**This Feels Like Cheating!**

**Teaching Teamwork: Interdependency and Collaboration While Test Taking in the College Classroom**

# abstract

21st century employers expect employees to work effectively within a team environment. Colleges are expected to educate students in teams to prepare for this, yet there is no clear norm of social interdependence, cooperation and collaboration in most college classrooms. Instead, even in Schools of Business where AACSB standards clearly recommend the development of team skills, most instructors simply assign group work and hope students will learn from this experience. This paper describes an approach to teaching teamwork in the college classroom via an exam procedure that requires students practice interdependency and collaboration in order to get a good grade.

***Keywords:*** teamwork, collaboration, cooperation, social interdependency, constructivist learning, problem-based learning

# introduction

21st century employers expect employees to work effectively within a team environment. In fact, this skill has consistently topped the list of attributes employers seek ([NACE, 2015](#_ENREF_15)). Colleges and school of business seeking AACSB accreditation are likewise expected to ensure that their graduates have good team skills ([AACSB, 2013](#_ENREF_1)). Colleges are expected to educate students in teambuilding activities to prepare them for this, yet there is no clear norm of social interdependence and collaboration in most college classrooms ([Johnson, Johnson, & Smith, 1998](#_ENREF_10)). Even though some instructors realize the need to provide more structured guidance in how to effectively work in a team environment, the realities of requirements for curriculum-approved content delivery, classroom management, grading, and overall program assessment all make it difficult to provide opportunity for critical reflection ([Welsh & Dehler, 2012](#_ENREF_20)) or design appropriate teambuilding activities into most college courses. Instead, most instructors simply assign group work and hope students will learn from this experience ([Loughry, Ohland, & Woehr, 2014](#_ENREF_13)). Unless the course is one where teambuilding is the primary subject matter, it’s unlikely the student experience will be cohesive and robust enough to make a meaningful difference in the acquisition of team skills. As one suggestion for how to address this issue, this paper describes an approach to teaching teamwork in the college classroom via an exam procedure that requires students practice interdependency and collaboration in order to get a good grade.

This paper will proceed by providing background research on how certain instructional designs may foster better learning outcomes through cooperation and collaboration, then will link this research to that on team performance. This will provide a foundation for the assumption that team skills *can* be taught in the college classroom, given that certain conditions are present. After a discussion of the necessary conditions and techniques that may make this skill transfer possible, a specific example of the application of these techniques will be provided. Instructors who wish to try this approach will be given step-by step instructions, and encouraged to share results.

# background: in search of cooperation and collaboration

*Cooperative learning is the heart of problem-based learning. It is related to collaborative learning, which emphasizes the “natural learning”…that occurs as an effect of community in which students work together in unstructured groups and create their own learning situation (*[*Johnson et al., 1998*](#_ENREF_10)*).*

One of the core theories of instructional design, or education grounded in cognitive science, comes from Jerome Bruner ([1966](#_ENREF_3)) who developed constructivist theory based on his observations that children learned best when they were allowed to “construct” their knowledge by building on what they already knew. In these learning situations, instructors encourage students to begin with something that they are predisposed to learn, in a context that is familiar and appealing, and where they are allowed to use their own experiences to explore and discover something new. The role of the instructor is to structure the learning experience so it builds on itself, adding in rewards or punishments that guide the student toward generating new knowledge that goes “beyond the information given” ([Bruner, 1966](#_ENREF_3)).

One successful application of the constructivist framework has been in medical education, where Howard Barrows developed problem-based learning (PBL) as a way of helping medical students see how real-life problems can be solved through guided group work ([1986](#_ENREF_2)). In a PBL session, the instructor becomes more of a tutor, encouraging students to find out what they already know, what they need to know based on the “problem” presented, and where they might go, what resources they might be able to use to help them solve the problem. The PBL pedagogy has been adapted for use in some K-12 environments, but not so much in college or university settings outside of medical schools. This lack of adoption is primarily because PBL is not designed to be delivered via a traditional lecture, or evaluated through any standardized tests. Instead, the students are presented with an “authentic” problem that they are motivated to solve, where the solution is not obvious, and where the facilitator/tutor is there to model the kind of thinking necessary in order to discover appropriate strategies for generating hypotheses and evaluating possible results of the discovery process. The facilitator does not express an opinion or give information to the students. Instead, one role of the tutor is to “challenge the learner’s thinking” ([Savery & Duffy, 2001, p. 13](#_ENREF_18)). Students are expected to evaluate their own learning, and even to negotiate among themselves to determine how best to reach understanding: the facts presented are “only facts when the group decides they are” ([Savery & Duffy, 2001, p. 14](#_ENREF_18)).

Concurrent and consistent with the development of the PBL constructivist framework was the use of social interdependence theory to propose cooperation, or “positive interdependence” as a mechanism for cognitive growth, especially as individuals are intrinsically motivated to achieve a joint or common goal ([Johnson & Johnson, 1989](#_ENREF_8)). A related concept, controversy theory, supports the construction of new knowledge, especially when students are “confronted with opposing points of view”, requiring them to advocate for their position while refuting the alternate viewpoint ([Johnson et al., 1998, p. 30](#_ENREF_10)) .

Creating opportunities for cooperation, designing instruction that promotes social *inter*dependence, rather than *in*dependence, has been found to lead to greater learning, higher achievement and more productivity in problem solving situations than those instructional settings in which students were asked to set individual goals or to compete against others for a limited set of rewards ([Johnson & Johnson, 2009](#_ENREF_9); [Johnson, Johnson, & Stanne, 2000](#_ENREF_11); [Slavin, 1990](#_ENREF_19)). The cornerstone of this pedagogy is to set up an instructional scenario where students can only achieve his or her learning goal if other group members achieve theirs. In addition, this scenario has to be one in which each group member’s individual learning and subsequent individualized contribution to the group problem solving plays a role. Therefore, group goals and individual accountability are essential components of this approach to instructional design.

The learning and subsequent achievement gains produced by cooperative learning methods have been well documented in K-12 settings, but not so much in higher education, and there is some controversy over whether this method results in increased performance for higher-order conceptual tasks ([Johnson & Johnson, 2009](#_ENREF_9); [Slavin, 1990](#_ENREF_19)). However, the benefits of cooperation extend beyond task performance, and include the development of positive interpersonal relationships and the willingness to persist in the face of obstacles ([Johnson et al., 1998](#_ENREF_10)). These benefits accrue to college students as well as to those in lower grades, and the increased self-efficacy students gain toward their ability to be effective members of groups and teams in the classroom should transfer equally to their organizational life once they leave the educational environment.

Other research on problem solving in the classroom finds support for a collaborative model, where groups can pool knowledge and become motivated to provide elaborated explanations, therefore reducing cumulative error, but the positive outcomes from collaboration may only occur under certain circumstances: group members must have created a “common ground”, and the problem-solving task must be one that benefits from multiple perspectives ([Nokes-Malach, Richey, & Gadgil, 2015, p. 653](#_ENREF_16)). This points out that, although collaboration among members in a group task should lead to more learning and subsequently more effective performance than with an individualized approach, this is not always the case. There are both cognitive and social factors that can impede success – in some cases group work is not better, and individuals may perform worse in groups than they would have alone. Collaboration may not lead to success when the task is too complex, outstripping both individual and group competencies, or where individuals have task specific knowledge that may interfere with other group members’ strategies for problem solving ([Nokes-Malach et al., 2015](#_ENREF_16)). In addition, group composition may affect group functioning, especially when individuals don’t trust that other group members will value their input, or are unwilling to take responsibility, believing that others in the group will “pick up the slack” ([also called "social loafing" Nokes-Malach et al., 2015, p. 649](#_ENREF_16)). What this research suggests is that, although there is substantial evidence of both learning and task performance accruing from cooperative problem-based and collaborative group instructional designs, there are still certain tasks and group compositions that do not lead to successful outcomes.

# background: effective team performance

*Groups or**teams should be used for the right reason: to solve complex problems in which no one person has all the knowledge, skills, experiences, and other resources necessary to solve the problems and implement the solutions (*[*adapted from Caproni, 2012*](#_ENREF_4)*).*

Just putting students in groups, expecting them to work well together, and then assuming that their collective experiences will lead them to be better team players once they enter organizational life is not a reasonable expectation. The findings about how cooperation and collaboration work in classrooms underscore what’s known about research on teams in organizations: an effective team, one that has had sustained success over time, tends to exhibit certain characteristics, including not only quality output, but also increased competence of the team over time as it learns what works, and the increased affect and personal well-being of each team member as he or she develops a bond with other team members ([Hackman, 2002](#_ENREF_6); [Ilgen, Hollenbeck, Johnson, & Jundt, 2005](#_ENREF_7); [Mathieu, Maynard, Rapp, & Gilson, 2008](#_ENREF_14)).

In the classroom setting, one of the major dilemmas is that groups of students put together to solve a problem are usually not true teams. Katzenbach and Smith ([2005](#_ENREF_12)) point out that the major difference between groups and teams is that teams have a common commitment and purpose, have clearly defined performance goals, complementary skills, and, most importantly, require both individual and mutual accountability. Teams need the contribution of all members in order to produce work, and it’s this collective work product that makes the performance of a team greater than the performance of any one group member. It’s this mutual accountability that makes a difference. In a group, members can decide to work on their own, can decide whether to share information or not, whether to put out effort or not, and this may not matter if the group is able to produce a product that achieves organizational goals. In a team, it’s probably not possible to achieve team goals unless *everyone* decides to work together. This requires every team member to commit to a common goal, a goal that has been mutually agreed upon. Because of this need to produce a collective work product, the work team will have processes that are different from those used in a work group.

In addition, in order for a team to see sustained success over time, certain characteristics need to be present:

* a purpose that inspires team performance,
* clear criteria for success that includes mechanisms for keeping the team on track,
* normed standards of behavior that provide processes for effective management of team tasks and relationships,
* availability of resources for just-in-time learning,
* access to resources necessary for team production, and
* appropriate team membership – people with both task expertise and the relationship skills necessary for communication and conflict management ([adapted from Hackman, 2002](#_ENREF_6)).

Highly effective groups or teams don’t get that way without some preparation. It’s very helpful for both group/team leaders and members to have an understanding of how groups develop over time. Like any organic entity, groups have a life cycle – they are born, go through a maturation process, and eventually disband. In addition, both groups and teams need effective leadership in order to monitor and guide this process ([Mathieu et al., 2008](#_ENREF_14)). Team leaders include both the task leader, the individual chosen to see the team through to the eventual production goal, and the institutional leader, the higher level manager who authorizes team creation and is ultimately responsible for providing resources, access to information, and educational opportunities that can help the team develop effective work processes, both in regards to task and relationship responsibilities ([adapted from Hackman, 2002](#_ENREF_6)). In the classroom, the instructor acts as the institutional leader, while the student group is most appropriately responsible for identifying a leader from among their ranks.

Regarding group or team process, the stages of group development are well established, and fall into three areas: the *forming* stage where the team establishes membership boundaries and roles, and figures out how they can best work together to accomplish team goals; the *functioning* stage where the team does the bulk of its work, and learns how to adapt to its environment; and the *finishing* stage which is where the team submits its findings, and either disbands or continues on to other tasks, hopefully more enlightened and energized to produce more and better results in the future ([adapted from Ilgen et al., 2005](#_ENREF_7)). In order to maximize group or team effectiveness, both the team leader and the institutional leader need to understand the nature of this life cycle, and provide a supportive context in which this can develop. This requires a structure or design for work that enables task performance, establishing parameters for group/team membership, criteria for success, instructions for getting access to needed resources, behavioral ground rules for social interaction, and, possibly most important in the college classroom, a belief that success is possible. Especially since many students have had poor experiences with group work in the past, knowing that the instructor believes that this will work, has faith in the process, and is willing to model the way by demonstrating sound problem-solving and supportive interaction behaviors – this can make a major difference.

# teaching teamwork – applying interdependency and collaboration to a task in the college classroom

*…people learn material more effectively if they learn it in a way that allows them to interact with other people. This suggests that educating students using team learning methods could help students to learn course content better in all subjects, in addition to producing graduates with better teamwork and collaboration skills. Both of these will help graduates to be more successful in their careers.(*[*Loughry et al., 2014, p. 7*](#_ENREF_13)*)*

The previous overview of research on social interdependence through cooperation and collaboration and the reminder of effective team performance parameters leads to the following proposal: these concepts are not only applicable, but they also provide a foundation for the assumption that team skills *can* be taught in the college classroom, given that certain conditions are present. The observable outcomes from using these techniques in the college classroom include the following desirable skills and behaviors:

**INSERT TABLE 1: Observable Outcomes**

Certainly these are worthwhile outcomes, but there are some caveats, certain areas of concern, which require upfront design decisions and awareness of where these techniques may not work as well as expected. Certainly there are documented successes, where cooperation and collaboration as practiced in a teamwork scenario have helped college students better learn course content, have positive group or team experiences, and get exposure to collaborative team skills that they can use when they graduate. Some of the essential elements for success when implementing these techniques include the following:

**INSERT TABLE 2: Essential Elements for Success**

And for many of these activities there are areas of concern:

**INSERT TABLE 3: Areas for Concern**

What this means is that instructors, when designing activities that adopt these techniques, should pay attention to these suggestions:

**Instructors’ Actions (**[**adapted from Johnson et al., 1998**](#_ENREF_10)**):**

*Before Classes Start:* Make a decision on the learning and social objectives, group sizes, how students will be assigned to groups, what roles & materials are needed, how the room will be arranged

*Before the Activity is Introduced:* Teach the required concepts, set norms of group behavior for the whole class, reinforce norms by confronting violations, foster individual accountability, show concern, communicate with positive affect (be friendly)

*When Activity is Introduced:* Define the assignment, give instructions and criteria for success, specify expected social skills (reinforce existing norms)

*During the Activity:* Monitor behavior, model good problem-solving and interaction skills, intervene only to reinforce norms

*After the Activity:* Ask students for feedback, encourage sharing of reflections on how the process worked, how it felt to participate, summarize concept learning plus group process learning, encourage further reflection, transfer to other environments

And the following are suggested behavioral norms that instructors should both model and suggest as ground rules for teams as they move forward with collaborative activities:

**Key Group Behaviors/Ground Rules (**[**from Gillies, 2014**](#_ENREF_5)**)**

Actively listen to others

Carefully consider others’ ideas and perspectives

Respond respectfully without making disparaging comments

Accept responsibility for your own behavior

Share resources

Give credit where credit is due

Encourage and facilitate others’ efforts

Check for understanding

Again, why is this important? As a summary of the issue, colleges need to prepare students for organizational life, and it’s very unlikely that most complex problems faced by organizations can be solved effectively by individuals working alone. People working together can bring more resources to a task – different knowledge, skills, experience, and different ways of looking at the problem – and these different perspectives can be used to get a better result. In addition, as human beings, we are essentially social creatures, and we instinctively know that “group life is necessary for human survival… our individual, organizational, and societal survival requires that we regularly solve complex problems that we have never faced before, that have no right answers, and for which the consequences of our decisions are uncertain” ([Caproni, 2012](#_ENREF_4)). This messy process of decision making and problem solving in groups will not go away. Students need to be prepared, and may benefit from authentic tasks presented in the context of a course that helps them grapple with these issues.

# the example: collaborative test taking in a management course

## Course Overview & Preparation

Although it’s not unusual for faculty to incorporate experiential exercises in most organizational behavior, managing people, or intro to management courses, it’s also usual for those same faculty to fall back on traditional exam methodologies when assessing the concept learning that has hopefully occurred over the course of a traditional semester. After all, students need a grade, and the easiest way to provide this is via some fairly standardized test, usually multiple-choice because that’s most efficient – it can be run through a scantron device, reducing the time it would take to score answers. The example provided in this paper was one way for the author to incorporate an experiential exercise into a traditional multiple choice concept knowledge exam. The intent was to do the following (see Appendix 1 for an overview of the course, including learning outcomes):

1. Test students’ knowledge acquisition of course concepts – could they identify management roles and skills, determine how individual characteristics affect behavior, and how organizational culture and group behavior affects performance in the workplace.
2. Use the exam process as a way of demonstrating the positive aspects of social interdependence and collaboration – modeling these concepts to augment the book-learning in group development and teambuilding provided in the context of the course.
3. Help develop students’ understanding of management skills and behavior in a way that enables them to apply this understanding more effectively in a variety of work environments, including in the classroom where they may need to identify issues involved in managing individuals, groups, and processes in order to perform well on course assignments.
4. Learn more about how college students approach their educational opportunities – is there a better way to teach these concepts using a problem-based learning scenario?

The course was a fairly standard 300-level undergraduate offering in the Management Department of a university in the northeastern United States delivered in a regular 14-15 week semester. The enrollment was capped at 25, and, although it was open to all, the course prerequisites included the 200-level Introduction to Organizational Behavior, which was a required course in the School of Business. Therefore, although one or two students might have been from other majors, including Psychology, Marketing, Accounting or Finance, most students were Management majors. All were usually Juniors or Seniors.

Content was fairly standard for an advanced organizational behavior course, including communication, power and influence, motivation, organizational culture, diversity and differences, group development and teams, and also included a component in trust and self-awareness. The deliverables included a case analysis, a journal, three exams, and a culminating group project. Students were encouraged to build groups starting with an ice-breaker exercise in the first week, and were given guidance in how to do teambuilding. The teambuilding tips included the importance of a team “charter” or statement of team membership, goals, resource needs and deliverables; and a carefully created set of behavioral ground rules that allowed groups to address dysfunctional behaviors as they emerged during the course of group development.

The instructor paid attention to the suggestions for how to design learning environments that encourage social interdependence and collaboration by making a decision on the learning and social objectives, group sizes, how students will be assigned to groups, what roles & materials are needed, and how the room will be arranged: the objectives included the importance of students being able to function more effectively in a variety of work environments; the decision was made to allow groups of no more than five individuals[[1]](#footnote-1), and allowed groups to form based on self-selection; students in these groups were encouraged to identify a group leader, a process facilitator, a timekeeper, a notes-taker, and an individual who was responsible for resource procurement and external boundary-spanning; and the room was a standard classroom with chairs and tables, white boards, and projection equipment with internet access. Course content was supported by a textbook and extensive supporting materials were provided via the Blackboard course management system. Group self-selection was aided by the ice-breaker, and required individual introductions to be posted on the Blackboard Discussion Board during the first week. These activities helped introduce students to each other and identify commonalities. In addition, an early classroom exercise where students formed groups of three to answer a flash card review of introductory management concepts helped students collaborate to share knowledge and succeed at getting the “correct” answer.

Once the course was underway, the instructor proceeded to teach the required concepts, set norms of group behavior for the whole class, reinforce norms by confronting violations, foster individual accountability, show concern, and communicate with positive affect (by being friendly). One very important norm was one of mutual respect, which the instructor modeled by requiring students who were not coming to class to communicate via email either before class, if possible, or before the following class. Failure to communicate absence would result in the instructor “calling out” that student in front of everyone: “Where were you last week, Susie? Why didn’t you email me?” This consistent reinforcement of a straightforward norm signaled to students that such behavior was expected, and violations would not be tolerated. In that same vein of mutual respect, the instructor told students there was no need for a “doctor’s note” or other substantiation of a legitimate excuse – the assumption was these students were adults and if they chose not to come to class, the reason wasn’t important. Timely communication of the absence via an email, “I’m sorry, professor, I won’t be in class today”, was sufficient. At the same time, the instructor let students know that any student needing advice or assistance with an external issue that impacted school performance was welcome to seek the instructor’s help.

## Introduction of the Assignment

From the beginning of the course, the instructor encouraged lively discussion, welcoming questions and critical analysis of the concepts being introduced. Questions of “why might something be done”, “how might it be done” and “what might be the result” were regularly asked, and students were rewarded for asking the instructor for clarification: “Bob, that’s a great question. Does anyone have a suggestion for how to answer?” In this way, the instructor signaled that this was not a traditional “sage on the stage” lecture-and-powerpoint instructional environment.

When it came time to prep for the first exam, a “quiz” of concepts from the first three weeks, students were given a study guide and warned that this was a fairly difficult multiple choice exam. With this prompting, students came to class with the traditional mind-set – dreading the exam, having crammed the night before, worried that they might not get a good grade – only to be met with the announcement that “This is an open book, open notes, open computer/mobile device exam. The only thing you can’t do is talk amongst each other.” Students are then usually surprised, and visibly relieved, and immediately get to work. This “surprise” announcement signaled, once again, that this was perhaps a different kind of instructional environment. The instructor has kept this information from the students beforehand, purposefully “manipulating” the environment to keep the students on their toes, so they never know what might happen. This prepares them to be alert for other non-traditional instructional events.

Consequently, when it came time for the next exam, a much more intensive assessment of everything learned so far, students were given a study guide, as before, and once again warned that this was a tough test, and that it would be delivered in two parts and take the entire 2.5 hour class period. Now students were expecting the open book scenario as before, but also concerned about the “full class period”, assuming that this signaled a much more serious and potentially difficult exam. Some of the more anxious students usually asked for more clarification about the “two parts”, but the instructor just said “you’ll see. The exam is in two parts, and it will take the entire class period.”

## During the Activity

When the exam class convened, the instructor defined the assignment, gave instructions and criteria for success, and specified expected social skills by reinforcing existing norms: the first part of the exam was passed out, students were once again told they could use all materials except each other, and were told they would be given part two once they turned in part one. As had happened with the quiz, students began working diligently.

When students completed part one, they handed that in and were given part two, plus a sheet of instructions, describing the Exam Procedure (see Appendix 2). When handing out the procedures sheet, the instructor made serious eye contact with each student, gave a hand motion indicating the entire sheet, and told each one the same thing: “Read this very carefully before proceeding.” Students then returned to their seats and looked at the procedure sheet and part two. This exam was shorter, and still multiple choice, but instructions for part two noted “this exam may require you to go beyond the textbook and consider what you have learned in other courses and through your personal experience. For each question there is one *best* answer.”

Students would continue to work on either part one or part two until several students had moved on to part two. At this point, the instructor watched carefully and noted the non-verbals: students might look over at each other, and then check to see what the instructor did, whether the instructor’s non-verbal message was one of concern or approval. The instructor was very careful not to communicate anything except a neutral affect. What usually happened was that several students would begin talking to one another about the instructions, glancing up to see if the instructor signaled any disapproval. The best thing that could happen, after perhaps one quarter of the class moved on to part 2, would be for one student to raise his or her hand and ask the instructor “does this mean we can work together?” The instructor would then say “what do the instructions say?” Hopefully, the student would point to the phrase “It is expected that employees will utilize all resources available to them to solve any organizational problems they might encounter.” If not, the instructor would do so. At this point, students would become animated, actively discussing amongst themselves, prompting the instructor to warn them, “please keep it down – there are other people still working on part one.”

What usually happens is that at least one or two students, usually those who had finished part one quickly, would work on their own to complete part two, and come up to the instructor to turn this in, hoping to leave early. To those students, the instructor would say the same thing: “Are you sure you want to do this? Is there anything else you think you might want to do in order to do the very best you can on this exam? Is there some strategy you could use to maximize your success?” Some students will say they worked on their own and were satisfied they had done the best job they could. To this, the instructor would repeat the above phrase, asking if they were “sure”. Other students will reconsider and go back to their seats and then join a group of other students actively working on part two. Those students made the best choice. In the four years of administering this exam this way, the instructor has had only one student be successful getting 100% on part two while working solely on her own. What usually happens is that those students who do not work collaboratively get no better than 75% on part two, while the rest of the class, due to the collaborative work, will get 100% every time.

What’s even more meaningful is that just working in small groups, usually with those groups that have already formed in the early stages of the course, is not sufficient to answer all the questions correctly. The exam is so hard that multiple perspectives, and discussions about the implications of these perspectives, from all students, are needed in order to get the right answer. (See Appendix 3 for a sample question.) Students do not always see this, so at some point, as students begin to come up in groups to hand in the exam, the instructor needs to suggest the following: “Is there a strategy you could all use to maximize the chance of your success, to get 100% of the answers correct?” Also at this point, usually one student will come up to the instructor, either individually or as part of a group, and ask if the instructor can be a resource – because the procedure does say “the primary resource for many employees is her or her immediate supervisor.” The instructor says, “yes, I am a resource but I can’t just give you the correct answer. You must ask the right questions in order to find out whether you’re correct or not.”

The best strategy is for someone in the class, once everyone is done with part one, to suggest using the resources of the entire class to find out whether there is a consensus on the answers. This student then assumes the leadership role for the entire class, and facilitates a discussion with all students. This student usually asks the instructor for a marker and puts the question numbers on the board, then writes down the consensus answers for each one. In the four years administering this exam this way, only once has this not happened. If it doesn’t, the instructor can usually encourage this behavior by continuing to ask students if there is a strategy they can utilize in order to be successful.

What happens next is that there will be disagreement among students as to the best answer for many of the 16 questions. The student leader will then usually negotiate with the instructor and ask if the instructor can give any indication of the performance so far. The instructor will reiterate “I can’t just give you the correct answer. But what questions might you ask in order to get some good information here?” The most effective strategy is for the leader to ask the instructor how many answers are incorrect, and continue to segment the exam – i.e. “for the first five questions, how many are wrong?” until all the incorrect answers are identified. Then the leader asks the class to defend their different choices until the correct answer is uncovered. This student leader has now taken on the role of leader and guide for the entire class, basically acting as the instructor. This process reinforces the importance of the instructor engaging in monitoring behavior, modeling good problem-solving and interaction skills, and intervening only to reinforce norms.

This is where the true nature of social interdependence and collaboration occurs. Because the students have been primed to behave with mutual respect, carefully considering others’ ideas and perspectives (because of the enforcement of ground rules), to actively listen and engage with others (because of the active probing discussion that happens around content during the normal class), and to share resources by encouraging and facilitating others’ efforts (because of the instructor modeling this behavior), the outcome is that students have had a key team experience: People working together can bring more resources to a task – different knowledge, skills, experience, and different ways of looking at the problem – and these different perspectives can be used to get a better result.

## After the Activity

Once the students have verified that they have gotten 100% of the answers correct, there is usually a sense of euphoria in the room. This is when the instructor asks students for feedback, encourages sharing of reflections on how the process worked, how it felt to participate, summarizes concept learning plus group process learning, and encourages further reflection, transfer to other environments. One of the most effective learning tools at this point is to check for understanding on some of the more difficult questions on the exam. Here the instructor can reinforce key concepts, while also praising students for their teamwork, and pointing out their effective strategies: recognizing the key resources available, encouraging input from all in the room, and asking the right questions (even knowing that there was a problem that needed solving – reminding the class that several students left without utilizing all the available resources, and won’t they be surprised to learn what happened in their absence!) The instructor will end by asking the students to not disclose what happened, so subsequent administrations of the exam in future sections of the course will retain the surprise element, allowing for the prime “teachable moments” to emerge.

One of the most interesting discussions about how it felt to participate in this activity is around the reluctance of most students to actually engage with others in discussing answers to the part two questions. At least one student will always say “it felt like cheating!” This is because the instructions clearly state that the instructor is watching, and “reserves the right to return to the traditional EXAM method if the need for pure individual performance evaluation arises.” Even students who are currently employed in full time jobs, in regular organizations, have trouble switching their programming from being a “student” to being an active problem-solver, the agent of their own success, while still in the student environment.

The major behaviors being reinforced through this activity include those that make someone a valuable employee, or business owner. As it says in the instructions, in most effective organizational environments, “the employee will be evaluated on his or her utilization of appropriate support systems and resources, the efficacy of his or her problem solving activities, the basic knowledge and skill demonstrated in routine tasks, the degree of decision making and skill application shown in extraordinary situations, and the skill with which he or she interacts interpersonally with other members of the organization.” In this way, the effective teamwork experienced during this college class should have a good chance of transferring beyond the classroom showing that, at least in this case, a college instructional environment might make a meaningful difference in the acquisition of team skills.

As the next regularly scheduled class convenes, those students who did not participate in the collaborative piece of the exam are usually chagrined to find out that they let their preconceived, socially constructed expectation of how an exam should work damage their chances for success. Some students will defend their choice to leave – “I had something else I needed to do” – but many will take this as one of their most important “ah-ha” moments from the course, and will resolve to never again assume that there is only one best way to solve a problem.

# conclusion: what we’ve learned

As a result of this socially interdependent, collaborative process, students learn to solve problems by searching out information and developing strategies for achieving their desired performance. They learn how to ask the right questions, how to defend their positions, how to create a group environment where they can trust each other to investigate diverse points of view and not be criticized for doing so. They learn that someone will have to take a leadership role at some point, but this leader must emerge naturally from the group and be sensitive to the diverse needs of the group members or he or she will be overruled, and ultimately unsuccessful at achieving a truly collaborative outcome. Students also learn that learning in this way can be fun, and that they subsequently remember more of the concepts under study, because they had to search for the answers on their own and then share their search strategies with others, being challenged along the way to back up their answers with clear and substantiated arguments. Finally, students will have had a successful team experience, where all members of the team participated to their best ability to achieve the common goal, and the rewards accrue to the team – everyone gets 100%. Not only does the team succeed in achieving a high performance, but this performance can now be replicated, because the process is now part of the team norm.

Students remark on how memorable this experience is. Comments have included the following:

*This was the most interesting test I’ve ever taken, and I learned more about managing people from this exam than I ever thought I would. ... I normally would never speak up in class, but I felt encouraged by the group to do so, and discovered I was one of the only people who had researched the right answer, which made me feel so proud of myself. … I learned that I need to look at things differently – I can’t assume that things will always be the way they are just because they’ve been that way before – I need to look for opportunities to go beyond the traditional, take a chance and break out of the social construct that constrains my ability to learn…. We are all programmed to react a certain way in certain situations. I need to start to look for alternatives, acknowledge the many resources available, and not be afraid to ask good questions.*

Whether or not they will be able to transfer this to their eventual organizational life outside of the classroom, students have developed some degree of self-efficacy toward their ability to seek out resources and trust in others to provide support, as long as they work together to ask the right questions!

# implications for future research & collaboration

As noted, there is still need for research on how best to include cooperative problem-based learning and collaborative group-based pedagogies in the college classroom ([Gillies, 2014](#_ENREF_5); [Johnson et al., 1998](#_ENREF_10); [Nokes-Malach et al., 2015](#_ENREF_16); [Slavin, 1990](#_ENREF_19)), as well as challenges identifying those specific conditions under which teams can effectively outperform individual efforts in organizational problem-solving environments ([Hackman, 2002](#_ENREF_6); [Ilgen et al., 2005](#_ENREF_7); [Mathieu et al., 2008](#_ENREF_14); [Salas, Stagl, Burke, & Goodwin, 2007](#_ENREF_17)).

Although there is evidence that these techniques can be successfully implemented ([see, for instance, an example of team learning across mixed majors in a business communication class, in Winter, Waner, & Neal-Mansfield, 2008](#_ENREF_21)), the challenge is further amplified as schools of business attempt to bridge the gap between classroom and programmatic teambuilding initiatives and the transfer of these skills to the organizational setting. Providing “assurance of learning” in these contexts is difficult ([Loughry et al., 2014](#_ENREF_13)). This paper was an attempt to show that some specific success might be possible, at least in the classroom, given certain conditions. Other instructors are encouraged to use the concepts and methodology outlined, and construct learning scenarios accordingly, then share results in academic forums such as this one. Building a body of work, as part of a collaborative network, is consistent with the theories presented here, and may lead to insights that help all of us “close the loop” on assurance of learning in this area.

# References

AACSB. 2013. Eligibility Procedures and Accreditation Standards for Business Accreditation. [www.aacsb,org:](http://www.aacsb,org:) AACSB International.

Barrows, H. S. 1986. A Taxonomy of Problem-Based Learning Methods. ***Medical Education***, 20(6): 481-486.

Bruner, J. 1966. ***Toward a Theory of Instruction***. Cambridge, MA: Harvard University Press.

Caproni, P. J. 2012. ***Management Skills for Everyday Life: The Practical Coach*** (3rd ed.): Pearson Prentice Hall.

Gillies, R. M. 2014. Cooperative Learning: Developments in Research. ***International Journal of Educational Psychology***, 3(2): 125-140.

Hackman, R. J. 2002. ***Leading Teams: Setting the Stage for Great Performance***. Boston, MA: Harvard Business Press.

Ilgen, D. R., Hollenbeck, J. R., Johnson, M., & Jundt, D. 2005. Teams in Organizations: From Input-Process-Output Models to IMOI Models. ***Annual Review of Psychology***, 56: 517-543.

Johnson, D. W., & Johnson, R. T. 1989. ***Cooperation and Competition: Theory and Research***. Edina, MN: Interaction Book Company.

Johnson, D. W., & Johnson, R. T. 2009. An Educational Psychology Success Story: Social Interdependence Theory and Cooperative Learning. ***Educational Researcher***, 38: 365-379.

Johnson, D. W., Johnson, R. T., & Smith, K. A. 1998. Cooperative Learning Returns To College: What Evidence Is There That It Works? ***Change***, July/August: 27-35.

Johnson, D. W., Johnson, R. T., & Stanne, M. B. 2000. Cooperative Lerning Methods: A Meta-Analysis: University of Minnesota.

Katzenbach, J. R., & Smith, D. K. 2005. The Discipline of Teams. ***Harvard Business Review***, 83(7/8): 162-171.

Loughry, M. L., Ohland, M. W., & Woehr, D. J. 2014. Assessing Teamwork Skills for Assurance of Learning Using CATME Team Tools. ***Journal of Marketing Education***, 36(1): 5-19.

Mathieu, J., Maynard, M. T., Rapp, T., & Gilson, L. 2008. Team Effectiveness 1997-2007: A Review of Recent Advancements and a Glimpse Into the Future. ***Journal of Management***, 34(3): 410-476.

NACE. 2015. Job Outlook 2016: Attributes Employers Want to See on New College Graduates' Resumes: National Association of Colleges and Employers.

Nokes-Malach, T. J., Richey, J. E., & Gadgil, S. 2015. When Is It Better to Learn Together? Insights From Research on Collaborative Learning. ***Educational Psychology Review***, 27: 645-656.

Salas, E., Stagl, K. C., Burke, C. S., & Goodwin, G. F. 2007. Fostering Team Effectiveness in Organizations: Toward an Integrative Theoretical Framework. In R. A. Dienstbier (Ed.), ***Volume 52 of the Nebraska Symposium on Motivation: Modeling Complex Systems***: 185-244. Lincoln, NE: University of Nebraska Press.

Savery, J. R., & Duffy, T. M. 2001. Problem Based Learning: An Instructional Model and Its Constructuvist Framework. Bloomington, IN: Indiana University Center for Research on Learning and Technology.

Slavin, R. E. 1990. Research on Cooperative Learning: Consensus and Controversy. ***Educational Leadership***, 47(4): 52-54.

Welsh, M. A., & Dehler, G. E. 2012. Combining Critical Reflection and Design Thinking to Develop Integrative Learners. ***Journal of Management Education***, 37(6): 771-802.

Winter, J. K., Waner, K. K., & Neal-Mansfield, J. C. 2008. Team Climate and Productivity for SImilar Majors Versus Mixed Majors. ***Journal of Education for Business***, May/June: 265-269.

**Appendix 1: Course Overview & Learning Outcomes**

**Statement of Teaching Philosophy:**

***Managing People*** is designed to help students understand how managers manage: the processes, skills and challenges of management and leadership in organizations. Everyone wants to be successful – effective in the work they have chosen to do; able to achieve career goals; proud of personal accomplishments in the community and at home – but it’s sometimes hard to figure out what to do and how to do it. Some believe it’s possible to teach skills that help people succeed in ambiguous and complex situations.

As one author says, “one’s IQ and cognitive intelligence are at best moderate predictors of one’s success in life; and the talents that got one where one is today may not get him or her to where one wants to go in the future.” (Caproni, 2012, *Management Skills for Everyday Life*) Therefore, as adults, we have to *keep* learning new skills, sometimes via fairly uncomfortable or perhaps painful events. One of those events is reading about management theory, applying those theories to real-life situations, and deciding whether or not to adapt those theories to practice in our everyday activities as employees, managers, or even owners of our own businesses. And perhaps transfer some of that learning into our personal lives as well.

**Learning Outcomes:**

Part of leaning to be a competent and skillful manager requires setting goals and measuring progress against those goals. Therefore, at the successful conclusion of this course, students will be able to:

1. Explain why people are so important to the success of organizations - how managing people is critical to realizing an organization’s strategy, gaining an advantage over an organization’s competitors and ensuring the organization’s performance - by identifying the management theories and concepts that apply to managing in modern organizations. These concepts include the following:

* The functions of management, management roles and skills
* How individual characteristics affect behavior
* How organizational culture and group behavior affects performance in the workplace

The student will show mastery of the above through three exams and a written case analysis.

2. Analyze and describe the roles and responsibilities of managers within an organization; identify issues involved in managing individuals, groups, and processes in organizations. These issues include the following:

* Group behavior and the development of effective work teams
* The role played by power, politics, conflict and negotiation in an organization.
* The importance of effective communication, especially in culturally diverse environments

The student will be required to join a group and do an analysis of an organization facing a problem, making recommendations for what management should do. The student will also assess the effectiveness of his or her group’s functioning.

3. Develop an understanding of management skills and behavior that will enable students to function more effectively in a variety of work environments. The student will keep a journal of learning throughout the semester and prepare a self-reflection paper at the end of the course describing the most important concepts he or she will take from the course and apply to his or her personal and/or organizational life.

**Appendix 2: EXAM PROCEDURE**

In organizations, in most cases, employees are not expected to function with total independence. It is expected that employees will utilize all resources available to them to solve any organizational problems they might encounter, and that they will appropriately communicate any deficiencies they discover in either support systems or their own proficiency levels.

It is also expected that employees will have at least adequate knowledge to perform the tasks assigned to them, but in learning situations, Ajob aids@ or Asubject matter experts@ may be present to assist employees in becoming proficient. Another support system in most organizations is the group or team or organizational unit to which the employee belongs. The primary resource for many employees is his or her immediate supervisor.

The employee will be evaluated on his or her utilization of appropriate support systems and resources, the efficacy of his or her problem solving activities, the basic knowledge and skill demonstrated in routine tasks, the degree of decision making and skill application shown in extraordinary situations, and the skill with which he or she interacts interpersonally with other members of the organization.

Given the above, this part of the EXAM will be administered as if it were an organizational problem:

1. Students will be expected to utilize their OWN knowledge and skills INDEPENDENTLY as best they can.

2. After performing independently, if the student does not feel confident in his or her own ability to succeed, he or she may utilize ANY resource necessary to learn and perform with confidence and excellence. These resources include using books, notes, previous exams, other students and the professor.

3. It is expected that students will be honest in trying to test their OWN knowledge independently at first, and will be critical of answers they may receive from other sources. This EXAM PROCESS is intended to be a learning exercise as well as an opportunity for evaluation. Students will be asked for their feedback and honest evaluation of their problem-solving performance under these conditions.

4. At some point, the professor reserves the right to return to the traditional EXAM method if the need for pure individual performance evaluation arises.

**Appendix 3: Sample Question from Exam Part Two**

As a manager, you are trying to hire someone for a critical position in your department. You have called references on three applicants. Bob’s reference, his former supervisor said, “Bob has more information and communication flowing through him than anyone in our company.” Joe’s reference said, “Joe can get others to get things done better than anyone I know.” Albert’s boss said, “Albert is the greatest person to be around, he is so optimistic and giving.” If you’re interested in creating an atmosphere that leads to positive change in your department, who should you hire?[[2]](#footnote-2)

1. Albert
2. Joe
3. Bob
4. There is not enough information to determine which is best.

**TABLE 1**

**Observable Outcomes**

|  |  |
| --- | --- |
| **CONCEPT** | **SOURCE** |
| **Cooperation/Collaboration** |  |
| Task achievement | Johnson & Johnson, 2000 |
| Higher level reasoning | Johnson & Johnson |
| Retention of concepts | Johnson & Johnson |
| Time on task | Johnson & Johnson |
| Transfer of learning | Johnson & Johnson |
| Increased motivation/self-esteem | Johnson & Johnson |
| Social & cognitive development | Johnson & Johnson |
| Moral reasoning | Johnson & Johnson |
| Critical reflection | Johnson & Johnson |
| Interpersonal attraction | Johnson & Johnson |
| Social support/friendships | Johnson & Johnson |
| Valuing differences | Johnson & Johnson |
| Willingness to take on difficult tasks/persistence | Johnson & Johnson, 1998 |
| Increased working memory | Nokes et al, 2015 |
| Better error correction | Nokes et al |
| Complementary knowledge acquisition | Nokes et al |
| Observational learning | Nokes et al |
| Increased engagement | Nokes et al |
| Construction of common ground | Nokes et al |
| Ability to negotiate multiple perspectives | Nokes et al |
| **Teamwork** |  |
| Increased emotional intelligence | Loughry et al, 2014 |
| Better ability to give constructive peer feedback | Loughry et al |
| Experience working with people of diverse backgrounds | Loughry et al |
| Better able to resolve conflict | Loughry et al |
| Pride in accomplishments | Mathieu et al, 2008 |

**TABLE 2**

**Essential Elements for Success**

|  |  |  |
| --- | --- | --- |
| **Cooperation/Collaboration** |  |  |
| Group goals | Positive interdependence | Slavin, 1990, Johnson & Johnson, 1998 |
| Individual accountability | Each group member contributes | Slavin, 1990 |
| Mutual respect & trust | Must be developed | Slavin, 1990 |
| Face-to-face interaction | Verbal & nonverbal feedback | Johnson & Johnson, 1998 |
| Mutually defined goals | All must participate | Gillies, 2014 |
| Negotiated process | Differences must be examined | Gillies, 2014 |
| Group evaluation | Monitor the process & improve | Johnson & Johnson, 1998 |
| Group rewards | All must contribute in order to achieve goal | Gillies, 2014 |
| **Teamwork** |  |  |
| Appropriate team membership | Team members must have relevant skills | Mathieu et al, 2008 |
| Developed social cohesion | Collective sense of belonging | Mathieu et al, 2008 |
| Link to long-term outcomes | Does the team outcome matter? | Mathieu et al, 2008 |
| Performance planning | Is there a clear deliverable? | Mathieu et al, 2008 |
| Informational diversity | Access to diverse sources of information | Mathieu et al, 2008 |
| Trust & psychological safety | Willingness of members to be vulnerable & take risks | Mathieu et al, 2008 |
| Shared mental models | Knowledge & understanding about how to proceed is shared | Mathieu et al, 2008 |
| Strategic consensus | Organizational hierarchy agrees about strategic priorities | Mathieu et al, 2008 |
| Training in group process | Teams need to know what to expect about the stages of group development, factors for success | Mathieu et al, 2008 |

**TABLE 3**

**Areas for Concern**

|  |  |  |
| --- | --- | --- |
| **CONCEPT** | **COMMENTS** | **SOURCE** |
| **Cooperation/Collaboration** |  |  |
| Not appropriate for teaching higher order skills | Needs more understanding of which skills may be best focus | Slavin, 1990 |
| May need more time to coalesce | Cohort groups lasting at least a semester may be needed | Johnson & Johnson, 1998 |
| Group size may be critical | Smaller groups (3-5) may be better depending on the task | Gillies, 2014 |
| Ill-structured tasks may need higher-level cooperation | More creativity is needed, so norms must encourage this | Gillies, 2014 |
| Cognitive costs occur | Reduced memory coordination, retrieval disruption, production blocking can occur | Nokes et al, 2015 |
| Social costs occur | Social loafing, fear of evaluation means participation may suffer | Nokes et al, 2015 |
| **Teamwork** |  |  |
| Lack of peer evaluation | Group contributions must be monitored & feedback requested to discourage social loafing | Loughry et al, 2014 |
| Work is divided & done independently | Collective efforts must be encouraged | Loughry et al, 2014 |
| Organizational resources are not available | Lack of resources may discourage team performance | Mathieu et al, 2008 |
| Weak external leadership | Support must be available from resource providers | Mathieu et al, 2008 |
| Incompetent team members | Team members must have relevant competencies | Mathieu et al, 2008 |
| Formation of subgroups | Do groups have dysfunctional faultlines – attributes that lead to prejudice & alienation? | Mathieu et al, 2008 |

1. The instructor did not let group size go beyond five, because experience has taught that even adding one more person will most likely result in the “free rider” or “social loafing” phenomena. [↑](#footnote-ref-1)
2. The best answer is Albert, because his positive energy will “infect” all others, creating a climate of positive change. Concept = emotional contagion. [↑](#footnote-ref-2)