

Teaching and Education Commentary

The Project Manager / Private Contractor Approach to Group Assignments

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Abstract

We describe an authentic approach to group assignments whereby instructors act as corporate officers in the classroom and assign tasks to student leaders who act as project managers. These student leaders, in turn, recruit and supervise groups of their peers who act as private contractors. This approach attempts to accommodate three known student preferences for group assignments. One, students want to be involved in the group formation process, but often instructors form student groups, and then ask groups to select their leader. We propose instead to let the entire class select its own leaders and then let each leader form a group from the remaining students. Two, students want control of their individual grades, but often instructors lead efforts to assess individual contributions based on incomplete student feedback. We propose instead to let student leaders lead these efforts subject to constraints prescribed in advance by the instructor. Three, students prefer easy scheduling of their group meetings, but often they must coordinate most or all of their group meetings out of class. We propose instead to let students schedule most or all of these meetings in class. We conclude by discussing two limitations related to class size and distance learning.

1 Introduction

Instructors often require students to work jointly with other students to complete group assignments. Learning objectives typically associated with these group assignments are to improve students' abilities to write, speak, solve problems, negotiate, and coordinate plans (Chapman et al. 2006; Hansen 2006; Oakley et al. 2004). Employers highly value these skills. Surveys from the National Association of Colleges and Employers regularly show that employers want to hire people with problem-solving skills and an ability to work in teams (NACE 2017).¹ However, students often, but not always, oppose group assignments (Felder and Brent 2001; Espey 2010), and group exercises may even correlate with lower performance on other coursework like exams (Kovacs, Johnson, and Bruce 2017). Gottschall and Garcia-Bayonas (2008) find, for example, that more than half of business students have negative attitudes about group work, though these authors also review literature that supports more positive attitudes about that work (e.g., Phipps et al. 2001).

Buckenmyer (2000) and others identify many reasons that students have negative attitudes about group assignments: unclear instructor expectations, mismatched grade expectations among group members, free riders, and students' lack of knowledge about how to form groups, choose group leaders, and divide work effectively (Caspersz, Wu, and Skene 2003). Pfaff and Huddleston (2003) generalize student objections and identify three basic concerns; students do not like how instructors form groups,

¹ Other highly valued attributes include communication skills (verbal and written), leadership skills, analytical skills, and a strong work ethic (NACE 2017).

how instructors assign individual grades, and how challenging it is to schedule group meetings. We examine these three student concerns in more detail.

2 Three Student Concerns About Group Assignments

Citing existing literature and anecdotal evidence, Chapman et al. (2006) identify two typical approaches to forming groups, each of which they say instructors use about equally as often. Either instructors assign students to groups, or students select their own groups. In the former case, instructors assign students to groups randomly or on the basis of students' GPA, gender, race, age, or availability.

Random assignment of students to groups is easy to do and looks fair (Bacon, Stewart, and Anderson 2001). However, random assignment has few meaningful parallels in real business settings and completely ignores student preferences. Even when instructors assign students to groups intentionally, the sorting process is often obscure to students, limiting their awareness of and confidence in the process.

Self-selected student groups have advantages and disadvantages (Oakley et al. 2004). They are relatively easy to form, and the process is typically transparent. However, students tend to rely on convenience, popularity, or bias when they are not familiar with all classmates' credentials (Hugo, Brennan, and Gu 2013). Consequently, stronger students tend seek out one another and complete assignments with few challenges, leaving weaker student groups to struggle.

A second student concern is grading of group assignments. Instructors either assign all members of a group the same grade or adjust each student's grade on the basis of indirect observations of individual performance (Kaufman and Felder 2000). The former approach is relatively blunt and unresponsive to the variation in individual efforts, stimulating social loafing and free riding (Albanese and Van Fleet 1985). The latter approach often relies on student feedback about group members' efforts. Students assess each group member on their relative contributions to the final product or certain group citizenship expectations, such as attendance and participation at group meetings (Oakley et al. 2004). The former approach is inherently competitive, whereas the latter approach generally fails to distinguish actual impacts from attempted impacts, making it unrepresentative of most real business situations. Peer reviews are also problematic when group members tacitly or explicitly agree to rate their peers highly, identically, or both either for strategic reasons or to avoid conflict (Kaufman and Felder 2000).

A third student concern is the challenge of scheduling times for groups to meet and work together. Gottschall and Garcia-Bayonas (2008) find that the most negative aspect of group assignments for business and education students is not free riding or unequal grade expectations but the difficulty of coordinating schedules. Unfortunately, instructors have only one option to mitigate this concern: allocate class time for group meetings.

3 The Importance of Authentic Learning

To address these three student concerns, we propose an authentic learning approach. Authentic learning occurs when instructors create immersive classroom learning environments that go beyond mere reliance on an instructor's personal set of ad-hoc stories and examples (Herrington and Oliver 2000; Herrington, Reeves, and Oliver 2010). When instructors embed lessons in all-encompassing, quasi-natural contexts that reflect professional work environments, students understand and appreciate the practical value of academic content and engage in the class (Herrington, Reeves, and Oliver 2014; Betz et al. 2016; Nachtigall et al. 2018).

To create authentic learning environments, instructors must find ways to map engaging, real-world structures onto inherently constrained academic settings that refresh and extend students' interests. Increased student engagement is the goal. Authentic learning does not require a perfect match

between the real and the academic worlds.² The instructor aims instead to create a staged world in class that is sufficiently authentic or interesting that students engage in class as if it were the real world. Instructors must persuade students to suspend their disbelief and to take on and experiment with new identities that the parallel structure evokes. Herrington, Reeves, and Oliver (2014) eloquently explain that “the physical verisimilitude to real situations is of less importance in learning than the cognitive realism provided by immersing students in engaging and complex tasks” (407). Some research even suggests that other sources of appeal (e.g., entertainment) are enough to persuade students to suspend their disbelief and engage with a scenario even if they believe it lacks authenticity (Eckhaus, Klein, and Kanto 2017).

We now describe an authentic learning approach to group assignments that we believe addresses student concerns about group formation, individual grading, and group scheduling. The approach calls on instructors to play the role of a chief executive officer (CEO) or more generally, a director, and for students to adopt the role of either a project manager (PM) or a private contractor (PC). We call this simulated business experience the PM/PC approach, referencing the two student roles.

4 The PM/PC Approach as Authentic Learning

Under the PM/PC approach, instructors act as corporate officers or directors in the classroom and assign tasks to student leaders who act as project managers. Whereas in the business world project managers are usually promoted on the basis of performance, in the classroom they are voted for by the entire class. The instructor provides all students with relevant information about each student’s skills and interests, namely resumes and one-minute speeches, to facilitate a well-informed voting and matching process. To form groups, the elected student leaders then contact and recruit a prescribed number from their remaining classmates, who act as private contractors.

Like project managers who supervise contractors in real business settings, student leaders provide managerial oversight of their classmates serving as private contractors. In exchange for this additional managerial oversight, student leaders gain greater control over their individual grades. For example, the approach calls for project managers to evaluate their peers, recommend grades, and decide who shares the bonus points. The specific grading criteria and constraints in the course syllabus mimic corporate incentive structures and compensation arrangements. Like an employee handbook, the syllabus details work policies and classroom expectations.

The PM/PC approach also calls for instructors to set aside enough regular class time for well-functioning groups of students to conduct their necessary group interactions. In other words, students may schedule most or all their necessary group meetings during class time. The basic premise is that the academic corollary for a business meeting at the office is a group meeting during a regularly scheduled class period. Setting aside class time reinforces the authentic, all-encompassing nature of the approach.

The lead author (Roger Brown) first experimented with these parallels in his undergraduate agricultural marketing course in 2006, after watching a popular reality television show, *The Apprentice*. In that show, businesspeople competed to become the top project manager. More recently, Brown and his coauthors have refined and extended the approach.

5 The PM/PC Approach as a Solution to Student Concerns

As a coauthor group, we have used the PM/PC approach with variations eight times in four courses at two institutions. This sample includes two advanced undergraduate/graduate agricultural finance courses at

² Authentic learning is similar to experiential learning in that both highlight the value of real-world learning environments (e.g., McCarthy and McCarthy 2006). However, authentic learning generally accepts the physical or online classroom as a given, whereas experiential learning typically envisions students leaving the classroom, for example, to do an internship. In practice, the former is a simulated encounter and the latter is an actual encounter with the real world.

two land-grant universities, an advanced undergraduate/graduate environmental economics course, and an undergraduate food and agricultural marketing course. Across this sample, the significance of the group assignment work varied from 10 percent to 100 percent of students' final course grades. None of these sample courses were capstone courses, and no efforts were made to create group assignments that spanned beyond a single course or more than a single semester. Our experience is that the PM/PC approach addresses students' three concerns about group assignments.

One, students want to participate in the group formation process. The PM/PC approach fulfills that desire by having the entire class elect a subset of themselves as leaders (i.e., the PMs) and by asking each of those leaders to form a group from the remaining students (i.e., the PCs). During the group formation process, PMs must find and persuade PCs to join their group. PMs often seek coaching from instructors on how to form effective groups. These engaged consultations and the guiding force of the real-world context push students to think more openly and strategically. For instance, PMs have imperfect information about who the best students are academically, and the simulated business conditions of the PM/PC approach can yield unexpected results. Academically weaker students with strong communication skills, especially those with past work experience, often find new inspiration. Under these conditions, PMs might prefer to form a group that includes students with different skills that fulfill group assignment requirements.

Two, students want control of their individual grades. Under the PM/PC approach, PMs control their own grades directly, subject to constraints prescribed by the instructor. The PCs control their grades indirectly through their election of the PMs, through their consent to join any particular PM's group, and through their evaluations of their PM. The PM/PC approach requires PMs to evaluate their peers and recommend grades to the CEO, subject to the constraint that the average grade of all PCs in a group must equal the grade assigned by the CEO before the distribution of any bonus points. This constraint forces PMs to wrestle with how to evaluate their PCs accurately.

The introduction of bonus points also gives PMs additional freedom and responsibility when recommending grades to the CEO. Interestingly, the PM/PC model does not explicitly require PCs to provide evaluations of their own or others' contributions; such evaluations tend to arise authentically among all members of the group as they would and should in real business settings. In our experience, PCs ask the instructor how they can highlight their individual contributions, and PMs ask how they can appropriately evaluate the contributions of their PCs. The role-playing aspect of the PM/PC approach also allows students to distinguish their actions as PMs and PCs from their typical in-class behavior as students. The immersive context gives students an excuse to have higher expectations or, as one student said, "I'm not being mean; I'm being professional."

Three, students want easy scheduling of their group meetings. Under the PM/PC approach, group meetings are easy to schedule because the instructor sets aside in-class meeting time for groups to complete those tasks that typically require face-to-face interaction (e.g., discussing ideas and forming plans). The in-class time, however, may not eliminate group scheduling issues. Group members should expect to spend significant additional time working individually outside of class to prepare for their group meetings, a standard business expectation. Groups that encounter unexpected challenges or that do not prepare sufficiently will likely need to schedule additional meetings outside of class.

6 Best Practices and Modifications to the PM/PC Approach

We find that the basic PM/PC approach works best with relatively small class sizes (e.g., 23 to 40 students); however, instructors may adjust various elements of the basic approach to create different incentives or accommodate special situations.³ We suggest that instructors first identify and describe for

³ We find that groups with a total of four students work well, though we have used the approach with groups ranging from three to six students.

students a suitable group project.³ Explain to students that the group project will challenge them to communicate clearly, manage conflicts, solve problems, and think critically. Explain that salaries, promotions, and success in many business settings depend on a person having the right mixture of self-promotion, strategic thinking, initiative, creativity, and hard work. Specific language suitable for a syllabus is provided in the online supplementary material.

Instructors should describe for students how the PM/PC structure works and the different roles, responsibilities, and privileges of PMs and PCs. This step is important. Before students enter an instructor's simulated world, they will want and need to understand the rules and boundaries of the simulation. Clear rules and boundaries will encourage students to step into their assigned roles more readily and will allow students to think more strategically and creatively about their choices. Rules and boundaries are given for three kinds of processes: group formation (Table 1), individual grading (Table 2), and meeting scheduling (Table 3).

When presenting the PM/PC structure to students, anticipate and encourage questions. During our implementation of the PM/PC approach, we received student questions such as, "Are you saying that if I'm a project manager I will get additional bonus points added to my project grade?" To help students do some initial strategic thinking, the response might be, "Yes, that's true, but as a PM you might need to use some of your bonus points to recruit a PC who has technical skills that your group needs." Provide time for students' clarifying questions. The online supplementary material includes a section on frequently asked questions.

To help students effectively use their limited in-class meeting time, instructors may suggest that PMs circulate agendas and draft proposals to group members prior to each meeting. During the recruitment period, instructors may also advise PMs to consider PCs' out-of-class availability. Instructors may also highlight some group-working technologies, such as video conferencing (e.g., Zoom), web-based authoring (e.g., Google sheets and Google docs), and group text messaging (e.g., GroupMe).

Our basic PM/PC approach calls on instructors to gather and collate (e.g., in alphabetical order) one-page resumes from each student and to schedule time for students to give one-minute speeches in front of their peers about why they want to or should be a PM or PC. Instructors then ask all students to rank order (e.g., on a score card) a given number of their classmates (e.g., the top 20 percent) who they want to be PMs. All students who do not score high enough to be PMs become PCs by default. One extension of the basic approach is to lead students in some guided critical reflection before they make

Table 1. Forming Groups: Rules and Boundaries for the Basic PM/PC Approach

- (1) The instructor is the CEO, and the CEO has final say about all compensation (grades).
- (2) For this group project, students will be either a project manager (PM) or a private contractor (PC).
- (3) PMs are group leaders. They have group management skills.
- (4) PCs are technical experts who have specialized skills.
- (5) You and your peers together will determine whether you are a PM or a PC. All students will share a one-page resume with and give a one-minute speech to their peers during the first week of the term. All students will use this information to rank the top students they want to be PMs.
- (6) The CEO will sum each student's rankings. The students who receive the highest overall ranks will be PMs for this project. All other students will be PCs.
- (7) The CEO will announce which students are PMs. At that time, each PM must recruit an assigned number of PCs. Every PC must join a group.

³ Group assignments should be relatively complex tasks that naturally incline students to divide the assigned work and make decisions cooperatively. For example, students might prepare a 10-minute digital presentation on an agricultural market of their choosing that includes a description of the market's defining characteristics and evidence supporting four demand or supply changes expected to occur over five years.

Table 2. Grading Individuals: Rules and Boundaries for the Basic PM/PC Approach

- (1) As groups form, the CEO will assign each a project to complete by a specific date.
- (2) After the due date, the CEO will assign each group an overall project grade (up to 100 percent), which is the grade for the PM. The CEO will also give each PM bonus credit equal to 10 percent of the possible points for the project. The PM can keep or distribute this credit to their PCs.
- (3) PMs must recommend individual grades (up to 100 percent) for each PC in their group with the constraint that, exclusive of any bonus credit, the average grade for all PCs in a group must equal the overall group project grade (and PM grade) assigned by the CEO.
- (4) The PM must provide written justification to the CEO for each grade assigned and indicate how much bonus credit, if any, he or she wishes to share with each PC.
- (5) On the basis of grade recommendations from PMs, the CEO will tabulate a final project grade (up to 100 percent) for each student.
- (6) All PCs must rate their PM (up to 100 percent) and provide written justification to the CEO for their rating. PM ratings do not affect the PM's grade, but the CEO may use them to determine whether that student is eligible to serve as a PM for future projects.

Table 3. Meeting Scheduling: Rules and Boundaries for the Basic PM/PC Approach

- (1) The CEO recognizes that PMs and PCs have other job duties (schoolwork) and that PMs and PCs do some of their work at the main office (in class) and some of their work remotely from their home offices (e.g., library).
- (2) The CEO usually provides training (lectures) and assessments at the main office (in class) when most employees (students) are gathered together. However, as noted in the employee handbook (syllabus), the CEO has moved some trainings online to allow PMs and PCs to occasionally work on their group projects at the main office (in class). This accommodation requires PMs and PCs to access some of their main office training (lectures) online from their home offices (e.g., library).
- (3) PMs and PCs should expect to spend significant additional time working at their home offices (e.g., library) as they prepare for their group meetings.

their one-minute speeches. Instructors may assign students to consider attributes of good PMs, strengths relevant to work as a PM, or ways that cultural biases misshape one's own and others' views of leadership. To shed light on these matters, instructors may invite industry guest speakers to the classroom or record interviews with actual CEOs, project managers, or private contractors. Instructors may also need to help students (e.g., through additional assignments, training, or other exercises) appreciate that choosing leaders and compensating employees is a complex social process that should not indulge gender, ethnic, or other such biases (Brescoll 2015; Carnes, Houghton, and Ellison 2015; Beckwith, Carter, and Peters 2016).

Another modification related to group formation is to write policies allowing PCs to remove their PM or for PCs to move from one group to another. For example, policies should allow PCs to lodge formal concerns about their PM in one-half-page complaint letters addressed to the CEO. If the instructor as CEO finds just cause, he or she can remove the PM and promote one of the group's PCs to PM. Related policies may also allow PCs to switch groups if each group's PM agrees. In all cases, instructors have the authority to interrupt the PM/PC simulation at any time to fix problems or make adjustments.

A grading adjustment might be needed when groups include members who are difficult to motivate, who greatly underperform other group members, or both. In these cases, the PM is highly incentivized to step up and complete the work because his or her grade equals the overall project grade.

Instructors can diminish this effect by modifying that grading constraint. For example, the CEO (instructor who assigns an overall grade) may allow PMs to recommend grades for all group members, including themselves, such that the average grade for *all* group members is equal to the overall group project grade assigned by the CEO. Separately, CEOs can award bonus points to PMs on the basis of some performance measure (e.g., the group's overall project grade) rather than simply awarding a fixed amount (e.g., plus 10 percent of the points possible on the assignment).

Another modification of the basic PM/PC approach is to create a series of increasingly more sophisticated group projects with increasing numbers of PCs managed by a decreasing number of PMs. The CEO can use PC ratings (#6 under "Individual Grading" in Table 2) from each project to narrow the field of PMs by reassigning the lowest-ranking PMs as PCs. For the final project (e.g., an in-class presentation), students from all of the other groups rate each project. The CEO then identifies the top project manager by adding (1) the overall project grade that he or she assigned, (2) the average rating from all non-group members, and (3) the PM average rating given by the group PCs. To motivate PMs to do their best, the instructor may show students a copy of a letter of recommendation that describes the unique course setup, a student's outstanding managerial achievements, and direct quotes from satisfied student contractors who appreciated the student's leadership (see the online supplementary material).⁴ Such letters or an extra-curricular reward (e.g., a tour of a local consulting firm for the winning team) can help students see that their hard work has benefits beyond a good course grade.

7 Limitations of the PM/PC Approach and Conclusions

The basic PM/PC approach has two limitations. One is class size. Instructors of classes of more than 40 students would likely need to restructure the approach to maintain authenticity of the experience and engagement for students as well as to keep demands on class time, particularly during the group formation process, manageable. One solution might be to divide students into "districts," and to implement the PM/PC model simultaneously within each.

The second limitation of the basic PM/PC approach is that it requires instructors to set aside class time for group assignments. Some instructors may not be able to accommodate this time allowance within their regular class schedule. In that case, instructors have two options. They may provide an additional credit hour (e.g., lab credit) to allow for in-class meetings. Alternatively, they may free up time during regular class periods by moving some in-class activities (e.g., some lectures) online (Lage, Platt, and Treglia 2000). This option has strong empirical support, and guidance for its implementation is plentiful (DeLozier and Rhodes 2017). The viability of the option, however, will depend on local institutional policies and the instructor's willingness and ability to adapt some course activities for online delivery.

In conclusion, we highlight two emerging needs. First, empirical study is needed to assess how well the PM/PC approach affects student satisfaction and student learning outcomes. Anecdotal evidence from the classroom experience of four instructors suggests that the PM/PC approach improves student satisfaction with respect to three known student preferences regarding group formation, individual grading, and schedule coordination. We have less insight to offer on whether and how the PM/PC approach improves student learning outcomes.

Second, additional thought is needed to adapt the PM/PC approach for use in distance learning courses in which students are unable to gather in a common physical location. In our experience, students rely heavily on face-to-face interactions to form their preferences for project managers and to conduct their group business. On the other hand, businesses increasingly rely on remote interaction to perform group functions. This trend suggests that the PM/PC approach should be adapted for use in online courses.

⁴ Other example documents in the online supplementary material include a syllabus describing assignments and PM/PC processes and a score sheet to rank PM candidates.

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