

Teaching MBA Students Teamwork And Team Leadership Skills: An Empirical Evaluation Of A Classroom Educational Program


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ABSTRACT

A comprehensive educational program for teaching behavioral teamwork and team leadership skills was rigorously evaluated with 148 MBA students enrolled at an urban regional campus of a Midwestern public university. Major program components included (1) videotaped student teams in leaderless group discussion (LGD) exercises at the course beginning and end, (2) behavioral assessment of student teamwork and team leadership in the LGD's, (3) peer and instructor performance feedback and coaching after each LGD, (4) informational modules on teamwork and team leadership, and (5) multiple opportunities (classroom and field) to practice teamwork and team leadership skills. Prominent findings indicated (1) a statistically significant increase in overall teamwork and overall team leadership scores of, respectively, 14% and 8%, (2) no demographic differences in student improvements as a function of sex, age, or race/ethnicity, and (3) very favorable student responses to end-of-course questions concerning teamwork and team leadership skills improvement, self-confidence, and attitudes.

Keywords: Teamwork Skills; Team Leadership Skills; Team Work Education; Team Leadership Education

INTRODUCTION

 Alls for major restructuring of MBA programs and business school curricula to better prepare students for workplace success have occurred periodically since the seminal work of Porter and McKibbin in 1988 (e.g., Bennis & O'Toole, 2005; Datar, Garvin, & Cullen, 2010; Pfeffer & Fong, 2002). A common theme among the more recent critiques is the need for a stronger focus on the development of essential skills, as opposed to only knowledge acquisition. In fact, the editors of *Strategic Direction* (Emerald Group Publishing Limited, 2013) call for a rebalancing of MBA education to reduce the “knowing-doing” gap that results in skill deficiencies among graduates. More specifically, Pfeffer and Fong (2002) asserted that MBA students would benefit from more experiential opportunities to learn and practice critical skills; Bennis and O'Toole (2005) argued for less theory-based learning and more emphasis on applied skill acquisition, and Datar et al. (2010) concluded that without applied skills, knowledge alone is of little value.

Given the nearly universal use of workplace teams in U.S. businesses (Cannon-Bowers & Bowers, 2011; Devine, Clayton, Philips, Dunford, & Melner, 1999; DiazGranados et al., 2008; Martin & Bal, 2006; Robbins & Judge, 2014; Thompson, 2011), perhaps no skill is more important for MBA students than facility with teamwork—including functioning as a contributing member and leader. For example, a survey of upper-level managers conducted for the Center for Creative Leadership (Martin & Bal, 2006) found that 91% of respondents asserted that teams were essential to their organizations' success. DiazGranados et al. (2008) reported that 94% of 185 surveyed

human resource management professionals utilized workplace teams within their companies. Finally, Robbins & Judge (2014) argued that it was quite rare to find a firm that did not employ teams in some form.

Not surprisingly, organizations have consistently appealed to higher education to place greater curricular emphasis on teams and teamwork (Chapman, Meuter, Toy, & Wright, 2010; Hart Research Associates, 2009; Kalliath & Laiken, 2006). For instance, Hart Research Associates (2009) conducted a national survey of U.S. businesses for the Association of American Colleges and Universities and found that fully 71% wanted increased school efforts to develop student teamwork skills.

Higher education, most notably MBA and undergraduate business programs, has attempted to respond to these employer needs for several years. Responses have typically taken the form of substantially increasing teamwork assignments throughout the curriculum (Chen, Donahue, & Klimoski, 2004; Halfhill & Nielsen, 2007; Holtham, Melville, & Sodhi, 2006; Hughes & Jones, 2011; Kalliath & Laiken, 2006; Isabella, 2005; Michaelson, Knight, & Fink, 2002; Page & Donelan, 2003; Rafferty, 2013; Sashittal, Jassawalla, & Markulis, 2011).

Although student teams are clearly being used more in collegiate business schools, these efforts have been widely criticized as misguided and ineffective. Applicable to both MBA and undergraduate programs, specific identified problems include a primary institutional emphasis on teamwork knowledge as opposed to the development of teamwork skills (Chen, Donahue, & Klimoski, 2004; Hess, 2007); business faculty who simply form teams and assign them projects without providing any education/guidance on teams and team functioning (Bacon, Stewart, & Silver, 1999; Bolton, 1999; Ettington & Camp, 2002; Hansen, 2006; Holmer, 2001; O'Conner & Yballe, 2007; Vik, 2001); the exclusive use of paper and pencil tests to assess student learning about teams (Hughes & Jones, 2011); the reliance on inappropriate grading strategies to evaluate student team projects, such as assigning all members the same grade, regardless of the magnitude of their contribution (Sheppard, 1995); a nearly universal failure to use direct observations of student teamwork performance as the basis for evaluation, coaching, and skill development (Baker & Salas, 1992; Hughes & Jones, 2011); the relative paucity of educational programs to measure and improve student teamwork skills (exceptions include the Chen et al., 2004, study with undergraduate psychology students and the Hobson et al., 2013b, study using business undergraduates); and the lack of rigorous empirical efforts to assess and improve student team leadership skills (with the exception of Hobson, Strupeck, Griffin, Szostek, & Rominger, 2013).

This last problem is particularly troubling, given the body of research confirming that team leadership is a primary determinant of team success (Cohen & Bailey, 1997; Hackman & Walton, 1986; Kozlowski, Gully, Salas, & Cannon-Bowers, 1996; Sinclair, 1992; Zaccaro, Rittman, & Marks, 2001). While there are certainly excellent articles describing case studies of innovative teaching approaches to team leadership at the MBA level (e.g., Dobson, Frye, & Mantena, 2013; Isabella, 2005), the authors were unable to locate any published, methodologically rigorous, theory-driven, empirical evaluations of educational programs that teach team leadership behavioral skills to MBA students.

The failure to identify relevant studies is consistent with two recent critiques of the literature on teaching leadership in general, which includes leading teams (DeRue, Sitkin, & Podolny, 2011; Snook, Nohria, & Khurana, 2012). Writing as guest editors for a special volume of the *Academy of Management Learning & Education* (2011) in an article titled "Teaching Leadership — Issues and Insights," DeRue et al. (p. 369) asserted, "There is a remarkable scarcity of rigorous theoretical and empirical research on the design and delivery of leadership teaching and education...and business schools are generally "flying blind" with respect to the efficacy of their leadership development courses, programs and activities." In a similar manner, Snook et al. (2012, xii), in the introduction to their edited book, *The Handbook for Teaching Leadership*, concluded, "It is far too easy to enumerate flaws in the current state of leadership education. Course content rarely conforms to the norms of the scientific method (Bennis & O'Toole, 2005); teachers employ casual and often self-serving empirical evidence (Ghoshal, 2005); approaches are rarely grounded in well-established theoretical traditions (Doh, 2003); there are as yet few credible communities of practice dedicated to developing and sharing best practices; and there is scant empirical evidence that any of these approaches really work (Pfeffer & Fong, 2002; Mintzberg, 2004). In short, the current state of leadership education lacks the intellectual rigor and institutional structure required to advance the field beyond its present (and precariously) nascent stage."

Purpose

Given the absence of empirical research described above, the purpose of this study is to rigorously evaluate an educational program designed to assess and improve the teamwork and team leadership skills of MBA students. The authors will present the conceptual models used for teamwork and team leadership, followed by a description of the pedagogic model and overall assessment framework utilized.

Teamwork and Team Leadership Conceptual Models

The authors' teamwork model is based upon research originally initiated by Benne and Sheats (1948) and Bales (1950; a, b). These researchers exhaustively described the specific behaviors involved in the teamwork domain - both positive and negative. Combining the definitions they offered, Hobson and Kesic (2002) formulated a content-based set of 15 positive and 10 negative behaviors to represent the teamwork domain and proposed its use as an assessment and development framework for management training. Hobson et al. (2013b) successfully used this conceptual model in teaching and evaluating teamwork skills in a sample of 247 undergraduate business students.

The pioneering research by Benne and Sheats and Bales also led to the creation of what is now known as the two-factor theory of team leadership. Independent initial efforts at three separate universities were instrumental in launching interest in this theory (Ohio State, Stogdill & Coons, 1957, with initiating structure and consideration as the two exploratory factors; University of Michigan, Likert, 1961, with the two factors being job-centered and employee-centered; University of Texas, Blake & Mouton, 1964, with factors of concern for production and concern for people). These three versions of two-factor theory stimulated a decades long explosion of research on leadership, in general, and team leadership, in particular (Fleishman et al., 1991; Kaiser, Hogan, & Craig, 2008; Yukl, Gordon, & Taber, 2002). In a meta-analysis of the team leadership literature, Burke et al. (2006) concluded that (1) the two-factor model had broadly demonstrated utility in describing and understanding team leadership, (2) task-related leader behaviors were consistently related to perceived team performance and success, and (3) people-related behaviors were correlated with perceptions of team performance, success, and learning. Building upon this extensive empirical foundation, Hill (2013) proposed an expanded, more comprehensive theory of team leadership, in which the two categories of task and relational leader behaviors play a central role, while also addressing leader decision-making and external activities. Hobson et al. (2013) reported on the first application of the two-factor model in effectively evaluating and improving the team leadership skills of 247 undergraduate business students.

Pedagogic Model and Assessment Framework

The authors used Anderson's (1983, 1995) Adaptive Character of Thought (ACT) theory as a pedagogic guide in formulating our educational program for MBA students. ACT theory focuses on human learning of complex behavioral skills, like teamwork and team leadership. According to Anderson, this form of learning should ideally progress through three stages. In the first stage, a person acquires factual or declarative knowledge about the target skill. Second, one combines declarative knowledge with procedural knowledge about the steps involved in actually performing the skill. Opportunities to practice the behaviors involved in the target skill are essential for success in this effort. Finally, the third stage in his model involves extensive, repeated practice, which enables the target skill behaviors to become more automatic and easier to exhibit.

Based upon ACT theory, the authors structured their educational program to provide students with opportunities to (1) acquire declarative knowledge about teamwork and team leadership skills, (2) formulate procedural knowledge about how to exhibit these skills, and (3) repeatedly practice the newly learned skills. The authors will fully describe the specific procedures utilized in the Method section below.

Wiggins (1998) offered a general evaluation methodology for education that is very appropriate for this focus on teaching behavioral skills in teamwork and team leadership. This methodology, called "educative assessment," entails the direct observation and critique of student behavioral performance (preferably by the instructor), followed by detailed feedback and additional opportunities to practice/improve.

Within the framework of Wiggins' "educative assessment," the authors chose the "leaderless group discussion" (LGD) exercise as the primary student evaluation tool (see the Method section for details on how the LGD was used). The authors utilized the LGD to measure both teamwork and team leadership skills of students.

The LGD is a common element in managerial assessment centers, widely adapted by organizations for hiring, promotion, and development purposes (Arthur & Day, 2011) and very appropriate for evaluating teamwork and team leadership capabilities (Cannon-Bowers & Bowers, 2011). Briefly, the technique typically involves assigning a problem to be solved to a small group of individuals (four to seven) seated around a table and asking them to develop a solution, within a designated time period. A formal team leader is not designated, thus the "leaderless" aspect of the exercise. Group deliberations are often videotaped and then reviewed to rate individual participants on teamwork, team leadership, communication, conflict resolution, and/or other interactional skills. If used for developmental purposes, detailed performance feedback and coaching are provided to each participant.

While LGD's have been successfully included in managerial assessment centers for decades (Arthur & Day, 2011; Thornton & Rupp, 2003, 2006), collegiate business schools have also adapted the LGD and assessment center methodology for the purpose of measuring student learning outcomes (Bartels, Bommer, & Rubin, 2000; Riggio, Mayes, & Schleicher, 2003; Waldman & Korbar, 2004). Four recent studies specifically, employed LGD's to evaluate various management skills of business students (Chen et al., 2004; Costigan & Donahue, 2009; Hobson et al., 2013b; Hobson et al., 2013). Chen et al. (2004) measured five behavioral domains of teamwork in a sample of undergraduate psychology students using LGD's and provided performance-based feedback and coaching. Costigan and Donahue (2009) employed an LGD to assess and teach MBA students the Great Eight competencies (Bartram, 2005), which included three dimensions directly related to teamwork and team leadership - (1) leading and deciding, (2) supporting and cooperating, and (3) interacting and presenting. Finally, Hobson et al. (2013b) reported on the results of LGD-based educational programs to assess, teach, and coach undergraduate business students in teamwork and, in a subsequent study (Hobson et al., 2013), team leadership. Given this demonstrated utility of the LGD as a behavioral assessment tool, the authors used it to measure MBA student teamwork and team leadership skills. The authors will describe the steps the authors followed in this process in the next section.

METHOD

Sample

The sample consisted of 148 MBA students enrolled in a required core course on teamwork in an AACSB (Association to Advance Collegiate Schools of Business) accredited business school at an urban regional campus of a Midwestern state university. The total enrollment for the institution is 6,000. There are presently slightly more than 100 students in the MBA program, split between week-night and weekend options, with virtually all students working full-time. The authors collected data during the three-year period from 2009-2011 when the teamwork class was offered.

Teamwork Course and Formation of Student Teams

The teamwork class used in this project was a required core course for all MBA students, who were advised to take it early in their graduate programs. The syllabus indicated that videotaping of student teams would occur at the beginning and near the end of the semester, followed in each instance by peer coaching sessions and written instructor feedback. Given the substantial class time involved in videotaping teams and conducting peer coaching sessions, the authors limited enrollment to a maximum of 30 students. With this number, six teams of five were formed.

After covering introductory material on the first class meeting, the authors "randomly" formed teams by asking students to "count-off" by 6's, beginning with females, followed by males (to create sexual heterogeneity on each team). The authors then reviewed these newly created teams for the presence of close friends, coworkers, or former teammates in earlier MBA classes, and made substitutions as needed. The primary objective was to create new teams in which members had no or very limited prior interaction history. The authors achieved this goal with all of the MBA student teams.

Once team rosters were finalized, the authors asked students to exchange contact information with teammates and then scheduled the first LGD videotaping sessions for the next class period. The authors concluded by simply telling students to expect to work together on a timed team project that would be recorded.

LGD Exercise

The authors conducted the LGD exercises in a special classroom that was hard wired for audio and video recording. When student teammates arrived for their scheduled taping, they were directed to seats configured in a semi-circle and provided detailed instructions about the exercise, which highlighted the need for written team output to be collected at the end of the taping session. For the first LGD, the authors asked students to identify and rank-order the top seven problems they had collectively experienced working on teams in the past. In addition, the authors requested two potential solutions to each of the seven listed problems. The task used in LGD II required students to provide a written summary of their recommendations concerning employee hiring and training to a fictional company interested in implementing self-managed work teams.

Based upon a format utilized by Bartels et al. (2000), the authors structured the LGD sessions for exactly 20 minutes. At the onset of videotaping, students were asked to introduce themselves (first and last name) and then address the topic. Upon completion of each 20-minute session, the authors collected the written team output.

The campus instructional media department videotaped each LGD exercise and subsequently produced a DVD containing all of the team sessions for a given class. They formatted the screen such that the top half consisted of a panoramic view of the entire team, while the bottom half was a close-up of the person speaking. The authors provided an individual copy of the class DVD to each student.

Assessment of Teamwork and Team Leadership

Teamwork

The assessment tool used to measure student teamwork was originally developed by Hobson and Kesic (2002) for use in corporate training and development. Subsequently, Hobson et al. (2013a) utilized the instrument to assess the teamwork skills of business undergraduates.

The seminal work of Benne and Sheats (1948), Bales (1950; a, b), and later Thompson (2001), guided the authors' construction of the tool. These researchers identified specific behaviors essential for teamwork in two broad categories - task management skills and interpersonal skills ("social-emotional" for Bales). Based upon their findings and recommendations, the authors formulated a set of 15 important positive teamwork behaviors and 10 negative or dysfunctional teamwork behaviors.

Table 1 contains the resultant Teamwork Evaluation Form employed in this study. The 15 positive behaviors are listed in the left column, with the 10 negative behaviors in the right column. Directions require raters to use a 5-point scale of occurrence frequency (0-4), modeled after that originally developed by Bass (1954) for use in assessing behavioral performance of participants in leaderless group discussion exercises.

Table 1: Teamwork Evaluation Form

Directions: Use the 0-4 (Never-Always) scale below to evaluate the target person on the specific behaviors listed.			
<u>0 - 4 Evaluation Scale</u>			
0 - Never			
1 - Rarely			
2 - Occasionally			
3 - Frequently			
4 - Always			
Positive Behaviors		Negative Behaviors	
<u>0-4 Rating</u>		<u>0-4 Rating</u>	
___1.	listened attentively (eye contact, comprehends) 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 tries 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 question		
___15.	expressed empathy for teammate feelings.		

The calculation of overall scores on the Teamwork Evaluation Form involves (1) summing scores for the 15 positive behaviors, (2) summing scores for the 10 negative behaviors, and (3) subtracting the negative behaviors' sum from the positive behaviors' sum. The range of possible overall scores is 100, from a low of - 40 (0's for all 15 positive items and 4's for all 10 negative items) to 60 (4's for the 15 positive items and 0's for the 10 negative ones).

After both LGD I and LGD II, the course instructor (an Industrial/Organizational psychologist with broad teaching, research, training, and consulting experience in team interaction) carefully reviewed each team videotape and focused on the performance of individual team members. He then completed a written Teamwork Evaluation Form for all participating students.

Team Leadership

In the introduction, the authors presented the considerable confirmatory research on the two-factor theory of team leadership (i.e., Burke et al., 2013), which is built upon the foundational work of Benne and Sheats (1948) and Bales (1950; a, b). Combining and synthesizing the various team leadership category titles, specific roles, and definitions that have been offered in the literature, the authors formulated a set of 10 task-related team leadership roles, six social-related roles, and five specific negative or dysfunction roles. This information is summarized, including role titles and brief definitions in Table 2.

Table 2: Team Leadership Roles

<i>Task Roles</i>		
1.	Initiator	Proposes tasks, goals, or procedures; defines team problems; begins discussion; restarts discussion during quiet times.
2.	Information Seeker	Asks for factual clarification; requests facts pertinent to the discussion; asks questions of teammates.
3.	Values Seeker	Asks about the values underlying teammate statements or positions; questions values involved in alternative points of view.
4.	Informer	Offers facts related to team's task; gives expression of feelings; gives opinions; answers teammate questions.
5.	Clarifier	Interprets ideas or suggestions; defines terms; explains complex issues; clears up confusion.
6.	Summarizer	Takes notes on group discussion; pulls together related ideas; restates suggestions; offers summary decisions or conclusions for the team to consider; reviews team progress.
7.	Reality Tester:	Conducts critical analyses of idea; tests ideas against data or experience to see if the ideas would work; shares "real world" examples to test team ideas.
8.	Orienter:	Keeps team on track; draws attention to departures from agreed upon directions or goals; raises questions about the direction pursued in team discussions; refocuses team when needed; keeps track of time.
9.	Piggy-Backer	Builds on the ideas of others; offers new, creative suggestions, based upon teammate input.
10.	Follower	Allows teammates to share in actively performing leadership roles; goes along with the movement of the team; accepts the ideas of others.
<i>Social Roles</i>		
1.	Harmonizer	Focuses criticism on ideas, not individuals; attempts to reconcile disagreements; reduces tension; helps smooth over minor differences; gets people to explore differences; appropriately uses humor to help keep team relaxed.
2.	Gatekeeper	Helps to keep communication channels open; facilitates the participation of others; suggests procedures that permit sharing remarks; gently calls upon quiet teammates to solicit their input.
3.	Consensus Taker	Asks to see whether the team is nearing a decision; "sends up trial balloons" to test possible solutions; asks if everyone agrees with a proposed decision.
4.	Encourager	Is friendly, warm and responsive to others; indicates by facial expressions or remarks the acceptance of others' contributions; listens attentively; gives positive feedback to teammates; calls teammates by first name.
5.	Compromiser	Proposes solutions that demonstrate flexibility and willingness to "give in" if necessary when his or her own ideas are involved in conflicts; modifies one's position in the interest of team cohesion and/or performance.
6.	Standard Setter	Suggests standards for the team interaction and performance; applies standards in evaluating the quality of team processes and output.
<i>Dysfunctional Roles</i>		
1.	Blocker	Blindly and consistently disagrees with and opposes action; stubbornly resists team decisions and thwarts action.
2.	Dominator	Aggressively attempts to force ideas on the team; interrupts others; attempts to manipulate and control team interaction; refuses to compromise; fails to allow others to talk.
3.	Avoider	Withholds involvement from team interaction; fails to contribute to team efforts; refuses to confront important issues.
4.	Clown	Engages in irrelevant, distracting behaviors; seeks team members' attention; tries to show-off; inappropriately attempts to create humorous situations; starts side conversations.
5.	Insulter	Attacks other team members in a destructive and personalized manner; sarcastic; pessimistic; negative.

The actual assessment instrument employed in this study to measure team leadership skills was first formulated by Hobson, Strupeck, & Szostek (2010) for use in corporate management development and is provided in Table 3. Similar in format to the one used with teamwork skills, the Team Leadership Roles Evaluation Form consists of the ten task-related, six social-related, and five negative roles, with spaces provided for an occurrence frequency rating on a 0-4 scale (“never” - “always”).

Table 3: Team Leadership Roles Evaluation Form

Directions: Use the 0-4 (Never-Always) scale below to evaluate the target person on the specific behaviors listed.			
<u>0 - 4 Evaluation Scales</u>			
0 - Never			
1 - Rarely			
2 - Occasionally			
3 - Frequently			
4 - Always			
Positive Roles		Negative Roles	
<u>0-4 Rating</u>	<u>Task Roles</u>	<u>0-4 Rating</u>	
___1.	Initiator	___1.	Blocker
___2.	Information Seeker	___2.	Dominator
___3.	Values Seeker	___3.	Avoider
___4.	Informer	___4	Clown
___5.	Clarifier	___5	Insulter
___6.	Summarizer		
___7.	Reality Tester		
___8.	Orienter		
___9.	Piggy-Backer		
___10.	Follower		
	<u>Social Roles</u>		
___1.	Harmonizer		
___2.	Gatekeeper		
___3.	Consensus Taker		
___4.	Encourager		
___5.	Compromiser		
___6.	Standard Setter		

An overall team leadership score can be computed by (1) summing the role scores for the task, social, and negative categories, (2) adding the task and social scores, and (3) subtracting the negative score from the combined task and social scores. These overall team leadership scores can range from a low of – 20 (0’s for all of the task and social roles, and 4’s for five negative roles) to a high of 64 (4’s for the ten task and six social roles and 0’s for the five negative roles), for a total of 84.

Following both LGD I and LGD II, the instructor carefully observed and analyzed each individual student's team leadership performance in the videotaped exercises. Based upon his assessment, he completed a Team Leadership Roles Evaluation Form for all participating students.

LGD-Related Education and Assignments

In the first class period after the LGD I videotaping, students were introduced to the rating instruments used to measure teamwork and team leadership. Specifically, the instructor discussed each of the 15 positive teamwork behaviors and 10 negative behaviors on the Teamwork Evaluation Form, presented the 0-4 frequency of occurrence rating scale, and then provided several team interaction scenarios to illustrate how to properly use the tool and offer practice opportunities for students.

Next, the instructor reviewed the Team Leadership Roles Evaluation Form, described the definitions for each of the individual roles, and reiterated the 5-point rating scale. As was done with teamwork, he discussed how several team leadership interaction sequences should be rated.

Following each LGD, the instructor required students to complete four written projects: (1) a teamwork self-assessment, (2) a team leadership self-assessment, (3) a teamwork coaching assessment of an assigned peer (not a friend, coworker, or previous teammate) in another group, and (4) a team leadership coaching assessment of the assigned peer.

For the teamwork self-assessment project, students were directed to carefully watch their individual performance in the LGD and complete the Teamwork Evaluation Form. Based upon the ratings, students identified three to five prominent strengths (along with supporting documentation in the form of actual frequency counts and specific examples), three to five areas for improvement (plus documentation), and a detailed plan to make the desired improvements. Following a similar process, they were asked to complete the Team Leadership Roles Evaluation Form, based upon their LGD performance, then identify and document three to five major strengths, three to five areas for improvement, and finally, prepare a written improvement plan.

As mentioned above, the instructor also required students to conduct a teamwork and team leadership evaluation of an assigned peer in another group. These two projects entailed completing the same steps as those in the two self-assessment projects.

After discussing the four LGD-related projects, the instructor introduced students to written guidelines for coaching someone when positive feedback was warranted and coaching when corrective feedback was justified. The material was designed to help prepare students for their peer coaching sessions.

One week after students received their LGD videotapes and assessment project requirements, the instructor scheduled peer coaching sessions during class time for 30 minutes. The required format directed the person being coached to start the session by sharing his/her major strengths in teamwork, along with supporting documentation. The peer coach then provided his/her observed strengths, plus documentation. The pair discussed any significant differences in rated strengths. Next, the person being coached presented his/her prominent areas for improvement (with documentation), followed by the coach's feedback. Again, the two students discussed any major discrepancies.

After completing the teamwork evaluation, students were directed to use the same format in critiquing the team leadership performance of the person being coached. Students shared significant unresolved differences with the instructor at the end of class for further discussion.

After reviewing student written self-assessment and coaching assessment projects, the instructor provided detailed written feedback about strengths and areas for improvement (including documentation) to individuals, based upon his ratings of their teamwork and team leadership performance in the LGD. The instructor attempted to explain major differences in ratings and offered to meet with students after class or during office hours to further address assessment results.

This assessment/feedback/coaching process was utilized after both LGD I and LGD II. This provided students with detailed information about their teamwork and team leadership skills from three perspectives - self, peer-coach, and instructor.

Post-LGD I Course Topics and Assignments

Following completion of LGD I and the initial set of coaching sessions, the instructor addressed the following major topics in class and in the customized course handout packet, using experiential exercises (classroom and field settings) to introduce and reinforce key concepts: (1) The Importance of Teamwork and Team Leadership in Business, (2) Forming and Building Teams, (3) The Major Determinants of Team Performance, (4) The Role of Team Norms and Sanctions, (5) The Importance of Leadership in Teams, (6) The Power of Shared Team leadership, (7) Making Decisions in Teams, (8) Formulating Team Work-Plans, (9) Evaluating Team Performance and Addressing Problem Areas, and (10) Giving and Receiving Teammate Feedback.

Below is a list and brief descriptions of the class projects that students were required to complete, in addition to the self- and coaching assessments after each LGD.

1. Team Building I - a customized out-of-class group exercise designed to help new teammates get to know each other and have fun together.
2. Team Building II - a structured interview to be completed by each student in one-on-one sessions with individual teammates, designed to identify common interests and prominent perceived strengths.
3. Norms and Sanctions - a group exercise to identify a written set of behavioral norms for team interaction and three-step sanctions to deal with norm violations, signed by all teammates.
4. Work Plans - a group exercise to develop written work plans for each team project, consisting of the project leader, the major activities required for project completion, and the person(s) responsible for each activity (along with specific due dates), signed by all teammates.
5. Team Exercise - a timed, in-class competitive exercise designed to assess team operational effectiveness.
6. Volunteer Project - a 25-hour, team-based, service learning project with a regional nonprofit.
7. Company Analysis - a group project to analyze a company currently using self-managed work teams and present the results in class.
8. Team Movie Critique - a group exercise to watch, discuss, and critique a team-themed movie and prepare a written report.
9. Team Interaction Critique - a group project involving individual assessment of team interaction during the semester using a 10-dimension rating scale, calculation of overall scores for the team, identification of team strengths and weaknesses, development of an improvement plan, and in-class presentations.
10. Team Leadership Roles Analysis - a group project involving an assessment of the shared team leadership roles performed by individuals during the LGD I exercise, identification of team strengths and weaknesses, and formulation of an improvement plan.
11. Project Leader Critique - an individual exercise in which the designated project team leaders summarize structured written feedback received from teammates, identifying personal strengths and weaknesses, and designing an improvement plan.
12. Team Member Feedback - a final team exercise in which individuals provide verbal feedback to teammates concerning their teamwork and team leadership strengths and weaknesses over the course of the entire semester, along with supporting documentation/observations.

DATA COLLECTION AND ANALYSIS

The authors collected the following data from MBA students participating in this study. First, for teamwork, the data included instructor-completed Teamwork Evaluation Forms, based upon student performance in LGD I, and similar forms for each student following LGD II. Second, regarding team leadership, the authors collected instructor-completed Team Leadership Roles Evaluation Forms for all students after both LGD I and LGD II. Third, for each student, demographic information on sex, age, and race/ethnicity was obtained. Finally, at approximately the halfway point in the three-year collection period, the authors decided to begin administering a 27-item self-perception/attitudinal survey at the end of the course, concerning the impact of the LGD and coaching

portions of the class. The items were simple statements to which students responded using a 1-5 Likert scale from “strongly disagree” to “strongly agree.” Lists of the general teamwork and team leadership items are provided in Tables 10 and 11, respectively.

The analyses began with calculating basic descriptive statistics for all variables in the data set, including overall scores on the Teamwork Evaluation Form (the sum of the 15 positive items, minus the sum of the 10 negative items) and Team Leadership Roles Evaluation Form (the sum of the 10 task items, plus the sum of the six social items, minus the sum of the five negative items). The authors used a repeated measures MANOVA as the omnibus test of the educational program’s impact on student teamwork and team leadership performance. Following significant findings for these two dependent variables, within subjects, t-tests were utilized to evaluate mean differences for (1) the 15 positive teamwork items, (2) the 10 negative teamwork items, (3) the 10-task leadership role items, (4) the six social leadership role items, and (5) the five negative role items.

In order to assess the potential impact of three demographic variables on student teamwork and team leadership learning, a full-factorial 2 X 3 X 4 (sex X age X race/ethnicity) MANACOVA was used as the omnibus test. The two dependent variables were student overall teamwork and team leadership scores in LGD II, with corresponding overall scores from LGD I functioning as the two covariates. The lack of statistically significant findings precluded any follow-up univariate testing (see Results section). Finally, the authors calculated means (on a 5-point scale) for the 27 Likert items on the end-of-class survey measuring student self-perceptions/attitudes.

RESULTS

Description of Sample

The demographic composition of the authors’ sample of 148 MBA students, in terms of sex, age, and race/ethnicity, consisted of the frequencies and relative percentages shown in Table 4.

Table 4: Demographic Composition of Sample

Sex	Male:	101 (68.2%)
	Female:	47 (31.8%)
Age	21-26:	43 (29.1%)
	27-35:	56 (37.8%)
	36-62:	49 (33.1%)
Race/ Ethnicity	African-American:	26 (17.6%)
	Caucasian:	102 (68.9%)
	Hispanic-American:	14 (9.5%)
	Other:	6 (4.0%)

Repeated Measures MANOVA

Results of the repeated measures MANOVA produced strong evidence of student performance improvements in both teamwork and team leadership. For teamwork, the calculated F-value was 38.90 (df = 1,147), probability < .001, and $\eta^2 = .21$. The mean overall teamwork scores for LGD I and LGD II were, respectively, 23.28 and 26.56, reflecting a 14% increase. For team leadership, the computed F was 20.71 (df = 1,147), probability < .001, and $\eta^2 = .12$. Mean overall team leadership scores improved from 24.90 in LGD I to 26.89 in LGD II - a rise of 8%.

Teamwork Item Comparisons

Table 5 displays the results of within-subjects t-tests for the 15 positive teamwork behaviors, including means for LGD I and LGD II, t-values, degrees of freedom, significance levels, and calculated point bi-serial correlations squared, as effect size estimators. Seven of 15 positive behaviors evidenced statistically significant increases (items 1, 2, 3, 4, 5, 6, and 10), with effect sizes ranging from a low of .05 (item 5) to a high of .44 (item 10). The remaining eight positive teamwork behaviors (7, 8, 9, 11, 12, 13, 14, and 15) remained unchanged from LGD I to LGD II.

Table 5: Mean¹ Differences on 15 Positive Behaviors for Time 1 and Time 2 (N = 145)

15 Positive Behaviors		Time 1 Mean	Time 2 Mean	t Value	df	Sig.	r ² pbi
1.	listened attentively (eye contact, comprehenders) when teammate was talking	3.08	3.26	4.37	144	<.001	.12
2.	piggy-backed on teammate idea	1.73	2.19	4.32	144	<.001	.12
3.	gave positive feedback to teammate (that's a good idea)	2.21	2.83	6.84	144	<.001	.25
4.	politely asked for input from a quiet teammate	.38	.71	2.90	144	.004	.06
5.	offered task-related input during team discussion	3.07	3.22	2.61	144	.010	.05
6.	took notes on team discussion	2.29	2.99	6.48	144	<.001	.23
7.	attempted to achieve win-win resolutions to conflict	.12	.08	-.84	144	.400	—
8.	kept team focused and “on-track”	2.15	2.01	-1.41	144	.160	—
9.	sought clarification by asking questions or paraphrasing	2.73	2.71	-.22	144	.824	—
10.	called teammates by their first names	.77	2.28	10.70	144	<.001	.44
11.	summarized areas of team agreement and disagreement	.94	.95	.06	144	.952	—
12.	constructively criticized teammate ideas, not the person	.69	.86	1.82	144	.070	—
13.	appropriately used humor to help the team stay related	.66	.59	-.76	144	.450	—
14.	answered teammate question	2.84	2.69	-1.50	144	.137	—
15.	expressed empathy for teammate feelings	.08	.04	-.80	144	.425	—

¹ Measurement Scale: 0 = Never, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Always

Percentage increases in the means for the seven statistically significant items were:

Items	Percentage Increases
1	5.84%
2	26.59%
3	28.05%
4	86.84%
5	4.89%
6	30.57%
10	196.10%

The range for these increases was 191.2% - from a low of 4.89% to a high of 196.10% - with a mean of 54.13%.

Findings in Table 6 show that mean frequency ratings for the 10 negative teamwork behaviors were extremely small. In fact, for LGD I, five of the 10 means (items 3, 6, 7, 8, and 10) were zero, while for LGD II, three of 10 were zero (items 3, 6, and 7). None of the calculated t-values, assessing changes in means from LGD I to LGD II, were statistically significant. These data confirm that exhibition of negative teamwork behaviors during the videotaping was negligible.

Table 6: Mean¹ Differences on 10 Negative Behaviors for Time 1 and Time 2 (n = 145)

10 Negative Behaviors		Time 1 Mean	Time 2 Mean	t Value	df	Sig.	r ² pbi
1.	failed to offer verbal input to team discussion	.02	.08	1.52	144	.131	—
2.	interrupted teammate who was talking	.26	.19	-1.41	144	.160	—
3.	gave personalized, derogatory criticism to teammate	.00	.00	—	—	—	—
4.	brought-up topic that was completely unrelated to the team discussion	.04	.01	-1.27	144	.207	—
5.	started a side conversation while teammate was talking	.03	.01	-1.27	144	.207	—
6.	dominated discussion by failing to allow others to talk	.00	.00	—	—	—	—
7.	refused to compromise	.00	.00	—	—	—	—
8.	insisted that his/her idea was the only correct one	.00	.01	1.00	144	.319	—
9.	inappropriately tried to create humorous situations	.02	.01	-1.00	144	.319	—
10.	pessimistic, negative, and/or complaining	.00	.01	1.00	144	.319	—

¹ Measurement Scale: 0 = Never, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Always

Team Leadership Item Comparisons

Table 7 summarizes t-test information for the 10 task leadership items, indicating statistically significant improvement from LGD I to LGD II in four of the 10 items (1, 6, 7, and 9) and no differences in the remaining six. Effect sizes ranged from .07 (item 1) to .15 (item 10).

Table 7: Mean¹ Differences on 10 Task Leadership Roles for Time 1 and Time 2 (n = 145)

10 Task Roles		Time 1 Mean	Time 2 Mean	t Value	df	Sig.	r ² pbi
1.	Initiator	2.20	2.50	3.28	144	.001	.07
2.	Information Seeker	2.74	2.65	-.93	144	.356	—
3.	Values Seeker	.00	.03	1.39	144	.166	—
4.	Informer	2.89	2.85	-.53	144	.600	—
5.	Clarifier	2.86	2.82	-.51	144	.609	—
6.	Summarizer	1.60	2.02	4.37	144	<.001	.12
7.	Reality Tester	1.21	1.76	4.29	144	<.001	.12
8.	Orienter	2.16	2.01	-1.32	144	.189	—
9.	Piggy-Backer	1.72	2.23	4.95	144	<.001	.15
10.	Follower	2.99	2.97	-.73	144	.469	—

¹ Measurement Scale: 0 = Never, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Always

Percentage increases in the means for the four statistically significant items were:

Items	Percentage Increases
1	13.64%
6	26.25%
7	46.28%
9	29.65%

These increases ranged from a low of 13.64 to a high of 46.28, with a mean value of 28.96%. From a slightly different perspective, the within-subjects t-value, comparing overall task leadership scores from LGD I and LGD II, was 2.39 (df = 1,144; p = .018; r²pbi = .04). Means for the two LGD's were, respectively, 20.32 and 21.36, reflecting a 5% increase.

The t-test findings presented in Table 8 for the six social leadership items show (1) statistically significant increases from LGD I to LGD II in three instances (items 2, 4, and 5), (2) a statistically significant decrease in item 3, and (3) no differences in the remaining two (items 1 and 6). Effect sizes for the three items evidencing increases ranged from a low of .03 to a high of .21.

Table 8: Mean¹ Differences on 6 Social Leadership Roles for Time 1 and Time 2 (n = 145)

6 Social Roles		Time 1 Mean	Time 2 Mean	t Value	df	Sig.	r ² pbi
1.	Harmonizer	.96	1.04	1.11	144	.271	—
2.	Gatekeeper	.39	.66	2.45	144	.016	.04
3.	Consensus Taker	.41	.25	-1.99	144	.049	.03
4.	Encourager	2.23	2.81	6.15	144	<.001	.21
5.	Compromiser	.65	.83	2.09	144	.039	.03
6.	Standard Setter	.03	.06	1.22	144	.226	—

¹ Measurement Scale: 0 = Never, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Always

Percentage changes in the means for the four statistically significant items were:

Items	Percentage Increases
2	8.33%
3	-39.02%
4	26.01%
5	27.69%

These values ranged from a low of -39.02% (item 3) to a high of 27.69% (item 5), with an overall mean percentage increase of 5.75%. When comparing mean scores for the six combined social leadership items in LGD I (4.61) and in LGD II (5.54), using a within-subjects t-test, the obtained value for t was 3.53 (df = 1,144; p = .001; r²pbi = .09). The difference in means represented a 20% improvement in performance.

Finally, in Table 9 are t-test results for the five negative items, none of which showed statistically significant changes from LGD I to LGD II. Mean frequency values for all of the items in both video-tapings were especially small, with zero frequencies in three out of five instances in LGD I and 4 out of 5 in LGD II.

Table 9: Mean¹ Differences on 5 Negative Roles for Time 1 and Time 2 (n = 145)

5 Negative Roles		Time 1 Mean	Time 2 Mean	t Value	df	Sig.	r ² pbi
1.	Blocker	.00	.00	—	—	—	—
2.	Dominator	.01	.00	-1.00	144	.319	—
3.	Avoider	.00	.00	—	—	—	—
4.	Clown	.02	.01	-.58	144	.566	—
5.	Insulter	.00	.00	—	—	—	—

¹ Measurement Scale: 0 = Never, 1 = Rarely, 2 = Occasionally, 3 = Frequently, 4 = Always

Full Factorial MANCOVA

The results of the full factorial 2 X 3 X 4 (sex X age X race/ethnicity) MANCOVA revealed that the three demographic variables had no impact on student performance in either teamwork or team leadership in LGD II, using corresponding performance on both variables in LGD I as covariates. Thus, for both overall teamwork and overall team leadership, (1) there were no statistically main significant effects for sex, age, or race/ethnicity, (2) none of the three two-way interactions among the demographic independent variables was significant, and (3) the three-way interaction was not significant.

Student Survey Items

General Teamwork

Table 10 displays means for the 21 general teamwork items on the end-of-course survey for 102 MBA students. Excluding item 17, which dealt with perceived stress associated with the LGD videotaping, the means were consistently positive and ranged from a low of 4.00 (item 12) to a high of 4.59 (item 5), with an overall mean of 4.36. These findings confirm that students believed that the LGD taping and coaching were helpful in enhancing their understanding of teamwork, their teamwork capabilities, their attitudes, and their self-confidence. The mean score for item 17 (2.35) suggested that the LGD taping was not stressful for most participants.

Table 10: Student Survey Item Means¹ - General Teamwork (n = 102)

Items	Means
<i>As a result of participating in the LGD videotaping and coaching in C512...</i>	
1. I have improved my teamwork skills.	4.47
2. I have more confidence in my teamwork skills.	4.47
3. I have become more effective in teamwork activities.	4.39
4. I have a better understanding of my strengths in teamwork.	4.58
5. I have a better understanding of my areas for improvement in teamwork.	4.59
6. I have a better understanding of how to improve my teamwork skills.	4.43
7. I have improved my coaching skills.	4.23
8. I have more confidence in my coaching skills.	4.23
9. Assessing my partner's performance in the LGD helped me learn more about teamwork.	4.32
10. Accurately assessing my partner's performance in the LGD was challenging.	4.00
11. I have a better understanding of how teams function.	4.25
12. I can help teams function more effectively.	4.35
13. I feel more optimistic about working in teams.	4.32
14. I feel more confident working in teams.	4.30
15. I have a more positive attitude about working in teams.	4.27
16. I am better prepared to perform well in a future LGD.	4.57
17. The LGD videotaping was stressful for me.	2.35
18. I understand better how important supporting observations are when assessing someone's performance.	4.32
19. I better understand the importance of getting everyone involved on a team.	4.44
20. The LGD experience will help me to better prevent teamwork problems in the future.	4.30
21. The LGD experience will help me to better solve teamwork problems when they arise.	4.33

¹ Measurement Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree nor Disagree, 4 = Agree, 5 = Strongly Agree

Team Leadership

There were six items on the end-of-course survey that addressed team leadership. Table 11 provides means for these items. Similar to those for general teamwork, the means were consistently high, ranging from a low of 4.30 (item 3) to a high of 4.48 (item 5) with an overall mean value of 4.40. These results strongly suggest that the students had a favorable evaluation of the impact of the LGD and coaching on their team leadership understanding, skill, and self-confidence.

Table 11: Student Survey Item Means¹ - Team Leadership (n = 102)

Items	Means
As a result of participating in the LGD videotaping and coaching in C512...	
1. I have improved my team leadership skills.	4.42
2. I have more confidence in my team leadership skills.	4.40
3. I have become more effective in team leadership activities.	4.30
4. I have a better understanding of my strengths in team leadership.	4.42
5. I have a better understanding of my areas for improvement in team leadership.	4.48
6. I have a better understanding of how to improve my team leadership skills.	4.39

¹ Measurement Scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree nor Disagree, 4 = Agree, 5 = Strongly Agree

DISCUSSION**Conclusions**

The authors believe that the following seven conclusions are reasonable, based upon the results of this study. First, the findings provide solid empirical evidence that a graduate educational program can be successful in teaching teamwork and team leadership behavioral skills to MBA students, along with beginning to fill an important gap in the research literature. It is important to note that the course was designed to be taught by a single instructor, without the need for substantial additional resources. Second, Anderson's ACT theory and Wiggins' "educative assessment" model were very useful in guiding and structuring course design, student learning, and evaluation processes.

The authors' third conclusion is that MBA students showed statistically significant improvement in their teamwork skills from LGD I to LGD II. However, the magnitude of this improvement was markedly smaller than that reported by Hobson et al. (2013b) for an undergraduate business student sample of 247 in a substantially similar senior-level teamwork course. Consider the following:

Mean Overall Teamwork Scores

	LGDI	LGDI I	Percentage Change I → II
MBA	24.90	26.89	8%
Undergraduate	25.38	30.50	20%

The mean score for undergraduates in LGD I was slightly higher than that for the MBA students, respectively, 25.38 and 24.90 - or 2%. More importantly, the mean scores in LGD II were substantially different - undergraduate (30.50) and MBA (26.89) - or 13% higher for undergraduates.

The authors evaluated these mean differences in LGD II for the two samples, using between-groups t-tests. The means for LGD I were not significantly different, while those for LGD II were ($t = 3.97$, $df = 399$, $prob. < .001$, $\eta^2 = .04$).

Multiple plausible explanations exist to account for these observed differences. For example, the undergraduate sample consisted of 98% business majors and 2% business minors, thus insuring frequent experience with teams in other business classes. While the authors did not collect information about undergraduate majors for the MBA sample, the MBA Director provided a programmatic breakdown by majors for the period during which the authors collected data. Only 44% of the MBA students had business undergraduate majors; the other majors were arts and science (32%), engineering (18%), and health-related (6%). Thus, the lack of prior classroom experience working in teams could have hindered or limited graduate student improvement efforts.

Perhaps a more plausible explanation centers on the nature of the instructor feedback/coaching received by the two groups. In the undergraduate sample, the instructor conducted face-to-face feedback and coaching sessions with each student (and a peer coach) after both LGD I and LGD II. In contrast, given time and scheduling constraints, the instructor only provided graduate students with written performance feedback after each LGD and face-to-face feedback was provided by the peer coach. The authors' strong sense is that personal involvement by the instructor in these coaching sessions is critical to student progress.

Fourth, MBA students evidenced statistically significant gains in team leadership skills, as conceptualized using the well-known, widely researched two-factor model. Once again, however, the improvements made by the MBA students were not as large as those exhibited by business undergraduate students in a similar study conducted by Hobson et al. (2013). Comparative data shows:

	LGDI	LGDI I	Percentage Change I → II
MBA	23.28	26.56	14%
Undergraduate	23.64	29.69	26%

As was the case above with teamwork skills, while undergraduate team leadership performance was slightly higher than the MBA sample in LGD I (23.64 to 23.28, or 2%), it was much higher for LGD II (29.69 to 26.56, or 12%). Between-groups, t-test results confirmed no differences in means for LGD I, but statistically significant differences in LGD II ($t = 4.53$, $df = 399$, $prob. < .001$, $\eta^2 = .05$). Likely reasons are identical to those discussed above in explaining differences in teamwork improvement scores between undergraduate and MBA students.

Fifth, the authors' investigation of the impact of demographic variables on teamwork and team leadership performance, using the full factorial MANCOVA, revealed no significant results for either dependent variable. Thus, a student's sex, age, race/ethnicity had no impact on the extent to which they benefitted from the class. These results are similar to those found by Hobson et al. (2013b) for undergraduate business students.

Sixth, MBA students had very favorable perceptions concerning the value of the LGD and coaching process in improving their teamwork (4.36/5.00) and team leadership (4.40/5.00) understanding, skill, and self-confidence. These values are comparable (slightly lower) to those obtained in the two undergraduate studies mentioned above (Hobson et al., 2013b; Hobson et al., 2013) - 4.49 for both teamwork and team leadership.

A seventh and final conclusion concerns the utility of the results for course enhancement and assurance of learning purposes. While the authors were able to document overall increases in student teamwork and team leadership, there were multiple teamwork behaviors (8 of 15), task leadership (6 of 10), and social leadership roles (2 of 6) for which no improvements were detected from LGD I to LGD II. In fact, for the "consensus taker" role in social leadership, there was a statistically significant decline in mean performance. Clearly, the instructor needs to put more emphasis on these areas throughout the course and in the feedback/coaching process. The most important needed revision is to find a way to overcome scheduling challenges in order to conduct instructor-led feedback/coaching sessions.

The results can also be very helpful in assurance of learning efforts for program evaluation and accreditation purposes. In fact, one of the illustrative examples for assurance of learning in the AACSB Eligibility Procedures and Accreditation Standards for Business Accreditation (revised, January 31, 2012, p. 68) involved the use of group exercises (like the LGD) to rate observed student performance in teamwork. Utilizing this approach, the focus is on what students are actually able to do, as opposed to simply what they know.

Limitations

The authors recommend interpreting the results of the authors' study with the following five limitations in mind. First, pending additional research, the generalizability of the findings to other settings is unknown. This study used one instructor/rater/coach and a unique sample of part-time MBA students enrolled at Midwestern

campus in the United States. Changes in one or more of these factors could potentially limit the extent to which the findings would replicate elsewhere.

Second, given the course-embedded case study research design that was utilized, it is not possible to identify which variables caused the observed improvements in student teamwork and team leadership skills. Nor were the authors able to determine the relative magnitude of any causal effects or investigate potential interactions.

Third, the characteristics of the LGD exercises differed in important ways from typical workplace team interactions. For example, the topics addressed in each of the two LGD's were non-controversial and thus limited the likelihood of significant inter-member conflict. The topics also had little long-term impact on students, other than their course grade, which could have reduced genuine interest and involvement in the discussion. The leaderless group discussion exercise used for the videotaping did not designate an official leader for the session. The LGD sessions ran for exactly 20 minutes and were videotaped, both of which are unlikely to occur in workplace settings. The authors believe the use of videotaping is largely responsible for the near total absence of negative behaviors exhibited by students.

Fourth, the assessment instruments utilized have not been subjected to rigorous psychometric evaluation. While arguably content valid, reliability and other types of validity have not yet been established. For example, the use of only one professor/rater precluded the possibility of calculating inter-rater reliability.

Fifth, the second LGD took place with students in the same teams that were videotaped in the first LGD. Thus, observed improvements in teamwork and team leadership could be a function of increased teammate familiarity that resulted from working together over the course of the semester. Ideally, new teams should have been formed for LGD II. However, when this was done in prior classes (before the study began), students reacted very negatively to being denied a final opportunity to work with their original teammates. Thus, the authors discontinued that practice, accepting the resultant reduction in causal clarity.

Future Research

The authors believe that there are several significant opportunities for future research based upon this study. Among the most pressing and promising are the following nine. First, given the importance of measurement in scientific inquiry, research is needed to establish the psychometric properties of both the teamwork and team leadership assessment tools. These efforts should include evaluating reliability (inter-rater, internal consistency, and test-retest) and validity (construct and criterion-related).

Second, the generalizability of the obtained results should be examined by attempting to replicate the study in other settings using different instructors, students, institutions, and countries. Third, experimental (or quasi-experimental) research designs are needed to precisely determine what factors caused the observed improvements in student teamwork and team leadership skills. Pinpointing these causal factors might help explain the observed differences in skill gains between MBA students and undergraduate business students.

A fourth suggested area for future research involves the extent to which student gains in teamwork and team leadership capabilities persist over time. Fifth, it would be interesting to determine the transferability of skills to other educational teams, as well as workplace teams.

Sixth, efforts would be helpful to more closely approximate workplace team meetings in the LGD sessions, in terms of length of time, nature of topics being addressed, and presence of an official leader. Seventh, it would also be fascinating to compare student team leadership behaviors in the LGD when an official leader is present vs. not present (in a self-managed team structure).

The authors' eighth recommendation for future research focuses on the utility of the methodology for demonstrating assurance of student learning in accreditation or reaccreditation efforts. As explicitly recognized by the AACSB, evaluation procedures based on the performance of behavioral skills are especially valuable in documenting student learning.

Ninth, the methodology used in the college classroom can be easily adapted to the corporate environment. Thus, the authors recommend research on this type of adaptation and its effectiveness in improving manager/employee teamwork and team leadership skills.

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