strategy for developmental and alternative education". A meta study that softens the findings that LO of COEA/OE may be inferior to that of F2F is Nguyen (2015) which found that "compared to the number of studies that found positive or no significant effects for student learning outcomes in the online format, the number of studies that found mixed or negative significant effects is much smaller, by a full order of magnitude" (Nguyen 2015, 313).

3.2. Access. Access to higher education increases the student enrollment (Goodman et al. 2019) and has many dimensions. One such dimension is the convenient availability of high-quality education to students, which PO provides "anytime anywhere", at times almost free (e.g., MOOC, Khan Academy, and OCW). Another dimension of accessibility is access to learning by students with disabilities, made possible by methodologies like "UDL" (Scott, Temple & Marshall 2015) and elimination of physical barriers; both OE and F2F fare well on this criterion albeit in different manners. Students' affordability of education is another dimension of access and links to the costs (e.g., tuition) charged to them for courses/programs. This dimension becomes important given the increasing trend of rising tuition, which as pointed by Picciano (2019, 70) "has surpassed state funding as the main revenue source in public higher education". This burden of rising tuition has led to an alarming growth in student-debt which has now exceeded the consumer debt and totals over $1.5 trillion dollars. OE fares better than F2F on this dimension.

Personalization of education is yet another dimension of accessibility and has different connotations in F2F and OE. F2F interactions between and among instructor-students and students-students within the confines of brick-and-mortar places of learning represent a very strong feature of F2F modality. Some scholars feel that this feature of F2F nurtures personal, social, and professional developments of learners in a manner that has no counterpart in "impersonal" OE. Picciano (2019, 132) narrates that "Drew Faust, the [then] president of Harvard University…made it clear that 'residential education cannot be replicated online' and stressed the importance of physical interaction and shared experiences". On the other hand, proponents of OE contend that an educational environment is a "community of inquiry…[where] a sense of being (i.e., presence) is created through interpersonal communication" (Garrison & Akyol 2013, 106). The proponents also maintain that adoption of VR/AR and similar technologies in business education is mitigating this factor. They also assert that OE offers a unique opportunity "to help people understand and do things that would otherwise be difficult or impossible to learn. Digital models, simulations, and animations can make abstract concepts visual, concrete, and manipulable" (Means et al. 2014, 180). Adaptive learning using ITS (Castro 2019) will be another example of this feature of OE.

3.3. Cost/equity. There is no denying the benefits of higher education in the form of a person's "self-development" (Whitehead 1967) and a potential for enhancement of lifetime earnings and job growth for the individual as well as the benefits for the society of higher economic growth and upward social mobility (Gordon 2017; McMahon 2009).

However, the US higher education is witnessing a continual rise in its costs that is challenging the net benefits of higher education (NCES Digest of Education Statistics 2017):

> For the 2016–17 academic year, annual current dollar prices for undergraduate tuition, fees, room, and board were estimated to be $17,237 at public institutions, $44,551 at private nonprofit institutions, and $25,431 at private for-profit institutions…Between 2006–07 and 2016–17, prices for undergraduate tuition, fees, room, and board at public institutions rose 31 percent, and prices at private nonprofit institutions rose 24 percent, after adjustment for inflation. The price for undergraduate tuition, fees, room, and board at private for-profit institutions decreased 11 percent between 2006–07 and 2016–17, after adjustment for inflation.
>
> ("NCES Digest of Education Statistics 2017" Website)

This trend of rising costs has led to an unprecedented student-debt of over $1.5 trillion dollars, as indicated earlier, and has raised questions of equity in the society. Some scholars have extended the equity concept to include equality, say income inequality, from a societal viewpoint (McMahon 2009). Equity/access to students worldwide who cannot afford or otherwise obtain high-quality education and "lifelong learning" (AICPA 2014) is the reason cited often (Goodman et al. 2019) by the faculty and institutions supporting "democratized" and other PO offerings.

Can OE "bend the cost curve"? (Deming et al. 2015). According to Deming et al (2015, 496), there is "some hope that online technology can 'bend the cost curve' in higher education". Based on their research, Deming et al (2015, 496) conclude *"*that colleges with a higher share of online students charge lower tuition prices…[and] present evidence of declining real and relative prices for full-time undergraduate online education from 2006 to 2013." A case in point is Georgia-Tech's "Online Master of Science in Computer Science" that costs $7,000 or about 16% of its F2F counterpart, while both degrees are granted as MS in Computer Science (Goodman et al. 2019). Besides, "anytime anywhere anyway" (AICPA 2014) feature of PO can reduce a student's time-to-graduate providing an earlier link to the employment world and concomitant benefits of cost reductions for the student (Galbraith & Mondal 2018). From an institution's viewpoint, lower-cost of scalable OE and its viability as a part of the institution's programs provides a potential for mitigating the cost pressures facing today's higher education and "to offer their best educational value to learners and to achieve capacity enrollment" (Picciano 2019, 80). OE is scalable (Wilcox, Sarma & Lippel 2016) because of its replicability of a course at a "relatively low marginal cost" (Means et al. 2014, 174) of duplication and delivery, after the course's major chunk of costs of curriculum planning, design and implementation have been met.

3.4 Employers' Perceptions. Employability of its graduates is an aim of professional accounting education as it provides the students a bridge to the profession and serves also as an 'external referent' for the efficacy and effectiveness of such education. In the early stages of OE, graduates of online programs did not fare well in their employability as compared with the graduates of traditional programs. A recent experimental study about employers' perceptions indicates that employers, including Big4, prefer accounting graduates of AACSB-accredited F2F or BL programs over PO graduates (Grossman & Johnson 2016). Grossman & Johnson (2016) also find that "employers appear to be more accepting of lower-level… online accounting coursework and favor applicants who complete a baccalaureate degree on campus and an M.B.A. online, or *vice versa*" (p. 91). Later they extended their study and found that in employers' perceptions "completing more than one degree is preferable" (Grossman & Johnson 2017, 19) and the educational institutions' reputation is also important. Tabatabaei et al. (2014) too conclude that employers prefer accounting graduates of F2F over OE graduates, though they also find that the educational institution's reputation is irrelevant. On the other hand, a study in accounting (Metrejean & Noland 2011) and another in finance (Tabatabaei & Gardiner 2012) found NSD in the employers' perceptions of delivery modes. It appears that over the years the employers' perceptions in this area are improving gradually (Grossman & Johnson 2016; Tabatabaei et al. 2014), though findings on this topic are still mixed. The next part of the paper comprises the conclusions, contribution and limitations, and recommendations of this paper.

4. CONCLUSIONS, CONTRIBUTION AND LIMTATIONS, AND RECOMMENDATIONS

This part of the paper is divided into three sections: (1) conclusions, (2) contribution and limitations, (3) and recommendations.

4.1. Conclusions. Is COEA is a boon or a fallacy? The central purpose of this paper is to address this question. The criteria for this determination are as follows: (1) COEA is a boon if it is supported by strong evidence and *a priori*

rationale that, as compared to F2F, it offers superior LO, better access, lower cost, and more favorable employers' perceptions, and (2) COEA is a fallacy if it is supported by evidence and *a priori* rationale that, as compared to F2F, it offers inferior LO. A perusal and analysis of the evaluation and other discussions given in the preceding parts of this paper shows that as a modality COEA is not a boon at this writing. Is COEA a fallacy then? There is support from empirical evidence and *a priori* rationale that COEA is not a fallacy either, as described next. This paper concludes that there is strong evidential support and *a priori* rationale that BL has potential for becoming the preferable modality of US higher education, as BL offers "the best of both worlds" (Christensen et al. 2013, quoted in Means et al. 2014, 116) and a human-machine symbiosis (Gratton 2017). This conclusion is consistent with Means et al. (2014, 180), Picciano (2019, 48), and several other empirical studies mentioned earlier. As noted above, this conclusion is consistent also with the findings of Wilcox, Sarma & Lippel (2016). The conclusion is also in line with the recommendations of the AICPA's "Future of Learning" project (AICPA 2014). A related conclusion of this paper is that there is an increasing trend in accounting education in both web-enhanced F2F and OE for the adoption and applications of mobile technology, AI, ITS, OHM/LMS, AR/VR, videos, big data and learning analytics, blockchain, interactive digital modelling, cloud computing, and other ICT.

Another conclusion of the paper is that in accounting education there is NSD in LO in PO and F2F modalities. This is consistent with *a priori* rationale as well as evidence from Lack (2013) and many other NSD research described in the previous part of this paper. Similar conclusion was reached by a faculty seminar on OE that "online teaching and learning can be done with high quality if new approaches are employed which compensate for the limitations of technology, and if professors make the effort to create and maintain the human touch of attentiveness to students" (University of Illinois Faculty Seminar Report,1999, 2). A related observation of this paper is that the value of PO accounting programs will be on the rise with the PO offerings by top-ranked accounting programs like Illinois and Indiana; future tracking of these programs through longitudinal research may shed more light on their learning and access effectiveness. Another related observation is that some PO programs (e.g., WGU's) and some MOOC mesh well with the "competency-based learner-centered…education" (Mehta et al. 2013, 1418); this linkage should be examined and evaluated further (AACSB International 2018, 38). PO programs enhance accessibility of high-quality accounting education to segments of society that were unable to avail of such education because of costs and/or demographic factors, for example no physical access to accounting programs, disabilities, or job or family commitments. On a global scale, PO offerings (e.g., MOOC, Khan Academy, and OCW) are making world-class education accessible and affordable to persons in ways that were hitherto unthinkable; ramifications of this global phenomenon are still in uncharted waters.

A conclusion of the paper is that modality of higher education, including accounting education, needs to be approached as a component of a holistic view. One holistic view of OE is proposed by Anderson (referenced in Picciano 2019) who proposes a model of OL that "illustrates the two major human actors: learners and teachers, and their interactions with each other and with the content" (Anderson 2008, 60) through ICT and has two learning modes, community and independent. Within the "context" (Means et al. 2014, 9-11) of an interplay and interactions of these components, modality should be leveraged to enhance the efficacy and synergism of both curriculum/content and pedagogy. Moreover, the "learners" component has sub-components of learner-characteristics (Means et al. 2014; Wang & Newlin 2000): self-management and motivation, academic background, technological proficiency, gender, and learning styles. Content may have sub-components of "declarative knowledge, procedure skills, problem-solving and strategies" (Means et al. 2014, 9).

A conclusion of the paper is that, in conformity with the primacy of student learning (Abraham 2008; AICPA 2014), the instructor is "the focal point of online business education" (Arbaugh 2011, 7) and instructor-student interaction is a very important contributor to learning effectiveness (Arbaugh 2010, 29). Online instructors thus need to be more than the experts in curriculum development, facilitation, and assessment "to be both 'sages on the stage' and 'guides by the side'" (Arbaugh and Hwang 2006, quoted in Arbaugh 2010, 45). Research has found that advancements and diversity in contemporary pedagogies have implications and applications in both OE and F2F (Losh, ed., 2017). Picciano proposes a "pedagogical purpose model…[which] suggests that…pedagogy drives the approaches that will work best to support student learning" (Picciano 2019, 36). Active learning, adaptive learning, collaborative/cooperative learning, deep learning, discovery learning, flipped learning, game-based learning, instrumented learning, intentional learning, and spaced learning may all represent appropriate pedagogical strategies contingent on a given "context" (Abraham & Jones 2016; Anderson 2016; Baepler, Walker, & Driessen 2014; Bryant & Hunton 2000; Harasim 2012; Riley & Ward 2017; Wilcox, Sarma & Lippel 2016).

According to Handy (2015b):

> As a general principle, the 'Law of the Sigmoid Curve', [states that] the curve of everything human or made by humans… will start with an investment of some sort… then the line picks up…peaks and thereafter starts to decline… We can start a second and even a third curve: The trouble is that the second curve has to start before the first curve peaks because otherwise there are no resources or energy to cover the early investment…the need to start second curve thinking comes just when everything is going well, when all the implicit messages urge one to continue the status quo. (p. 17)

Has the "second curve" of accounting education begun? Pincus et al. (2017) presents an analysis of contemporary accounting education in the US which, according to them, is a mixed bag. On the upside, accounting programs are witnessing higher enrollment, growing demand and higher salaries for their graduates, and greater faculty opportunities owing to a demand-supply imbalance (Pincus et al. 2017). On the downside, there are "raising alarms about the 'future of higher education'" (Pincus et al. 2017, 2). Similar views about the "future of higher education" are held by others too (e.g., Anderson, Boyles & Rainie 2012, and Christensen et al. 2011). A conclusion of the present paper is that COEA is the "second curve" of US accounting education which has begun already "just when everything is going well" (Handy 2015b, 17), as reflected also in the foregoing comments of Pincus et al. (2017) and other research on the topic.

"Disruption" is defined by Christensen, Raynor & McDonald (2015, 47) "[as] a process whereby a smaller company with fewer resources is able to successfully challenge established incumbent businesses…targeting those overlooked segments, gaining a foothold by delivering more-suitable functionality…When mainstream customers start adopting the entrants' offerings in volume, disruption has occurred". A conclusion of the present paper is that COEA is heading towards becoming, "slowly, then all at once" (Avent 2017, 81), a disruptive innovation of US collegiate accounting education. This is consistent with the conclusion of Christen et al.'s insightful *Disrupting College* (2011):

> Disruption hasn't historically been possible in higher education because there hasn't been an upwardly scalable technology driver available. Yet online learning changes this. Disruption is usually underway when the leading companies in an industry are in financial crisis, even while entrants at the "low end" of the industry are growing rapidly and profitably. This is currently underway in higher education. (p. 61)

(For a differing view of this area, see Picciano 2019, 132-134.)

4.2. Contribution and limitations. This paper is on an accounting education research area characterized as a tsunami and a disruptive innovation for US higher education including accounting education. The significance of this paper is enhanced by the paucity of accounting research in this area, as elaborated above. The paper contributes to knowledge on contemporary accounting education and research through its review of COEA/OE literature, an evaluation of its central purpose of addressing whether COEA is a boon or a fallacy, and through its conclusions and recommendations. A limitation of the paper is the lack of agreement on BL terminology, though there seems to be an agreement on the distinction between F2F and OE. Another limitation is that the paper has reviewed and evaluated OE research from accounting as well as other disciplines. However, reliance on works from other disciplines does not appear to have affected the paper's findings which are in harmony with the conclusions of some recent accounting studies on this area. Another limitation of the paper is that it addresses only 'formal learning' whereas research has shown that 'informal learning' has a significant contribution to a student's learning (Means et al. 2014).

4.3. Recommendations. Future research is recommended on the following areas: accounting-specific research studies, role of discipline in the LO research, BL forms and their mix, longitudinal research on COEA programs, and holistic models of COEA. Recommendations for accounting education are: employ BL within a number of courses at various course-levels as appropriate (Chen et al. 2013), employ a combination of BL and PO courses within an accounting program, explore for offering high-quality MOOC-based PO master's in accounting programs that are "competency-based" (AICPA 2014) and award "digital badges for credentialing" (Mehta 2013, 1418) at various stages of completion, explore for offering high-quality doctoral programs in accounting using a combination of PO and BL that award "micro-masters" along the completion path (Behn et al. 2012; Sarosh & Krahel 2017) to alleviate

the current shortage of doctoral accounting faculty, and advise students to take at least some OE and at least some F2F in their educational programs possibly through transfer-credit if needed. The next part of the paper comprises the concluding remarks.

5. CONCLUDING REMARKS

COEA is disrupting the panorama of accounting education in the US. This paper reviewed COEA/OE literature in the US higher education and addressed its thesis or central purpose: is COEA a boon or a fallacy? The paper evaluated this thesis, presenting arguments from both the sides; this evaluation suggested that, in the final analysis, COEA is neither a boon nor a fallacy at present. The paper concludes that COEA, the "second curve" of accounting education, is taking off and offers immense opportunities to contemporary accounting education through LO that may be at least NSD from that of F2F, better access, a lower and more equitable cost, and employers' perceptions that are unfavorable but are expected to improve over time ; conversely COEA may pose grave risks if these opportunities are not availed. The incisive observations of Handy (2015b) given below apply equally to the current landscape of accounting education:

> It seems beyond doubt that the schools are going to be hit by a disruptive innovation from the new online courses. In my terms, the intruders will steal a march on the incumbents and get to the second curve ahead of them. Change so often comes by the bypass, unnoticed until it is right there, already ahead of you. (p. 16)

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Partnering with Corporate Entrepreneurs on an Experiential Design Thinking Project

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ABSTRACT

This article offers faculty an innovative teaching approach for an experiential class project centered around design thinking. The basic processes of the project are detailed using a running example where the entrepreneurship instructor partners with corporate entrepreneurs from a leading financial technology firm to develop, teach, and team with student groups to design think solutions for three of the community's greatest challenges: substance abuse, youth education, and technology. Learning objectives are identified and measures of the program's effectiveness at achieving the learning objectives are collected, assessed, and reported. Analysis of the data suggests the program is effective at enhancing student empathy, complex problem-solving skills, felt-responsibility, and community self-efficacy. Further, students perceive that the corporate entrepreneurs properly supported them in the project and they were quite satisfied with working with real customers, the corporate entrepreneurs, and the program overall.

Keywords: corporate partnerships, design thinking, corporate entrepreneurship, experiential learning, social entrepreneurship, entrepreneurship education

INTRODUCTION

From notions of corporate social responsibly (Carroll, 1991) to shared value (Porter & Kramer, 2011), modern businesses are increasingly seeking strategic ways to give back to society. Concurrently, modern business schools have been criticized for not adequately preparing students for "real-world" situations which are complex, messy, ill-structured, and uncertain (Glen, Suciu, & Baughn, 2014). Despite corporations' strategic desire to give back and business education's interest in "real-world" student preparation, there appears to be a dearth in the pedagogical literature aimed at understanding how businesses can give back to society by partnering with business schools on experiential class projects. To that end, this research offers a teaching innovation demonstrating how entrepreneurship faculty can partner with corporate entrepreneurs from a firm to teach students how to solve complex societal challenges (Kuratko & Morris, 2018) facing real customers, creating a "win-win-win-win" for the faculty member, the business, the students, and society at large. Design thinking as an entrepreneurial innovation tool is offered as the instruction mechanism that bridges these four parties together.

In industry, design thinking is an increasingly valuable system for the modern business. Companies who employ this process to deliver superior design outperform their industry counterparts two to one (Sheppard, Kouyoumjian, Sarrazin, & Dore, 2018). For students, design thinking gives them relevant and practical entrepreneurial skills to cope with the complexities of the business world, which is a goal non-profit and for-profit employers alike have demanded business schools teach (Bennis & O'Toole, 2005). Finally, for business education and society at large, business schools have been called upon to reconsider their missions and are increasingly charged with developing responsible entrepreneurs who can apply business knowledge to not only improve their business, but also to design solutions to challenges in their communities (Bringle & Hatcher, 1996).

Despite the benefits of design thinking to multiple stakeholders, the process is still very new to entrepreneurial education. Business education and texts have typically focused on teaching students how to develop a business plan that heavily relies on a linear process consisting of opportunity analysis, prediction of financial forecasts, implementation and exit strategy (Morris, 1998). However, in practice, entrepreneurship is rarely linear or predictable, thus making the design thinking methodology a more effective tool for reducing entrepreneurial risk and uncertainty by quickly and affordably testing predictions and assumptions that would otherwise remain untested in a traditional business plan (Neck & Greene, 2010). Still, there are only a few state-of-the-art entrepreneurial textbooks teaching design thinking (Neck, Neck, and Murray, 2018) and most textbooks still favor business planning (Mason & Siqueira, 2014) versus the iterative, trial and error approach that characterizes design thinking;

thus creating a greater need for design thinking experiential projects. To that end, the objectives for this learning innovation are:

1) To help students gain a deep empathy for real customers and the challenges they face;
2) To teach students how to apply the design thinking process so they can innovate solutions to complex societal problems;
3) To help students feel a genuine responsibility to the community;
4) To empower students with confidence that they can make a positive impact on the community;
5) And to give students the opportunity to work with, learn under, and build relationships with a real-world firm's corporate entrepreneurship team.

Each learning objective above was measured to assess the learning innovation's effectiveness. Specifically, the program's ability to enhance student empathy, complex problem-solving skills, felt-responsibility, community self-efficacy, and perceived corporate entrepreneur support are measured and reported. The program overall along with student satisfaction with working with real customers and corporate personnel are also measured and reported.

THE LEARNING INNOVATION

Design Thinking as a Learning Innovation

Design thinking is a creative problem-solving process that involves *"approaching management problems as designers approach design problems"* (Dunne & Martin, 2006, p. 512). Because of its customer-centric, bias towards action, and iterative characteristics, design thinking is particularly suitable for the pedagogy of entrepreneurship where uncertainty reduction and innovating products and services to meet consumer needs are essential to success. Although many interpretations of the design thinking process exist, they are, in general, fundamentally similar in substance and process. The first step typically involves empathizing with the customer through ethnographic research methodologies such as observation and interviewing in order to find the customer's problem. After a period of reflection and "sense-making," the next step typically involves "ideation" where a process of divergent thinking is employed to create a broad pool of potential solutions followed by a period of convergent thinking where the pool of ideas is narrowed to one potential solution (Glen, Suciu, Baughn, and Anson, 2015). Then, a low-cost, low-fidelity prototype is created to test critical assumptions of the potential solution such as its ability to effectively solve the problem from a utilitarian standpoint and/or its ability to delightfully solve the problem from a user-experience perspective. Finally, the process starts over as the researcher empathizes with the customer as they observe him or her interacting with the prototype and interview him or her for their feedback. Based on the observations and interviews, the researcher either validates the prototype's assumptions or gains insight on its deficiencies. Ideation is employed to improve the deficiencies and a new prototype is created and shared with the customer for their observation and thoughts. This cycle is rapidly and affordably iterated until all the prototype's critical assumptions have been validated.

The design thinking paradigm encourages students to think about the problem holistically, develop empathy to the user needs and experiences, and explore solutions through prototyping, experimentation, and iteration (Dunne & Martin, 2006). Such characteristics of design thinking allow this project to break from traditional academic assignments in three ways. First, the design thinking project contrasts with traditional rational-analytical teaching approaches, such as case analysis, which are often used in business education. Rational-analytic approaches are better suited for well-defined problems that feature specified goals, constraints, planning, and rules (Glen et al., 2014). Optimal solutions with the least probability of failure are developed after careful, reasoned, and rigorous analysis. In contrast, design thinking features dynamic goals and processes which is better suited for messy, complex problems (Glen et al., 2014). Confidence is gained from actively developing innovative solutions to daunting large-scale challenges in a quick, affordable, and efficient manner. Solutions evolve after many iterations of early and inexpensive rapid prototype experimentation failures (Glen et al., 2014). The second difference is that traditional academic assignments overemphasize analytic techniques and may encourage students to *"become detached and disinterested actors rather than engaged practitioners"* (Glen et al., 2014, p. 655). Because design thinking systematically harnesses the power of multiple viewpoints, students learn difficult-to-teach "soft-skills" (*e.g.* teambuilding, persuasion, and collaboration). Furthermore, design thinking fosters student development of empathy to the needs and experiences of customers and an appreciation of the impact business decisions have on individuals. Third, the rapid experimentation process that students engage in independently shifts to students a

greater share of the responsibility for learning (Peters & Maatman, 2017). Students become active participants rather than passive observers in learning when given maximum latitude to explore and solve ill-defined problems. The project presented next teaches students an innovation framework for creating entrepreneurial solutions that can be brought to bear on a community's greatest social challenges.

Running the Learning Innovation

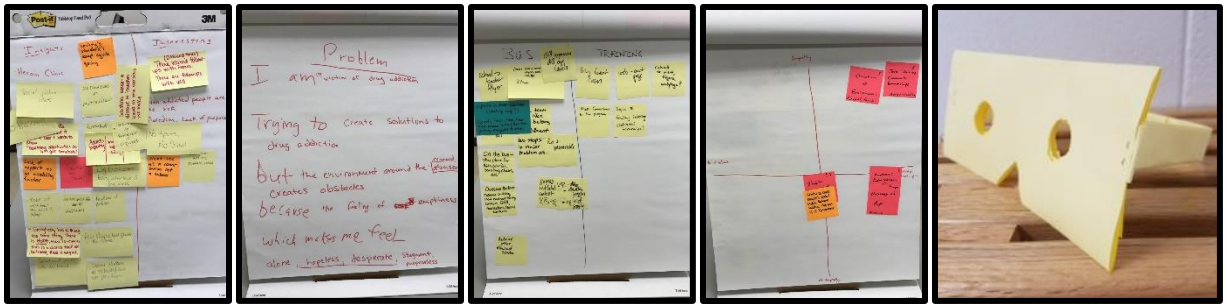
The primary goal of the learning innovation was for students to work with real-world corporate entrepreneurs to innovate solutions for three "grand challenges" facing their state: 1) substance abuse; 2) youth education; and 3) science, technology, engineering, and math (STEM) awareness. Although this learning innovation would be appropriate as class project in an entrepreneurship course, this project was developed as an extracurricular innovation contest in which all undergraduates at the university could apply to be a part of. This project was developed so that students from any major could participate as entrepreneurship and innovation are inherently multi-disciplinary in nature and design thinking can be applied to produce solutions across many human-centric fields. Given that design thinking is fundamentally based in "learning by doing" and the growth mindset, student characteristics (*e.g.* open-mindedness, desire to learn, and passion for making a positive difference in their community) were considered more heavily than the amount of prior discipline-specific knowledge.

Thirty-eight students and fourteen faculty members from six different colleges in the university were selected. Additionally, seven real-world corporate entrepreneurs from a leading financial technology firm headquartered in Silicon Valley participated in the program. Students, faculty, and real-world partners were divided into seven interdisciplinary teams (5-6 students, 2 faculty members, and 1 corporate entrepreneur per team). Two teams were assigned to the youth education challenge, two teams addressed the STEM awareness challenge, and three teams examined the substance abuse challenge. Faculty duties included assisting students with logistical, administrative, and presentation issues, but not imposing solutions to the challenges. The corporate entrepreneur partner developed and taught instructional material based their proprietary version of design thinking to students. Additionally, corporate entrepreneurs met weekly to support their student teams through coaching, clarifying concepts, providing feedback and guidance via video conferencing. Figure 1 illustrates the four major components of the learning innovation.

Figure 1: Timeline and Flow of the Design Thinking Project

Figure 2 depicts an example of the design thinking techniques and process from Bootcamp Day 1 and Day 2. On Bootcamp Day 1, the corporate partners taught the first of three foundational elements of the partners' proprietary version of design thinking - *empathizing with the customer*. Next, students immediately applied these empathy techniques by interviewing real community members to understand their thoughts, emotions, and motivations regarding the assigned challenges. After the first customer interview, students discussed what went well and what could be improved for the second customer interview. Particularly insightful findings were recorded on sticky notes. After the interviews with both customers, students "nugget mined" the sticky notes for the 3-5 most interesting post-it notes. Each insight was unpacked and "problem statements" were developed for the most interesting insights to clarify the root cause of the problem under investigation. Subsequently, problem statements were shared with the group and tested with a new set of customers until one problem statement emerged.

Teams then proceeded to the second piece of the design thinking process - *ideating a potential solution*. First, teams engaged in divergent thinking by "brainstorming" as many solutions as possible regardless of feasibility. Each idea was recorded on a sticky note. To encourage ideas, students were taught to pose "how might we…" questions to the group and to build on each other's ideas. These ideas were refined via convergent thinking using a "2x2 narrowing" technique. Two criteria important to the customers were selected as axis points to create a 2x2 grid with the best customer outcome set in the upper right quadrant. Each potential solution was viewed through the lens of the four quadrants and solutions that were in the upper right quadrant were selected. Bootcamp Day 1 concluded with students presenting brief overviews of their potential solutions to the other teams.



Nugget Mining **Problem Statement** **Brainstorming** **2x2** **1st Iteration Prototype**

Figure 2: Design Thinking Techniques and Process Example

Bootcamp Day 2 began with the corporate entrepreneurs teaching the teams the third and final foundational element of design thinking - *iterative prototyping*. Teams built their first iteration low fidelity "prototype" (e.g., made with paper, drawn, etc.) based on one of their potential solutions ideated on Day 1. This prototype was tested with a new community customer. Teams observed customer interactions with the prototype and subsequently interviewed the customer to gain their input and insights. After this round of hypothesis testing, teams discussed what was learned and iterated a second prototype. Each team tested a new prototype with a second group of community members. Again, teams reviewed the discoveries and developed a third iteration of the prototype. Then, each team pitched its prototype to the other teams concluding the Bootcamp.

Over the next twenty-five days, the teams engaged in an "independent experimentation period" where they continued prototype iterations. In contrast to the Bootcamp where community members were pre-arranged, teams were responsible for independently identifying, engaging, and interacting with additional community members. To do so, students learned to develop and leverage real partnerships and networks. For example, one team partnered with a local secondary school system to gain access to a pool of new customers. Via videoconferencing, the corporate entrepreneurs provided weekly feedback and guidance to teams and helped them craft an "innovation story" for the final presentations. At the final presentation, teams revealed their heavily iterated prototype by chronicling their innovation story to a three-judge panel. Judges, whom had strong ties to the community, were comprised of the CEO from the partnering firm and two celebrity judges native to the community. Each team was given five minutes to present and five minutes to answer questions from judges. Judges selected the top three teams based on "key innovation behaviors" (see Figure 3).

Key innovation behaviors	Score 0 to 10 0 = Strongly disagree 10 = Strongly agree	Notes
The team chose a narrow customer "problem" to address, that is aligned with their Grand Challenge and well-informed by empathy		
The team displayed bold, creative thinking, considering a wide range of potential solutions that address the ideal state Grand Challenge		
The team selected an appropriate "first step" solution to begin their experimentation		
The team clearly specified the expected benefit their innovation will provide		
The team told a clear and compelling story of one individual with whom they experimented, learned and adjusted		
TOTAL		
What do you admire most about this team?		
What unanswered question were you left with?		

Figure 3: Team Assessment Criteria

One winning team attempted to solve the substance abuse challenge by innovating virtual reality software aimed at mitigating high school students' curiosity to try drugs. This software allowed high school students to experience the effects of drug use without the euphoria induced by drug use. Another winning team developed an app that provided quick access to emergency resources and information to children whose parents or guardians had substance abuse issues. The third winning team attempted to solve the technology challenge by innovating a monthly subscription service that delivered to schoolchildren STEM-based toys, games, and activities. These three winning teams were awarded a trip to the partner's headquarters in Silicon Valley where they toured the partner's campus and received further coaching from the company's top executives on moving their solutions forward.

RESULTS

Likert scale items (anchored at 1= strongly disagree and 7= strongly agree) measuring students' perceptions of key learning outcomes attained in this project were asked in an anonymous questionnaire to ascertain effectiveness of this learning innovation. Many key items were adapted from well-established scales. Items for "empathic concern" (i.e., students' feelings of compassion and care toward consumers who face challenges) were adapted from Anaza (2014). Items for "felt responsibility for constructive change" (i.e., students feeling personally responsible for positive future changes within the community) were adapted from Fuller, Marler, and Hester (2006). The "perceived self-efficacy for community impact" scale (i.e., students' beliefs that they can positively influence the outcome to societal problems) was adapted from Straughan & Roberts (1999). A total sample of 27 students (71% response rate) responded to the questionnaire and their perceptions were uniformly positive (see Table 1).

Beyond the data collected, the project generated tangible real-world results. Two of the seven teams garnered interest from private businesses or high-ranking government officials to develop their innovations further. One student parlayed the project into a summer internship with the partnering firm her junior year and then full-time employment at the firm upon her graduation. The entrepreneurship curriculum at the University was redesigned around design thinking concepts and a business innovation center inspired by the project has been established at the University to help aspiring entrepreneurs in the school and in the community innovate solutions to the community's greatest challenges in the hopes of stimulating the local economy.

Table 1: Effectiveness of the Teaching Innovation (n = 27)

Item	Mean*	Standard Deviation
Complex Problem-Solving Skills		
This design thinking project taught me a lot about how to create solutions for complex problems.	6.04	0.93
The design thinking innovation process is effective at innovating solutions for complex problems.	6.08	0.95
In the future, I am confident I would be able to use the design thinking innovation process to create solutions for complex problems.	6.16	0.85
Empathetic Concerns		
I had tender, concerned feelings for the customers I talked to.	6.36	0.86
The customer's challenges worried me.	6.04	1.24
I was quite touched by things I heard happened to the customers.	6.16	1.07
Felt Responsibility for Constructive Change		
I feel a personal sense of responsibility to bring about change in the local community.	6.20	0.91
It's up to me to bring about change in the local community.	5.72	1.06
I feel obligated to try to introduce new business/product ideas where appropriate.	5.76	1.26
I feel obligation to challenge or change the status quo in the local community.	5.84	1.03

Perceived Student Effectiveness		
It is worthless for an individual student to do anything about social problems the local community faces. *(R)*	1.96	1.72
When I participate in business-related activities, I try to consider how my innovation skills will affect the local community.	5.60	1.22
Since one person cannot have any effect upon social problems the local community faces, it does not make any difference what I do. *(R)*	1.52	0.92
Each student's behavior can have a positive effect on the local community by utilizing innovation skills.	6.28	0.74
Overall Student Satisfaction		
Working with students and faculty from different areas than mine was a good learning experience.	6.40	0.96
Learning from real-world businesspeople was a good experience.	6.40	0.76
Speaking with real customers was a good learning experience.	6.48	0.87
Overall, I am satisfied with the learning provided by the design thinking program.	6.24	1.09
*Scales range from 1 = "strongly disagree" to 7 = "strongly agree."		

CONCLUSION

By partnering with real-world corporate entrepreneurs for class projects, faculty can demonstrate the power of collaboration to their students while simultaneously providing them with an authentic experiential learning program. Although partnering with organizations can certainly be applied in many contexts and disciplines, doing so with design thinking projects enable students to gain empathy, felt responsibility for the community, self-efficacy to create change, and complex problem-solving skills. Furthermore, students enjoy practical benefits that are lacking in traditional classroom settings such as direct learning alongside corporate entrepreneurs thereby building relationships with them. Finally, partnerships with corporate entrepreneurs to solve a community's biggest challenges not only benefits students, they also offer benefits to the instructor, the partnering firm, and, ultimately, society at large.

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Preparing Teams for an Academic Case Competition – An Approach

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ABSTRACT

The purpose of this paper is to present a process for preparing teams to compete in prestigious academic case competitions. This paper proposes that academic case competitions can be a component contributing to preparing academic athletes for the real world and contributing to students becoming more workforce self-efficacious. When approached correctly, academic case competitions offer an alternative way or methodology to prepare students for the real world and provide a capstone for experiential learning. Ultimately, students will leave with Enhanced Self-Efficacy (I Can Win), Enhanced Team Self-Efficacy (We Can Win), and Enhanced Skills (Analysis, Presentation, Defending Recommendations, Teamwork, & More). They also leave as Academic Athletes.

Keywords: Academic case competition, experiential education, case analysis

INTRODUCTION

Many business school faculty and deans may be unaware of the various academic case competitions for business students occurring annually all over the world. These can be opportunities for active learning and experiences in experiential education. Some examples of well-known and prestigious competitions include The Hilltop Strategy Challenge at Georgetown University, The Marshall International Case Competition at USC, and The Scotiabank International Case Competition at Ivey (Canada). This manuscript will identify critical components in the selection, development, and performance of academic case competition teams.

Competitions are a vehicle for students to interact with complex real-world strategic business problems (often live), present their recommendations to a panel of executives (often from the subject organization), and defend those recommendations in a question and answer (Q&A) session. The competitive experience is one that is not easily replicated in an undergraduate or graduate business program and classroom. In some instances, it offers students the opportunity to compete amongst the best business schools in the country and the world.

One of the authors has coached academic case competition teams at Northeastern University (NEU). In over 20 years, in 44 competitions, NEU teams garnered 19 first places, and 38 places in the Top 4 (Table 1). This article will discuss the process used to prepare students to compete effectively in these competitions. The result is that students are better prepared to enter the real world with greater workforce self-efficacy (Bandura, 1986).

A few examples of graduates of case competition teams at NEU over the years include:

- Owner of her own marketing consulting company with a focus on women-owned small businesses
- VP of North American Marketing for Oracle
- Partner at Goldman Sachs by the age of 34
- Serial entrepreneur working on his second start-up after the first being sold to Google
- CFO at General Electric
- President and CEO of Leading Cities - consultants with Smart Cities all over the world.

In the world of competitive sports, coaches have focused for decades on motivating players to learn, understand, and execute challenging and complex plays through practice and competition, so their teams will succeed and win championships. Similarly, for decades, academics have struggled to motivate students to absorb the challenging and complex concepts they are attempting to teach, so their students may succeed in the real world. In the real world, "winning" is demonstrated by keeping one's job, contributing to the organization, and helping the firm thrive in the marketplace.

In this article, the proposition will be put forth that there are characteristics of team-based athletics that directly relate to success in academic case competitions. For example, what if educators could integrate the motivational

principles of athletics and the real world into the classroom so that when students graduate they are "academic athletes prepared to compete in the real world?" What if educators could enhance an individual's work-place self-efficacy as well as team self-efficacy? This article is an approach to examine the use of academic case competitions to do just that – increase work-place self-efficacy.

Table 1: History of Northeastern University Academic Case Competitions

- Beanpot Case Analysis Competition
  1997-2009
  1st Place 11 out of 13 years
- Stockholm International Case Competition
  1st Place 2009
- APICS Case Competition
  2010-2013
  1st Place 2010-2012
  3rd Place 2013
- Business Strategy Challenge at Georgetown
  2009-2015
  2nd Place 2010, 2011
  3rd Place 2013, 2015
- The Marketing Summit at Wake Forest
  2011-2013
  1st Place 2011
  2nd Place 2013
  1st Place 2014
- Brandeis Intercollegiate Case Competition
  1st Place 2014
- CUIBE International Case Competition
  2010-2013
  2nd Place 2011
  3rd Place 2012
  2nd Place 2013
- Wharton Undergraduate Consulting Case Competition
  2012-2013
  1st Place 2012
  4th Place 2013
- Scotiabank International Case Competition
  2006-2016
  3rd Place 2016

Note: Some of the schools that competed in various competitions included the following institutions:

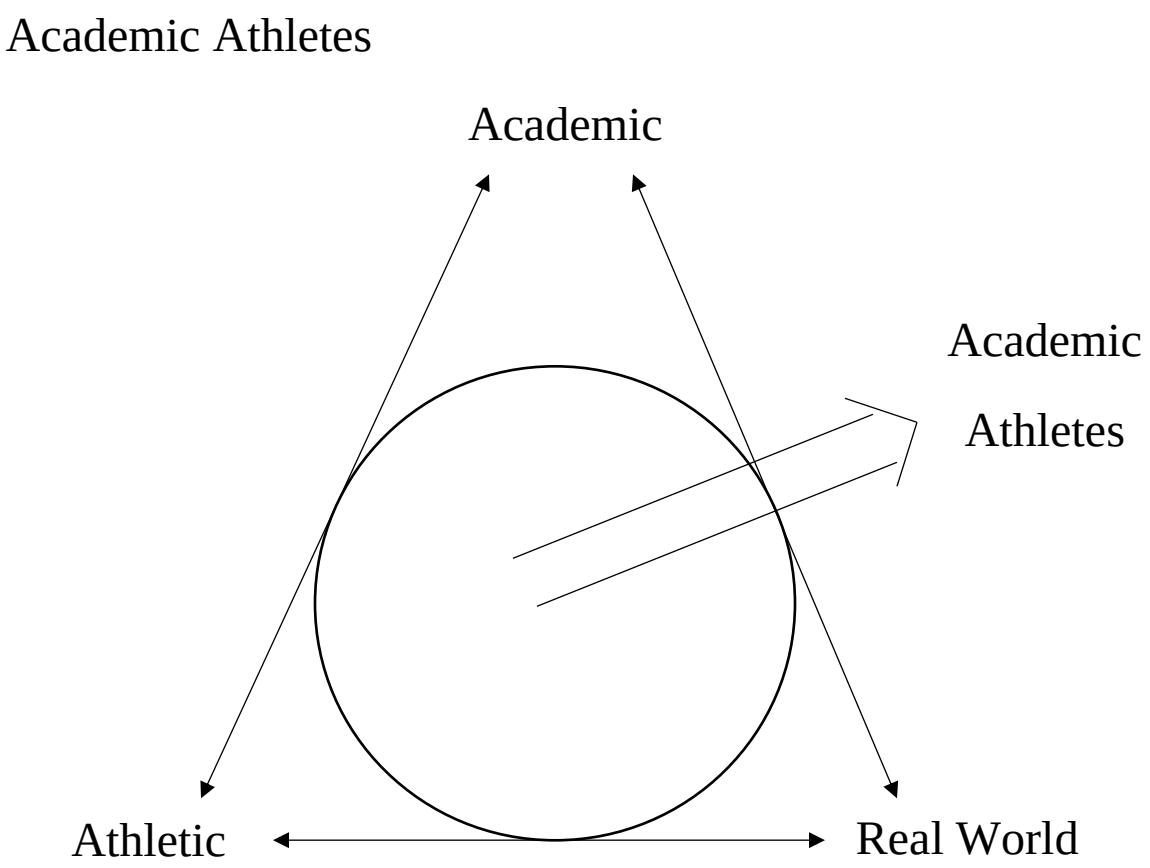
- Boston College
- Boston University
- MIT
- Babson College
- Bentley
- NYU
- Rensselaer Polytechnic Institute
- Baylor University
- Clemson University
- Hong Kong University of Science and Technology
- London School of Economics
- Stockholm School of Economics
- Washington University
- Georgetown University
- Carnegie Mellon University
- Southern Methodist University
- University of Pennsylvania (Wharton)
- UC Berkeley
- University of Michigan
- Wake Forest University
- Brigham Young University
- University of Southern California
- Villanova University
- McGill University
- Ivey
- University of North Carolina
- Yale University
- Harvard University
- NYU
- Copenhagen
- Bocconi

The analogy being drawn in this treatise is that students that participate in an academic case competition program acquire skills and habits similar to individuals preparing to compete in the athletic world (not including the physical

nature of sports) or may be called by definition "Academic Athletes." This analogy does not have to be limited to "athletes," instead the term is used as a convenience. Any evaluated, competitive performance arena could also be considered. For example, musicians, dancers, debaters, and actors amongst others can also be considered "athletes" for the purposes here because in part of the rigor of their dedicated preparation and training.

As has been noted, a significant component of the learning process is the importance of adding the element of competition to academics. Competition is not a new concept outside academia. Well-known coaches, teachers, and executives from the world of business, politics, and other disciplines have embraced the concept in their articles, books, podcasts, and speeches. Their words and images transcend and add to the model depicted in Table 2 that applies to students from all disciplines, whether business, engineering, law, medicine, and so on.

Table 2: Model



For example, John Wooden, legendary basketball coach of UCLA for 27 years said: "Success is peace of mind which is a direct result of self-satisfaction in knowing you did your best to become the best that you are capable of becoming" (Johnston & Wooden, 2003).

Theodore Roosevelt, the 26th President of the United States, in his iconic Man in the Arena speech stated, "Far better it is to dare mighty things, to win glorious triumphs even though checkered by failure, than to rank with those poor spirits who neither enjoy nor suffer much because they live in the grey twilight that knows neither victory nor defeat" (Roosevelt, 1910).

Jack Welch, CEO of General Electric from 1981-2001 stated: "When it comes to politics and Careers…the win goes to those people who never stop believing they can win, no matter what" (Welch & Welch,

2007).

Bill Belichick, Coach of the New England Patriots and six-time Super Bowl champion, is well known for saying "Do Your Job. The Team Comes First. Give Your Perfect Effort" (Wickersham, 2018).

According to Albert Bandura, Professor Emeritus at Stanford University, self-efficacy is "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations." In other words, self-efficacy is a person's belief in his or her ability to succeed in a particular situation (Bandura, 1977).
All of these well-known individuals, implicitly or explicitly have embraced the concepts of doing your best, giving your best effort, determination, failure, winning, and perfect effort. These are fundamentals to those who have competed in some manner whether it be sports, theater, dance, music and have witnessed success, failure, or both.

PROCESS

The following pages describe the components of the process used by this author/coach to select, assemble, and prepare a team to compete in academic case competitions. The significant components of building a team are outlined in Table 3 and should be universally familiar. These components are used in all types of organizations including athletic teams from high school to the professional level. For example, in the National Football League, the teams conduct a draft of college players annually to build and prepare themselves to compete for the next Super Bowl. There are also clear parallels to athletics especially in areas, such as practicing plays, observing outcomes, and developing teamwork. Athletes spend countless hours practicing and receiving feedback as do students preparing for academic case competitions. The outcomes are also similar to athletics: Enhanced Self-Efficacy, Enhanced Team Self-Efficacy, and Enhanced Skills (Table 3).

The initial two sections that follow, The Advisor and Selection, are technically outside the scope of the actual competition – the role of the adviser and team selection -- but are essential elements in the forming and preparing academic teams for competitions.

The Adviser

The development of an Academic Athlete starts with an adviser (coach) – a critical ingredient to any athlete, team, and competition. According to confirmation theory, coaching is a "transactional process by which coaches communicate to players [students] in a manner that makes them feel endorsed, recognized, and acknowledged as valuable, significant individuals " (Cranmer & Brann, 2016, p. 195) and more specifically consist of the things that coaches do and say to accept or challenge their athletes (Cranmer, Bran, & Weber, 2016). Also, a coach must demonstrate the ability to listen. The ability to listen effectively is a learned trait and is developed after years of practice. For example, a university-level coach must be able to listen to multiple constituencies including the team, colleagues, outside experts, alumni, and others that are worthy of such consideration. A great coach is always learning and looking for ways to improve the team. Another vital ingredient for a coach is the ability to analyze complex business organizations. This ability requires a solid foundation in the functions of business – accounting, finance, human resources, marketing, management, supply chain, and of course, the discipline of strategy. A coach needs to have the acumen of a business CEO and the ability to teach how to take the complex and make it executable, apply frameworks to the analysis, formulate effective alternatives, and offer sustainable recommendations.

Team advisers or coaches should draw upon the expertise of outside colleagues and others including university alumni. For example, by inviting outside subject matter experts to act as judges at practice sessions, and to offer their advice and expertise during the debriefing of the team is a powerful tool for developing the team as a whole. Coaches cannot be all things to all people, so outsiders offer varying perspectives on analyses and presentation. Practice in front of these outsiders simulates real competitions. Although it is not the same as "game day" the mere exercise of practice, practice and more practice is critical to the ultimate success and winning of the team.

Coaches also need to offer advice in the areas of interpersonal influence skills that are embedded in presentation and the skills required to answer questions asked by seasoned practitioners (judges). In other words, a coach needs to be proficient in analysis, question and answer, and presentation. These components are critical in training teams to win

in the world of academic case competitions.

Table 3: The Process

Selection
1. Solicit Recommendations by faculty, staff, and advisers
2. Interviews
Coach
Team
Choose Teams
3. Experience
Sports
Theater
Singing
Dance
Debate
Other
Analysis, Presentation, and Question & Answer
1. Introduce Framework
2. Assign Readings - by the week and tie to the case
3. Assign/hand out cases/situations the day before due
4. Practice Situations/Cases and Mini Cases Weekly
5. Feedback/debriefing on presentation, analysis, and question and answer
Faculty
Alumni
6. Feedback/debrief - Coach with the team only
Accept, challenge, team development/self-efficacy, individual development/self-efficacy
7. Quotes/Sayings/Analogies - Throughout
8. Areas For Improvement - Throughout
9. Continuous Contact/Feedback
Outcomes
1. Enhanced Self-Efficacy – I can win
2. Enhanced Team Self-Efficacy – We can win
3. Enhanced Skills – analysis, presentation, defending recommendations, teamwork, and more

Selection

Selection is also outside the scope of the competition itself, but just like in the real world the selection of candidates is an integral part of the process of choosing a team to compete in an academic case competition. The annual professional football draft and organizations recruiting on campuses throughout the country are real-world examples of selection. In the selection process for case competitions teams, students should be recommended by faculty, staff, and others at the university. They should be interviewed by the coach and by existing team members separately. Some of the experiences of desirable candidates are listed in Table 3. Personal characteristics or attributes of having poise and being articulate and others in most cases have been prescreened. Potential attributes or characteristics the candidates should possess are included in Table 4.

Table 4: Attributes of Academic Case Competition Competitors

- Ability to hit the ground running
- Ability to formulate a position
- Ability to defend a position
- Ability to present arguments
- Ability to do an in-depth analysis
- Ability to attack the problem head-on
- Ability to understand the "big picture" (total organization/strategy)
- Ability to understand that all problems are related
- Ability to give a professional presentation
- Ability to work under pressure/meet deadlines
- Ability to work in teams effectively
- Ability to conceptualize, analyze, and communicate

The adjective "potential" is used because even top-tier candidates have a lot to learn to compete effectively and win at prestigious competitions. As part of the preparation, they will continue to develop the attributes displayed in Table 4. The academic case competition team needs to be taught about the strategy of complex organizations, the interdisciplinary nature of problems in the real world, to project into the future, how to deal with uncertainty and the consequences, and much more. It is a process that is complex, subtle, and with multiple moving parts. Like all great organizations, the process begins with selection. It is the same with academic case competitions. Many students that may appear qualified will be turned down for the team. An additional criterion for selection to the team is that a candidate has to "fit" into the system. Defining "fit" in a purely quantitative way is probably not possible.

As mentioned previously, the candidates selected to be interviewed have been recommended (by professors, co-op advisers, and administrators) and the fact that they are part of a pool indicates that they also have self-selected up to this stage of the selection process. It is critical to have team members speak with candidates and get their feedback before formally interviewing the candidate as it gives the coach valuable information in preparation for the interview.

In the interviewing process, other team members and advisers should ask questions and present scenarios that indicate the candidate's attributes (or lack thereof) as those articulated in Table 4. An important area to assess for the adviser is the candidate's openness to being coachable. The candidates being interviewed should be some of the brightest in the college/university but in order to be taught how to analyze complex strategic business problems, present their recommendations, defend arguments in question and answer, compete against some of the top schools in the country and world, and win requires that they leave their "ego at the door."

As good as some students are – in the same fashion as some athletes trying to make an athletic team – they will not fit the system. The system is a function of several variables – these include drive, desire, determination, perseverance, attitude, and ego. Other variables include self-efficacy, communication, and an ability to compete at a high level. If a candidate does not fit, the coach will get that feedback from team members and advisers when the candidate is interviewed.

The selection process should be thorough since the students chosen will comprise the team that will be prepared to compete. The four chosen will move on to be prepared in Analysis, Presentation, and Q & A and then on to competitions. They will be the team that takes the field on "game day". Other schools may choose more than one team that then alternate going to competitions. The reference will be to only one team of four throughout this discussion,

There is one area in the selection component that may differ slightly from the athletic or business world in regards to substitutes (or alternates) during the actual competition. Once the competition has started, there cannot be substitutes for members of the team. In most competitions, a team consists of four participants, and if someone falls ill or cannot otherwise perform, the team would have to proceed with three participants.

The procedure is also similar in competitions where a member of the team must be replaced (i.e. fired for non-performance). In such a situation, there may not be a replacement ready to come in off the bench as there is in most sports. A substitute needs to be recruited. That individual may be among those that were interviewed and not selected.

At some schools, they may have a substitute on the team. This approach has been found by some schools not to be the right approach because of the difficulty keeping that person involved and challenged for a semester-long season. Consequently, it is not recommended to take the alternate team member approach.

Analysis

The analysis is the most challenging, demanding, and most robust part to teach when preparing case competition teams. If an analysis is not executed compellingly and expertly, it will significantly decrease a team's chances of winning the competition. It is the part of the process that takes place behind the scenes– the critical analysis, developing the game plan, and the plays that are going to be run. Again, it is part of a process – requiring taking the complex, and making it simple so that it can be executed.

Teaching how to analyze and compete is a function of many factors. It is a critical part of the process of selecting teams, developing a framework for analysis, creating sub-frameworks, emphasizing teamwork, practicing scenarios, and giving feedback. It also involves assigning articles and readings, reviewing concepts, assigning situations, situations, and more situations followed by practicing the situations, giving feedback for areas for improvement, and then offering more feedback on more situations, and so on --- it is an iterative process. As in athletics practicing situations and feedback are essential parts of this component, as is, watching films of past competitions and present practice sessions. The result is that it (a framework) becomes "a way of thinking" that can be applied to the real world.

A critical component of the process and the analysis component is a framework (Table 5). The framework for analysis is a tool and is similar to those used in any advanced strategy course in a university curriculum in any undergraduate, graduate, executive, or advanced management program. The framework should become a way of thinking.

The framework is complex because the emphasis is on how to analyze complex business organizations. The team is being prepared to be consultants to these organizations and need to understand and appreciate that this is the real world. Done correctly, the students will get more from the experiential perspective of preparing for a competition (coupled with the competition itself) than any strategy course they would ever take. Since the goal is to train, compete, and be an effective member of the team, they have to prepare and perform at a high level to remain on the team.

The quality of the output that emerges from the analysis phase will relate directly to both the presentation and question and answer. The common thread across all three phases is confidence (the "C" in RICE, see Table 6). The confidence that the team has in their analysis is paramount to how they will present and answer questions.

At a business school, where there is a long tradition for competing successfully in competitions (e.g. more than ten years), there evolves an established tradition of competing and winning to be upheld, maintained, and amplified. If a university does not have this tradition, then one should be created. The creation and development of such a

tradition are easy to say, hard to do because a tradition or legacy develops over time and requires an initial track record of winning and success. Constructive criticism and continuous feedback from faculty judges and alumni serves to reinforce how serious such a competition is and how it is different from a regular university-level class. By repeating the process several times, the sense of urgency and importance of what the team is doing becomes obvious. The team begins to understand how much they are learning and have learned across numerous dimensions – analysis, presentation, question and answer, teamwork, and on. They also develop an individual and team level of self-efficacy and an attitude of both "**I** can win" and "**we** can win" (Outcomes in Table 3).

Table 5: Framework for Analysis

- 45 minutes to 1 hour - Prepare the material individually
- The Situation (Apply the Framework) Includes
- Formulation
- Opportunities and Threats
- Strengths and Weaknesses
- Strategy
- Implementation
- Organizational Structure
- Management Control Systems
- Human Resource Management
- Financial Management
- Program Dimensions
- Recommendations
- The War Room—Where the Analysis Takes Place – Some Thoughts
- No Group Think/Listen to ideas before dismissing
- Challenge ideas and reach consensus
- Someone plays Devil's advocate
- Someone records on the blackboard
- Someone begins working on power points
- Do not make the right decision - Make the decision right
- MECE – Mutually Exclusive Collectively Exhaustive
- Backup Slides – Answers to potential questions from the judges
- Be CONFIDENT IN YOUR ANALYSIS – In turn, that confidence will feed into the presentation and the Q&A
- There should never be a question asked that the team cannot answer

*Also see Table 6

Presentation

While preparing the analysis, the team needs to be simultaneously developing and preparing their presentation. For example, during the analysis phase, the first draft of the PowerPoint that accompanies the team's presentation should be developed. The slides need to be organized and agreed upon by the team, and are usually prepared by one team member. Team members have different roles in the flow of the presentation depending on their skill set (Table 7). One member of the team is usually designated to present the open and the close, a second member offers the situation and decision rules, and another team member joins in arguing the alternatives, offering recommendations, and an implementation plan. The team's lineup needs to be flexible, depending on the skill set and the specific case. The lineup will be a "game day" decision by the team. However, it is recommended that the person introducing and closing remains constant.

Decision rules may be the most essential part of the presentation (Table 8). This is the time when and the place where the team makes the decision right. It is important to note, a team does not make the right decision, it makes the decision right. Teams need to be taught that when presenting their alternatives they are also eliminating other alternatives chosen by other teams – and some judges.

Table 6: Presentation/Analysis

Since the analysis phase is the preparation/plan for the presentation, the two are interrelated and interdependent.

- Introduction to Presentation
  S1 -Something good about the company, subject, whatever is being addressed
  S2- Something that is an issue/problem that the presenter was asked to resolve
  S3- Some recommendation of how the issue/problem will get resolved
  S4 -Some result of that S3 recommendation - when possible there should be a quantitative result
- Situation
- Alternatives
- Decision Criteria (see Table 8)
- Decisions Matrix (see Table 8)
- Recommendation
- Implementation/Tables
- Projections
- P & L, ROI, Payback Period, Present Value, Break Even Point, Market Value, Cost—Benefit—Strategic Fit
- Time Line to Support Implementation Plan
- Sources and Uses
- Details
- Summary/Conclusions

Additional Tools for Presenting &Analyzing

- RICE: Role, Involvement, Confidence,& Engagement
- When anyone gives a presentation, they need to know their *Role* when they present.
- They need to be *Involved* - show the audience that they are "into it"
- Always show *Confidence* -this shows the audience that they can trust what you are saying -it is credibility
- And you need to *Engage* the audience - it should be like a conversation

This acronym is taken from one that people involved with sports know well – Rest, Ice, Compresses & Elevation

- The audience is your friend - don't say sorry - no one wants another to make a mistake
- Butterflies - the difference between amateurs and pros is that the pros put the butterflies in formations - make the adrenaline work for you - sports analogies
- Every Practice Has Takeaways
- Every Practice is Practice Perfect
- Every Practice Bring It To The Next Level
- Every Practice Is Part of a Process
- Every Practice Someone Steps Up With the Big Play
- Every Practice Counts
- CUE: Complexity --------- Understandability --------- Executability

Choreographing the presentation, including seamless transitions, is also a critical piece of a winning performance. The quality of the analysis done before the presentation is the foundation for winning. However, if not supported by a quality presentation and question and answer session the result will not be a winning performance.

Table 7: Presentation Outline

- Introduction
  - S1 -Something good about the company, subject, whatever you are addressing
  - S2- Something that is an issue/problem that the presenter was asked to resolve.
  - S3- Some recommendation of how the issue/problem will get resolved
  - S4 -Some result of that S3 recommendation - when possible there should be a quantitative result.
- Situation Analysis
- Market Opportunities and Challenges (Opportunities and Threats)
- Internal Strengths and Challenges (Strengths and Weaknesses)
- Company Resources
- Financial
- Human
- Operational
- Decision Rules
- Based on industry analysis and company strengths, challenges, and resources
- Alternatives
- 2-3 main alternatives (including recommendation)
- Pros and Cons
- Map and alternatives to decision rules (see Table 8)
- Recommendation
- Implementation
- Short-Term
- Intermediate-Term
- Long-Term
- Who, when, how, how much
- Summarize problem, recommendation, benefits, and results
- Reiterate Introduction

Table 8: Decision Matrix

Strategic Options				
	Decision Criteria			
	A	B	C	D
Alternatives				
1				
2				
3				

Question & Answer

The first rule of the question and answer section in an academic case competition is "There should never be a question from a judge the team cannot answer." It may be the most crucial concept in this phase of the competition. Initially, teams do not understand the concept, however, after one or two practices, they begin to see the point. The simple fact is that after four bright students work on a case for up to 30 hours, there should never be a question that one of them cannot answer. Again, that comes from confidence - the C in RICE - confidence in their prior analysis.

After analyzing the case and before presenting, the team should have asked the questions listed under "Test the Analysis" in Table 9. This list of questions is by no means complete, but if not considered, may render a team speechless (or embarrassed) and receive penalties in the scoring during a presentation.

Table 9: Preparing for Q&A

- Short/Concise/Pointed Answers
- No add-ons
- Does that answer the question?
- It is not what is said, it is what they hear
- The meaning of words is not in words - The meaning of words is in people
- Make sure words and names are pronounced correctly
- Cost-Benefit-Strategic Fit

Testing the Analysis

- What is the risk(s) of the recommendation?
- What could go wrong?
- How about considering the status quo?
- What is their business?
- Do they have a core competency or a competitive advantage?
- What other markets were considered?
- Was this alternative considered?
- What recommendation is most important?
- What recommendation is least important?
- What do we do after your recommendations are implemented?
- What experience do you have that qualifies you to tell us how to run our company?
- I have looked at your website, and you appear not to have any experience in Not-For-Profits. Would you explain?
- What value would you place on the company?
- What are the management implications for your recommendation?
- How do we make the decision right? Can we convince the audience that we made the right decision especially with a bold strategy?
- Have we shown them that the other decisions are not the right ones?
- Have we told a story?

Answers should be short, concise, and to the point – the answers cannot appear to be another presentation. There should be no add-ons by a team member after another has answered. If add-ons are not done correctly, they may appear as if or give the impression that the team member that had presented previously was wrong or incomplete. As in the presentation phase, there are no apologies (No, "We're sorry."), it is merely Confidence and then more Confidence (never arrogance).

After giving a short answer, team members need to be taught to read the faces and body language of the judges. If the body language of the judge raises any question, then the team member should ask "Does that answer your question?"
If the team has access before the competition to the vita of the judges that can be helpful. For example, the team may get some indication from a vita that the judge is a person that is looking for numbers (CFO), or an experienced operations person (COO), or a seasoned strategy person (CEO). Each judge will be looking for a different slant or perspective on the response.

When answering a question, a team member should move forward one or two steps toward the judges and audience. Before a team member answers, the team needs to practice as to which potential questions each would answer.

The strategy of the organization, whether industrial, financial services, or not for profit, should also sway the presentation and Q&A. For example, every presentation needs a slide with "Cost -Benefit - Strategic Fit." However, if the organization is a not-for-profit, the slide may be titled "Social Impact", instead of "Strategic Fit" and the "Benefit" might be more socially-oriented instead of financially-oriented. For example, the "Benefit" in a not for profit might be an increase in volunteers that lead to more children tutored in an after school program. In turn, the Benefit for a for-profit might be an increase in market share or production capacity.

Implicit here is that students have been taught and understand a "framework for analysis" that is a "way of thinking" that applies to all types of organizations -- big and small, across industries, profit and not for profit -- and problems -- financial, mergers and acquisitions, human resources, marketing, or supply chain. It is not magic but a way of thinking and a framework - every analysis began with the strategy of the organization and recommendations need to fit that strategy in order to be effective and sustainable. The results show that the same teams, regardless of majors, prepared the same way could be competitive in all types of competitions against top-ranked schools. The type of organization or problem will not matter if the team has mastered a framework and it has become a way of thinking.

IMPORTANT TAKEAWAYS

Takeaways can come from anywhere in the process of preparing, competing, and winning competitions. They not only relate to the team members but also for readers of this article who want to coach teams for competitions. For example, bringing the team's alumni back to practice and judge in academic case competitions accomplishes several objectives including motivating the current team to continue the legacy (or establish the tradition) of winning such competitions. The alumni also bring wisdom, real world experience, and an aspirational image. After being out in the real-world and with the opportunity to reflect, they have a better understanding of the process. They can offer a different perspective on what the coach is saying, where the framework fits, and what it means to compete. (At business schools or universities where competition is not taken as seriously, and there is not a process, returning alumni will not be as effective.)

Choosing the material (cases) for each practice is similar to choosing the plays that coaches use in preparation for an athletic competition. It is in the mind of the coach, the "game plan" and choosing the situations that the coach "thinks" might occur.

Here execution plays a key role and players win the games. One must have confidence that the players (students) will recognize situations they have seen in practice and will improvise for a situation that they have not. This is where the initial selection of the team is so important - choosing the right individuals to be able to execute on game day. Remember the old adage: Players Win Games and Coaches Lose Them.

Practicing situations and debriefing a team's performance is critical. Practice, feedback, reflection, practice, feedback, and reflection cannot be underscored enough in any profession. The process to facilitate feedback begins with the Sunday practice sessions (Table 10) including faculty judges and alumni from previous teams. The presentation, 10 to 20 minutes depending on the upcoming competition, is followed by a question and answer session with the judges. After the formal Q&A period of 10 to 20 minutes, the practice session is opened to general comments by the judges in a conversational and informal setting.

At this time judges offer a pointed critique of the presentation, analysis, and question and answer components. Judges in Northeastern's practice sessions were hand-selected senior faculty with many having played the role as a judge previously - sometimes as long as 20 years. The alumni were former participants and had been in their careers for a minimum of four years and some as many as 10-20 years. Ironically, the case competition judges were not as prepared nor qualified as practice judges at Northeastern. The quality of the practice judges can give teams an advantage in the actual competition. Judges in our practice sessions were always extremely prepared (which is not always the case in actual competitions). It is important to note that a judge in our practice sessions would not be invited back if their performance was not acceptable – faculty as well as alumni.

Faculty and alumni in their roles as judges must ask difficult and penetrating questions as would real world CEOs. During the debriefing, judges comment on the most minute detail (body language, using "um", and so on) to the most sophisticated evaluation question regarding assumptions of the costs of entering a new market or valuing a company for a merger. There are "no holds barred".

There is also mutual respect generated amongst the team, the faculty, and the alumni. Since the faculty often return year after year (some have been attending for 10-20 years), they become acquainted with the alumni, and some alumni were once their students. These practice sessions simulate real competitions and assist in the development of a winning "culture" at the school.

Finally, frameworks are tools that contribute to understanding how to transform the *complex* into something a team can *understand* then into something that can be *executed*. It is a way to teach students/athletes/managers to be able to take complex situations, understand them, and implement or execute a plan.

Table 10: Time Line

- Selection Process - Begins in March to choose teams for the following January completed by June
- Training - Begins when classes begin in January
- Introduction - First Day Lecture - Framework, Caselet(s)
- Practices - First Saturday and Sunday after classes begin
- Each weekend assign a case to prepare on Saturday and present on Sunday
- The practice could include a live case
- Debriefing by faculty, alumni, and coach
- Feedback and Lectures - Usually once during the week for 1-2 hours (class schedules permitting)
- First Competition - Usually during the second week in February – 5-6 weeks to prepare
- Subsequent Competitions - Continue to prepare to focus wherever possible on the details of the particular competition
- Specific model – presentation time, preparation time, previous cases

CONCLUSIONS

The goal of this paper was to present a process for preparing teams to compete and offer some compelling reasons for having students compete in prestigious academic case competitions. The reasons are difficult to articulate, measure, and understand, possibly offering an explanation for the lack of acceptance of academic case competitions across colleges and universities in the country and world. This article proposes that academic case competitions can be a component contributing to preparing academic athletes for the real world and contributing to students becoming more workforce self-efficacious.

Table 2 is a model for preparing Academic Athletes for the real world. The triangle, circle, lines, and arrows depict and emphasize the connection and interrelatedness among the principles associated with academics, athletics, and the real world. To prepare an Academic Athlete to compete requires that one master, or as a minimum, become familiar with all three. It is the rare college student that has mastered all three from the beginning. A true Academic Athlete will master all three.

This article is an approach to teaching that mastery effectively. Preparing for competitions is a complex iterative process requiring dedication by students and a faculty adviser to be successful. Numerous schools look at competitions as a vehicle for students to have fun, travel, and meet students from other universities with the learning component secondary. When approached correctly, academic case competitions offer an alternative way or methodology to prepare students for the real world and provide a capstone for experiential learning. Ultimately, students will leave with Enhanced Self-Efficacy (I can Win), Enhanced Team Self-Efficacy (We can Win), and Enhanced Skills (Analysis, Presentation, Defending Recommendations, Teamwork, and More). They will also leave as Academic Athletes.

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- Example: **Table 1: Statistical Analysis**

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Example (note that this example represents a change from previous style guides)

Evidence to Support Sloppy Writing Leads to Sloppy Thinking

Peter J. Billington, Colorado State University - Pueblo, Colorado, USA (12 point)
Terri Dactil, High Plains University, Alberta, Canada

ABSTRACT (10 point, bold, all capitalized, left justified)

(text: 10 point Times font, no indent, justified, single space, 150 words maximum for the abstract)
The classic phrase "sloppy writing leads to sloppy thinking" has been used by many to make writers develop structured and clear writing. However, although many people do believe this phrase, no one has yet been able to prove that, in fact, sloppy writing leads to sloppy thinking. In this paper, we study the causal relationship between sloppy writing and sloppy thinking.

Keywords: sloppy writing**,** sloppy thinking **(10 point, bold title, first letter capitalized, left justified).**

INTRODUCTION (10 point, bold, all capitalized, left justified).

The classic phrase "sloppy writing leads to sloppy thinking" has been used by many to make writers develop structured and clear writing. However, since many people do believe this phrase, no one has yet been able to prove that in fact, sloppy writing leads to sloppy thinking. Is it possible that sloppy writing is done, even with good thinking. Or perhaps excellent writing is developed, even with sloppy thinking.

In this paper, we study the writing of 200 students that attempts to test the theory that sloppy writing leads to sloppy thinking.

PREVIOUS RESEARCH

The original phrase came into wide use around 2005 (Clon, 2006), who observed sloppy writing in economics classes. Sloppy writing was observed in other economics classes (Druden and Ellias, 2003).

RESEARCH DESIGN

Two hundred students in two business statistics sections during one semester were given assignments to write reports on statistical sampling results. The papers were graded on a "sloppiness" factor using…

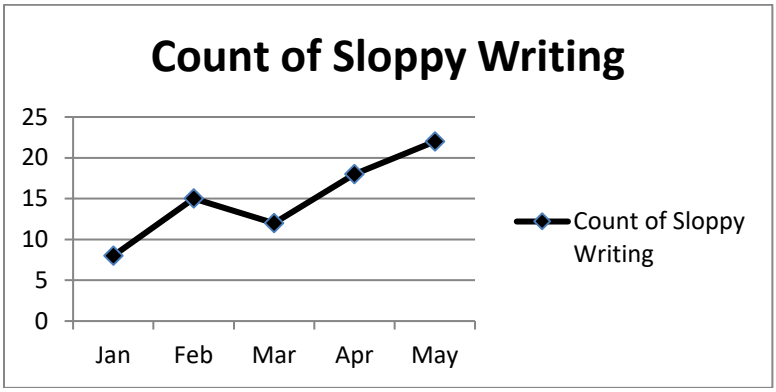
Data Collection (Sub-heading, bold but not all caps, 10 point, aligned left, bold, no line after to paragraph)
The two hundred students were asked to write 2 short papers during the semester…

Data Analysis(Sub-heading, bold but not all caps, 10 point, aligned left, bold, no line after to paragraph)
The two hundred students were asked to write 2 short papers during the semester…

DISCUSSION

The resulting statistical analysis shows a significant correlation between sloppy writing and sloppy thinking. As noted below in Figure 1, the amount of sloppy writing increases over the course of the spring semester.

Figure 1: Sloppy Writing During the Semester



The count results were compiled and shown in Table 1 below.

Table 1: Counts of Good and Sloppy Writing and Thinking (bold, 1 line after to table, left justify)

	Good Thinking	**Sloppy Thinking**
Good Writing	5	22
Sloppy Writing	21	36

*-Indicates significance at the 5% level)

As Table 1 shows conclusively, there is not much good writing nor good thinking going on.

CONCLUSIONS

The statistical analysis shows that there is a strong relation between sloppy writing and sloppy thinking, however, it is not clear which causes the other…

Future research will try to determine causality.

REFERENCES (title10 point, all caps, bold, align left, one line to first reference)
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(short bio section optional, can run longer than these examples; removed before sent to reviewers)

Peter J. Billington, Ph.D., is a professor of operations management at Colorado State University – Pueblo. His research interests include lean six sigma and innovative education.

Terri Dactil, Ph.D., is a professor of business communication in the College of Business at High Plains University, Alberta, Canada. His research interests include instructional methods to improve student communication skills.

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