Identifying the Specific Behaviors that Define Teamwork – A Review of the Literature and Integrative Meta-Model for Business School Applications

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ABSTRACT

Seven prominent research-based models of teamwork effectiveness were reviewed and content analyzed. The result was a meta-model consisting of 41 specific positive and negative behaviors, grouped into four critical competencies and two major factors. Applications of the meta-model in teaching, assessing, and developing teamwork skills in collegiate business schools are discussed along with suggestions for future research.

Keywords: teamwork, teamwork effectiveness, teamwork meta-model

INTRODUCTION

Organizations in the United States continue to emphasize the importance of teamwork skills in new college graduates. In a survey conducted by Hart Research Associates (2016) of 400 U.S. employers, the "ability to work effectively with others in teams" was identified as the second most important learning outcome for college graduates, cited by 83% of respondents. The "ability to effectively communicate orally" was most important with 85%. Similarly, a survey of 144 member organizations of the National Association of Colleges and Employers (NACE) found the teamwork was among the four most valued career readiness competencies (Gray, 2016).

Not surprisingly, U.S. collegiate schools of business have continued to rely upon and expand the use of team-based assignments throughout the curriculum (Betta, 2015; Betts & Healy, 2015; Cannon-Bowers & Bowers, 2011; Hughes & Jones, 2011; Sashittal, Jassawalla & Markulis, 2011). However, in spite of decades of research on teamwork and how teams might be utilized in business classes, there is no generally accepted behavioral model of teamwork. While several have been proposed (and will be discussed below), a unifying, integrative model has not been purposed.

The purpose of this paper is to review seven major research-based behavioral models of teamwork in order to identify content commonalities and formulate an integrative meta-model.

TEAMWORK MODELS

An exhaustive review of the literature on teamwork produced several hundred research-based studies, seven of which proposed models identifying essential teamwork competencies for individuals. These seven studies, listed below chronologically, represent the research content analyzed in this paper.

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Model one

The first major model of teamwork behavior was proposed by Bales (1950). He conducted a review of the research on the participation of individuals in small groups in order to identify a set of behavioral categories to analyze interaction. The results of his review were two major interaction categories (Task Area and Social-Emotional Area), with four sub-categories and 12 specific behaviors, as depicted in Figure 1.

Figure 1: Major Teamwork Model One (Bales, 1950)

1. Task Area
   1) Attempted Answers
      a. Gives suggestion, direction, implying antonomy for other
      b. Gives opinion, evaluation, analysis, expresses feeling, wish
      c. Gives orientation, information, repeats, clarifies, confirms
   2) Questions
      a. Asks for orientation, information, repetition, confirmation
      b. Asks for opinion, evaluation, analysis, expression of feeling
      c. Asks for suggestion, direction, possible ways of action
2. Social-Emotional Area
   1) Positive Reactions
      a. Shows solidarity, raises other's status, gives help, reward
      b. Shows tension release, jokes, laughs, shows satisfaction
      c. Agrees, shows passive acceptance, understands, concurs, complies
   2) Negative Reactions
      a. Disagrees, shows passive rejection, formality, withholds help
      b. Shows tension, asks for help, withdraws out of field
      c. Shows antagonism, deflates other's status, defends or asserts self

Model two

Chronologically, the next major teamwork model was one formulated by Stevens and Campion (1994). The authors conducted a comprehensive review of research on groups and teams in order to identify the knowledge, skill, and ability (KSA) requirements for successful teamwork. They described two overall KSA categories (Interpersonal and Self-Management), five sub-categories and 14 specific KSA's. as represented in Figure 2.

Figure 2: Major Teamwork Model Two (Stevens & Campion, 1994)

1. Interpersonal KSAs
   1) Conflict Resolution KSAs
      a. The KSA to recognize and encourage desirable, but discourage undesirable, team conflict
      b. The KSA to recognize the type and source of conflict confronting the team and to implement an appropriate conflict resolution strategy
      c. The KSA to employ an integrative (win-win) negotiation strategy rather than the traditional distributive (win-lose) strategy
   2) Collaborative Problem Solving KSAs
      a. The KSA to identify situations requiring participative group problem solving and to utilize the proper degree and type of participation
      b. The KSA to recognize the obstacles to collaborative group problem solving and implement appropriate corrective actions
   3) Communication KSAs
      a. The KSA to understand communication networks, and to utilize decentralized networks to enhance communication where possible

b. The KSA to communicate openly and supportively, that is, to send messages which are: (1) behavior- or event-oriented; (2) congruent: (3) validating; (4) conjunctive; and (5) owned
    c. The KSA to listen nonevaluatively and to appropriately use active listening techniques
    d. The KSA to maximize consonance between nonverbal and verbal messages, and to recognize and interpret the nonverbal messages of others
    e. The KSA to engage in ritual greetings and small talk, and a recognition of their importance
  2. Self-Management KSAs
1) Goal Setting and Performance Management KSAs
    a. The KSA to help establish specific, challenging, and accepted team goals
    b. The KSA to monitor, evaluate, and provide feedback on both overall team performance and individual team member performance
2) Planning and Task Coordination KSAs
    a. The KSA to coordinate and synchronize activities, information, and task interdependencies between team members
    b. The KSA to help establish task and role expectations of individual team members, and to ensure proper balancing of workload in the team

Model three

Model 3 of teamwork was developed by Cannon-Bowers, Tannenbaum, Salas, and Volpe (1995). After reviewing the literature on teamwork competencies they identified and defined eight primary skill dimensions. They are summarized in Figure 3 below.

Figure 3: Major Teamwork Model Three (Cannon-Bowers, Tannenbaum, Salas and Volpe, 1995)

  1. Adaptability - The process by which a team is able to use information gathered from the task environment to adjust strategies through the use of compensatory behavior and reallocation of intrateam resources.
    1) Flexibility
        a. Capacity for closure
        b. Development of innovations
        c. Mutual adjustment
    2) Compensatory behavior
        a. Backing-up behavior
        b. Provide/ask for assistance
        c. Fail stop
    3) Dynamic reallocation of functions
  2. Shared Situational Awareness - The process by which team members develop compatible models of the team's internal and external environment; includes skill in arriving at a common understanding of the situation and applying appropriate task strategies.
    1) Situational awareness
        a. Orientation
        b. Team awareness
        c. Development of integrated model of environment
        d. Development of system awareness
    2) Shared problem-model development
  3. Performance Monitoring and Feedback - The ability of team members to give, seek, and receive task-clarifying feedback; includes the ability to accurately monitor the performance of teammates, provide constructive feedback regarding errors, and offer advice for improving performance.
    1) Intramember feedback
        a. Performance feedback
        b. Planning review
        c. Feedback/reinforcement
        d. Acceptance of/giving suggestions, criticism
    2) Mutual performance monitoring
        a. Monitoring and cross-checking
        b. Systems monitoring
        c. Performance monitoring

       d. Error identification/correction

       e. Intrateam monitoring

       f. Strategy development

       g. Procedure maintenance

4. Leadership/Team Management - The ability to direct and coordinate the activities of other team members, assess team performance, assign tasks, motivate team members, plan and organize, and establish a positive atmosphere.

   1) Task structuring

       a. Delegation and assignment

       b. Task assignment

       c. Resource distribution

       d. Resource management

       e. Performance direction

       f. Establishment of priorities

   2) Mission analysis

   3) Motivation of others

       a. Leadership control

       b. Goal setting

       c. Drive to completion

       d. Goal orientation

5. Interpersonal Relations - The ability to optimize the quality of team members' interactions through resolution of dissent, utilization of cooperative behaviors, or use of motivational reinforcing statements.

   1) Conflict resolution

   2) Cooperation (interpersonal)

   3) Assertiveness

   4) Morale building (behavioral reinforcement)

   5) Boundary spanning

6. Coordination - The process by which team resources, activities, and responses are organized to ensure that tasks are integrated, synchronized, and completed within established temporal constraints.

   1) Task organization

       a. Coordination of task sequence

       b. Integration

   2) Task interaction

       a. Technical coordination

       b. Response coordination

   3) Timing and activity pacing

7. Communication - The process by which information is clearly and accurately exchanged between two or more team members in the prescribed manner and with proper terminology; the ability to clarify or acknowledge the receipt of information.

   1) Information exchange

       a. Closed-loop communication

       b. Information sharing

       c. Procedural talk

       d. Volunteering/requesting information

   2) Consulting with others

       a. Effective influence

       b. Open exchange of relevant interpretations

       c. Evaluative interchange

8. Decision Making - The ability to gather and integrate information, use sound judgment, identify alternatives, select the best solution, and evaluate the consequences (in team context, emphasizes skill in pooling information and resources in support of a response choice).

   1) Problem assessment

   2) Problem solving

       a. Emergence of solutions

       b. Probabilistic structure

       c. Hypothesis formulation

        d.   Information processing
        e.   Information evaluation
   3) Planning
        a.   Plan development
        b.   Use of information
   4) Metacognitive behavior
   5) Implementation (jurisdiction)

Model four

The fourth major teamwork model was constructed by Chen, Donahue, and Klimoski (2004). In this paper, five graduate students observed individual undergraduate student performance in 25 different leaderless group discussion exercises. They identified specific effective and ineffective behaviors, which were then combined into the five competencies contained in Figure 4.

Figure 4: Major Teamwork Model Four (Chen, Donahue and Klimoski, 2004)

1. Orients team to problem-solving situation
   1) Assists the team in arriving at a common understanding of the situation or problem
   2) Determines the important elements of a problem or situation
   3) Seeks out relevant data related to the problem or situation
2. Organizes and manages team performance
   1) Helps team establish specific, challenging, and accepted team goals
   2) Monitors, evaluates, and provides feedback on team performance
   3) Identifies alternative strategies or reallocates resources to address feedback on team performance
3. Promotes a positive team environment
   1) Assists in creating and reinforcing norms of tolerance, respect, and excellence
   2) Recognizes and praises other team members' efforts
   3) Helps and supports other team members
   4) Models desirable team member behavior
4. Facilitates and manages task conflict
   1) Encourages desirable and discourages undesirable team conflict
   2) Recognizes the type and source of conflict confronting the team and implements an appropriate resolution strategy
   3) Employs "win-win" negotiation strategies to resolve team conflicts
5. Appropriately promotes perspective
   1) Defends stated preferences, argues for a particular point of view
   2) Withstands pressure to change position for another that is not supported by logical or knowledge-based arguments
   3) Changes or modifies position if a defensible argument is made by another team member
   4) Projects courtesy and friendliness to others while arguing position

Model five

Baker, Horvath, Campion, Offermann, and Salas (2005) published the fifth major model. They conducted a comprehensive review of international research on teamwork, in order to identify a set of universal, culture-free dimensions essential for working in a team (not leading a team). Their analysis produced a set of four core teamwork skill competencies, as defined in Figure 5 below.

Figure 5: Major Teamwork Model Five (Baker, Horvath, Campion, Offermann and Salas, 2005)

1. Communication is defined as establishing effective communication between self and others; it involves the exchange of clear and accurate information and the ability to clarify or acknowledge the receipt of information. Strong communication skills are demonstrated by team members who:
   1) Provide clear and accurate information
   2) Listen effectively
   3) Ask questions
   4) Acknowledge requests for information
   5) Openly share ideas

6) Attend to non-verbal behaviors

2. Interpersonal Relations is a broad area that encompasses cooperation and dealing with conflict within the team. Therefore, effective interpersonal relations include working cooperatively with others, working together as opposed to working separately or competitively, and resolving disputes among team members. Strong interpersonal relations skills are demonstrated by team members who:
   1) Share the work
   2) Seek mutually agreeable solutions
   3) Consider different ways of doing things
   4) Manage/Influence disputes

3. Group Decision Making/Planning is defined as the ability of a team to gather and integrate information, use logical and sound judgment, identify possible alternatives, select the best solution, and evaluate the consequences. Strong group decision making and planning skills are demonstrated by team members who work with others to:
   1) Identify problems
   2) Gather information
   3) Evaluate information
   4) Share information
   5) Understand decisions
   6) Set goals

4. Adaptability/Flexibility is defined as the process by which a team is able to use information gathered from the task environment to adjust strategies through the use of compensatory behavior and reallocation of intra-team resources. Strong adaptability/flexibility skills are demonstrated by team members who:
   1) Provide assistance
   2) Reallocate tasks
   3) Provide/Accept feedback
   4) Monitor/Adjust performance

Model six

The sixth major model of teamwork was formulated by Salas, Sims, and Burke (2005). These researchers conducted a review and thematic analyses of the literature on groups. Based upon this work, five core teamwork components were identified, four of which were behavioral and one was attitudinal. They are described in Figure 6.

Figure 6: Major Teamwork Model Six (Salas, Sims and Burke, 2005)

1. Team leadership
   1) Ability to direct and coordinate the activities of other team members, assess team performance, assign tasks, develop team knowledge, skills, and abilities, motivate team members, plan and organize, and establish a positive atmosphere.
      a. Facilitate team problem solving.
      b. Provide performance expectations and acceptable interaction patterns.
      c. Synchronize and combine individual team member contributions.
      d. Seek and evaluate information that affects team functioning.
      e. Clarify team member roles.
      f. Engage in preparatory meetings and feedback sessions with the team.

2. Mutual performance monitoring
   1) The ability to develop common understandings of the team environment and apply appropriate task strategies to accurately monitor teammate performance.
      a. Identifying mistakes and lapses in other team members' actions.
      b. Providing feedback regarding team member actions to facilitate self-correction.

3. Backup behavior
   1) Ability to anticipate other team members' needs through accurate knowledge about their responsibilities. This includes the ability to shift workload among members to achieve balance during high periods of workload or pressure.
      a. Recognition by potential backup providers that there is a workload distribution problem in their team.
      b. Shifting of work responsibilities to underutilized team members.

       c. Completion of the whole task or parts of tasks by other team members.
    4. Adaptability
      1) Ability to adjust strategies based on information gathered from the environment through the use of backup behavior and reallocation of intrateam resources. Altering a course of action or team repertoire in response to changing conditions (internal or external).
        a. Identify cues that a change has occurred, assign meaning to that change, and develop a new plan to deal with the changes.
        b. Identify opportunities for improvement and innovation for habitual or routine practices.
        c. Remain vigilant to changes in the internal and external environment of the team.
    5. Team orientation (an attitudinal variable)
      1) Propensity to take another's behavior into account during group interaction and the belief in the importance of team's goal over individual members' goals.
        a. Taking into account alternative solutions provided by teammates and appraising that input to determine what is most correct.
        b. Increased task involvement, information sharing, strategizing, and participatory goal setting.

Model seven

Hobson, Strupek, Griffin, Szostek, Selladurai, and Rominger (2013) formulated the seventh major model by reviewing research literature, beginning in the late 1940's, to identify the most commonly cited positive and negative teamwork behaviors. Their results included 15 positive behaviors and 10 negative behaviors, as displayed in Figure 7 below. The authors rated videotaped student performance in leaderless group discussion exercises on each of the 25 specific behaviors, using the following 0-4 scale: 0=Never, 1=Rarely, 2=Occasionally, 3=Frequently, and 4=Always.

Figure 7: Major Teamwork Model Seven (Hobson, Strupek, Griffin, Szostek, Selladurai and Rominger, 2013)

Positive Behaviors	Negative Behaviors
1. Listened attentively (eye contact, comprehenders) when teammate was talking	1. Failed to offer verbal input to team discussion
2. Piggy-backed on teammate idea	2. Interrupted teammate who was talking
3. Gave positive feedback to teammate (that's a good idea)	3. Gave personalized, derogatory criticism to teammate
4. Politely asked for input from a quiet teammate	4. Brought-up topic that was completely unrelated to the team discussion
5. Offered task-related input during team discussion	5. Started a side conversation while teammate was talking
6. Took notes on team discussion	6. Dominated discussion by failing to allow others to talk
7. Attempted to achieve win-win resolutions to conflict	7. Refused to compromise
8. Kept team focused and "on-track"	8. Insisted that his/her idea was the only correct one
9. Sought clarification by asking questions or paraphrasing	9. Inappropriately tried to create humorous situations
10. Called teammates by their first name	10. Pessimistic, negative, and/or complaining
11. Summarized areas of team agreement and disagreement	
12. Constructively criticized teammate ideas, not the person	
13. Appropriately used humor to help team stay relaxed	
14. Answered teammate questions	
15. Expressed empathy for teammate feelings	

Major themes

A content analysis of the specific positive and negative behaviors represented in the seven models presented above produced a set of nine major themes. They included: (1) Conflict Resolution, (2) Problem Solving, (3) Task Management, (4) Communication, (5) Goal Setting and Performance Management, (6) Planning and Organization, (7) Promotes Positive Team Environment, (8) Promotes Own Perspective, and (9) Negative Behaviors.

The extent to which each theme is represented in the seven models in summarized in Figure 8. Notice that while Problem Solving and Goal Setting & Performance Management are represented in all seven of the teamwork models, Negative Behaviors are represented in two of them.

Figure 8: Representation of Nine Major Themes Within the Seven Research-Based Studies

Major Themes	Bales	Stevens & Campion	Cannon-Bowers et al.	Chen et al.	Baker et al.	Salas et al.	Hobson et al.	Total
Problem Solving	Yes	Yes	Yes	Yes	Yes	Yes	Yes	7
Goal Setting and Performance Management	Yes	Yes	Yes	Yes	Yes	Yes	Yes	7
Conflict Resolution		Yes	Yes	Yes	Yes		Yes	5
Planning and Organization		Yes	Yes		Yes	Yes	Yes	5
Task Management	Yes		Yes		Yes	Yes	Yes	5
Communication	Yes	Yes	Yes		Yes		Yes	5
Promotes Positive Team Environment	Yes		Yes	Yes		Yes	Yes	5
Promotes Own Perspective	Yes		Yes		Yes			3
Negative Behaviors	Yes						Yes	2

Meta-model

Further content and conceptual analysis of the nine major themes identified above yielded a meta-model of teamwork behavior, consisting of two well-known and documented principal categories: Task and Social. Within the Task Category, there is one primary competency, termed Task-Completion, with an accompanying set of 10 specific positive behaviors and three specific negative ones (the full teamwork meta-model is represented in Figure 9 below). The Social Category consists of three primary competencies (Communication, Member Relations, and Disagreement Management), each with specific associated positive and negative behaviors.

Figure 9: An Integrative Meta-Model of Teamwork

Task Category
1. Task Completion Competency
   1) Positive Behaviors
      a. Agrees with a team member
      b. Answers teammate's question
      c. Builds on another's idea/piggy-backs on the idea (beyond mere agreement)
      d. Takes notes on team discussion
      e. Seeks clarification by asking questions/paraphrasing another's input
      f. Keeps the team focused and "on-track"
      g. Keeps track of time
      h. Helps the team establish goals/plans
      i. Provides team-based feedback/ praise/reinforcement
      j. Expresses own opinion that adds value to the discussion
   2) Negative Behaviors
      a. Brings up topic that is unrelated to team discussion
      b. Dominates discussion by failing to allow others to talk
      c. Distracts team with inappropriate humor, repetitive/nervous behavior, and/or by being overly pessimistic, negative, dramatic or by complaining excessively

Figure 9 continued: An Integrative Meta-Model of Teamwork

Social Category
1. Communication Competency
    1) Positive Behaviors
        a. Speaks in a clear/understandable manner
        b. Displays open body language (sitting upright, slight lean forward, oriented toward team, arms/legs/hands not crossed)
        c. Maintains appropriate eye contact with teammates while speaking
        d. Maintains appropriate eye contact when listening to teammates
        e. Uses non-verbal comprehenders while listening (uh-huh, head nods, etc.)
    2) Negative Behaviors
        a. Speaks in an unclear/not understandable manner
        b. Speaks in a verbose, rambling manner
        c. Appears distracted, disinterested, pre-occupied
        d. Allows note taking to interrupt active listening
        e. Displays closed, defensive body language (slouching, leaning back, oriented away from the team, crossed arms/legs/hands)
        f. Avoids eye contact
2. Member Relations Competency
    1) Positive Behaviors
        a. Recognizes and praises team members' contribution
        b. Ensures input and participation of all team members/Invites quiet teammates to participate
        c. Expresses empathy toward team members
        d. Uses appropriate humor to reduce anxiety and stress
        e. Calls teammates by first name
    2) Negative Behaviors
        a. Interrupts speaker
        b. Engages in a side conversation while teammate is talking
        c. Disregards a teammate's input
3. Disagreement Management Competency
    1) Positive Behaviors
        a. Plays devil's advocate
        b. Uses critical analysis, rather than emotions, to evaluate ideas/actions
        c. Constructively disagrees with teammate ideas
        d. Employs an integrative (win-win) approach to disagreement resolution
        e. Expresses willingness to compromise
        f. Mediates disagreement among teammates
        g. Accepts feedback from teammates without defensiveness or "shutting down"
        h. Asks teammates about agreement concerning proposed team decisions
    2) Negative Behaviors
        a. Gives personalized, derogatory criticism to teammates
        b. Responds defensively/aggressively to feedback from teammates
        c. Refuses to compromise; insists that his/her idea is the only correct one
        d. Withdraws from interaction after feedback from teammates

Until future empirical research is conducted, the Task and Social Categories are posited to be equally important in determining teamwork effectiveness. Likewise, the three competencies within the Social Category are deemed equally important. Finally, the specific positive and negative behaviors within each competence are considered equally important. These weighting issues are significant when evaluating and scoring individual student teamwork performance, as described below.

Recommended scoring rubric

Based upon the work of Hobson et al. (2013), it is recommended that raters (professors, students, external evaluators) be initially trained on the specific behaviors represented in the meta-model. This training can be facilitated by observing video-taped group interaction and identifying the target behaviors when they occur.

In essence, the rating task involves recording the frequency with which each specific behavior is viewed during a team interaction session. As mentioned above video-taping this interaction allows a rater to pause or "rewind the tape" as needed to accurately record behavioral frequencies.

Behavioral frequency counts can be converted into ratings on a 0-4 scale using the following:

Behavioral Frequency	Rating
0	0
1-3	1
4-6	2
7-9	3
≥10	4

After obtaining ratings (0-4) for all of the specific positive and negative behaviors in the meta-model, an overall score on teamwork effectiveness can be calculated, using the following five steps.

1. For each of the four teamwork competencies (Task Completion, Communication, Member Relations, and Disagreement Management), compute a sum of the scores for the individual items included in each competency, using negative numbers for the ratings on the negative behaviors.
2. For each of the four competencies, divide the sum of the item scores by the number of items to produce a mean value on the measurement scale from -4 to +4.
3. For each of the four competencies, convert the mean value (on the 8-point scale, from -4 to +4) to a percentage by adding 4 and then dividing that sum by 8. This will yield a percentage score for each competency.
4. Compute a score for the Social category by adding the percentage scores for the three competencies within this major category (Communication, Member Relations, and Disagreement Management) and then dividing this sum by three. Given that there is only one competency (Task Completion) within the Task category, the percentage score for Task Completion also represents the score for the category.
5. Calculate an overall teamwork score (percentage) by summing the percentage scores for the Task and Social categories and then dividing this sum by two, resulting in a mean overall percentage score.

CLASSROOM APPLICATIONS

The meta-model of teamwork effectiveness can be usefully applied in business school classroom settings in several ways. First, it provides a content summary of seven prominent research-based models of teamwork behavior, in the straightforward format of two major categories and four distinct competencies. Second, the meta-model summarizes the specific positive and negative behaviors that impact teamwork effectiveness, making it easier for students to understand this topic.

The meta-model can also be very helpful in assessing individual student teamwork performance, as reflected in a video-taped leaderless group discussion exercise. Students can learn how to assess their own performance, using the scoring rubric discussed earlier. These self-assessments can be compared with peer and/or instructor assessments to formulate a comprehensive understanding of one's teamwork strengths and weaknesses.

Building upon this behavioral assessment, another potential application of the meta-model is as a framework for teamwork coaching. Scores on an initial assessment can be used to identify specific behavioral strengths, to be further leveraged, and specific behavioral weaknesses, for which explicit improvement strategies can be developed.

Finally, if used as a pre-post-measure, the meta-model can offer an excellent mechanism to assess individual student progress in improving teamwork skills. Combining assessments for an entire class can offer a professor invaluable information to enhance the coverage of material in future classes. Finally, teamwork skill improvement data can be useful in documenting a business program's impact for accreditation purposes.

FUTURE RESEARCH

Future empirical research with the proposed meta-model of teamwork is clearly needed. Particularly important areas include:

1. The teamwork meta-model needs to be field-tested in college classrooms, to include procedures to train students/ faculty, video-tape team exercises, and conduct ratings.

2. It is essential to assess the meta-model's inter-rater reliability. This could be accomplished by utilizing multiple trained evaluators to rate the performance of individual students functioning in leaderless group discussion exercises.

3. After establishing the meta-model's reliability, it would be important to construct large-sample norms for the instrument, consisting of measures of central tendency and dispersion, as well as percentiles. This would allow individuals to interpret their own scores in comparison to the normative sample.

4. With large sample data, it would be interesting to confirm the proposed factor structure of the meta-model and determine if the individual items cluster together as hypothesized.

5. The validity of the meta-model could be evaluated by correlating overall scores with indices of team success, personality measures of team orientation, and biographic measures of teamwork involvement/achievement.

6. Finally, it would be helpful to examine potential sub-group differences in overall teamwork scores as a function of such demographic variables as sex, race, age, and college major.

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