
Case Report

Small Group Projects to Provide Context and Connection

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Abstract: From a student's perspective, topics within a course and courses within a program of study can seem to stand alone. As a result, learning can become siloed and disjointed. This paper describes the use of semester-long integrative projects that students undertake in teams. The projects are broken down into smaller parts that follow the order of topics covered in the course. Such projects build research skills and connect students' work to course topics, thereby reinforcing learning, while building engagement through contextualizing course material according to each team's interests. They have been successful in advancing student learning in a more integrative way and in achieving learning outcomes at course, program and institution levels.

Keywords: Group Projects, Undergraduate Research, Contextualization, Electronic Portfolios

1. Introduction

At the end of a course, a student should be able to clearly see the logical connections amongst various topics addressed in the course and between those topics and external events. This is important for authentic learning to have taken place, rather than the course being one where students study and memorize material, reproduce it for a test and forget it once the test is over, unless they have to re-learn it for a subsequent test.

This desired outcome has often not been the case in the author's experience. In many cases, students are not able to clearly relate one topic in a course to another; or the contents of a foundational course to the one that follows. The author is an instructor in Business, a field in which courses can be quantitative and/or writing intensive. He has found that he often needs to review basic arithmetic and algebra and rules of writing to ensure that contents of economics courses will make sense to students and that they will be able to navigate quantitative assignments and writing projects.

Additionally, during a semester, as a course advances from one subject to another, students do not always make the connections from earlier to later topics and to build from one to the other based on a logical progression of subject matter. This is especially the case in courses where chapter and/or issue-specific exams and homework assignments are the

major means of assessment of learning.

The point here is not to comment on how forgetful our students are or to criticize their learning styles; rather it is a reflection on us, as instructors, on whom it should be incumbent to ensure that our course contents are meaningful, relatable and applicable to students' experiences, as well as to their overall learning trajectory. We should be more explicit in pointing to the relationships and progression amongst courses and topics in those courses.

Maintaining the connection among classroom discussion topics, term assignments and applications of course concepts to external events over the course of a semester can be challenging. One reason is the way students' studies, work and lives intersect. As students' attention is pulled in diverse directions, the thread of continuity in topics over the term may break and their engagement with course topics can suffer. This may be the case whether the course is based around periodic tests, whether it includes short assignment and/or whether the focus is on major writing projects. For the last, it has often been the case that work on such assignments often languishes over time and tends to be put off until close to its due date, typically near the end of a semester. Consequently, students may do a rushed job, resulting in poor performance and grades that do not reflect their potential achievement and learning.

Another, related, reason is how we, as instructors, devise and structure the requirements of our courses. Balancing the

requirements of a course, keeping in mind the gamut of students is difficult. Changes in student populations over the past few decades mean that there is no single “typical” student. The great diversity amongst them in terms of educational preparedness, learning styles, age levels, life experience, cultural factors and economic background makes for rich and exciting classroom discussions. However, it adds to the logistical complexity of assigning course tasks. Students may also differ in their strengths. For this reason, instructors need to have a variety of ways to assess learning.

This paper describes one aspect of the author’s pedagogy that aims to increase knowledge mobilization, i.e., to create and maintain the nexus between classroom discussion and real-world applications in a logistically feasible way. In doing so, it also targets other learning outcomes related to team work and experiential education.

2. Addressing the Issue

Stella and Charles Guttman Community College of the City University of New York was established with the express goals of promoting student success, by increasing student retention and graduation rates. The College aims to prepare graduates of its two-year programs for entry-level professional positions and to continue their education into bachelor’s degrees.

To this end, the College has adopted a number of high-impact practices such as learning communities for first-year students; a two-week program for incoming high school graduates to prepare them for college-level work; extensive use of electronic portfolios to promote reflective learning practices; research projects; context based content; experiential learning; continuous self-assessment for the College’s staff and faculty; and high-touch academic support.

The author is a founding faculty member of the institution and the coordinator for the Business Administration program. He has tried to ensure that the innovative pedagogies used in the common first-year curriculum are continued into second-year courses in the major. A detailed description of the College’s first-year curriculum may be found in Saint-Louis, Fuller and Seth [1].

The Business Administration program targets a number of institution-wide learning outcomes. We are a new institution and will be seeking accreditation for this program in the coming years. Consequently, the author has been developing courses for this program in an intentional way that serves the twin goals of achievement of learning outcomes as well as gaining wider recognition through accreditation.

Term projects are often a staple of many courses, across the disciplinary spectrum. They provide the means to integrate content from different sections of the course. This helps assess students’ “big picture” learning. They provide a means to apply theoretical topics to real-world situations. In the business and economics courses taught by the author, the second factor is particularly relevant, since content in these fields takes on meaning principally in the context of what is happening outside the classroom.

This paper’s focus is on signature assignments that require student research and that attempt to address several of the learning outcomes of the College, the business program and a specific course. Such projects reinforce student learning of course materials through applications of academic concepts and prepare students to work as members of a team. Collaborative work is valued at our institution as a college-wide learning outcome. It is also one of the outcomes that business program accreditation agencies focus on. The Association of Collegiate Business Schools and Programs considers teamwork a contributor to active learning by students, which helps develop accountability as well as interdependence [2]. The International Assembly for Collegiate Business Education considers teamwork to be a “business related professional skill”, [3].

Since one of the goals of this institution, a 2-year community college offering associate degrees, is to prepare its graduates for continuing their studies to the bachelor’s level and to be ready to enter the workforce at entry-level positions, being able to work in teams is important. Schumaker [4] notes the use of team work to employers. These are some of the factors that we keep in mind when requiring students to work in groups as part of their overall learning and assessment.

3. Research and Application

Research projects push students to delve more deeply into specific topics of a course. They promote independent thinking and require students to make connections between what they have learned in the classroom and issues extant outside it. Kuh [5] identified student research as a high-impact practice. These projects enrich students’ educational experience [6] and including them in early college courses prepares students for more advanced coursework at bachelors and graduate levels. The projects I am describing require collaborative efforts and build writing skills, which are also pedagogies that have a significant impact on student learning, as indicated by Kuh [5].

Such assignments are an example of project based learning. Efstratia [7] notes the utility of such work in fostering knowledge acquisition. Projects that focus on application of course topics also contribute to experiential learning. The value of experiential education in in empowering students has been examined by Shell man [8]. It also serves to make the learning process more complete, as suggested by Katula and Threnhauser [9]. Mon cure and Francis [10] have discussed the role of experiential learning in promoting students’ commitment to social responsibility—a major focus in business education across the country.

4. Group Projects

While research projects contribute to learning more about specific topics in a course, when attempted collaboratively by a group of students, they can have a broader impact in terms of building students’ abilities in problem-solving, communication, and conflict management [11]. Payne and

Monk-Turner [12] note how students view group projects as adding to their learning.

Some care needs to be taken in the formation of groups. For this, the author ascertains students' interests and strengths early on in the term or based on knowledge of the students from earlier classes. He uses this information to form teams of three to five members (depending on class size), based on complementarity of interests and personalities. Hutto, Black and Frontczak [13] have proposed an interesting process of personality matching as a way to form teams. This is an idea with which the author is planning to experiment in the upcoming semester.

Free riders can exist [14] in any group where all members receive the same reward/grade. In his courses, the author attempts to obviate this by having a peer evaluation by group members be part of the project grade. This creates incentives for students to put in a strong effort and collaborate with their group mates, while attempting to address the free-rider problem that can plague group projects.

Research by Schoenecker, Martell and Michlitsch [15] indicates that diversity has a negative impact on student satisfaction in group projects. However, given the diversity of our student body (cultural, linguistic, ethnic, in preparedness), this is a factor that we embrace on principle and for practical reasons. We would be hard pressed to be able to form groups in a particular class that were homogeneous in various respects. Also, we believe that the interaction of students who are not alike in various respects contributes to broader learning, cultural awareness and to an appreciation of differences. Besides, almost two decades after the study by Schoenecker et al, given that we function in the highly diverse environment of New York City, we have seen an openness and curiosity in our students that does not suggest that grouping them need be done on the basis of like with like.

4.1. Structure of Projects

To include term projects in course requirements in a way that promotes students being able to successfully complete them and to require such projects to be done in groups, the author has instituted a series of shorter assignments that collectively add up to a substantive project over the course of a semester. Instead of having a single project due by the end of the semester, he has broken it up so that a piece of it is due every few weeks and the full, completed work is due at the end of the term. So while he introduces the project at the beginning of the semester and also forms teams soon after, the first written assignment is not due until some weeks into the semester.

The project counts for a major part of the course grade and it involves collaborative research, writing, and a presentation. However it replaces a single assignment which has to be completed by the end of the semester. Since it is made up of several small parts, no single one of them on its own counts for a significant a fraction of the course grade. So, while the overall assignment is high stakes, each part of it is not so. A group that performs poorly on one section has the option of raising their grade somewhat by resubmitting the assignment and/or by performing better on subsequent sections. The final

written part of the project is a compilation of earlier sections, which addresses questions and comments that the instructor had raised up to that point. Groups also present their work at the end of the term.

After the instructor provides students with guidelines and delineates the connection of various components of the projects to learning outcomes of the course, the program and the institution, each group, in consultation with the instructor, may choose its own topic for research. This requires some negotiation amongst group members who may have divergent interests, but need to come to a consensus.

Breaking the project into smaller portions makes it more manageable. The author has found that a single major assignment due at the end of the semester is a target often undershot by students—either not handed in, handed in incomplete or completed, but obviously in a hurry with poor results to show for the last minute efforts.

A major pedagogical reason for requiring multiple short projects rather than a single long one is to tie each short assignment to a specific part of the course. E.g., if Topic X is covered in Week 3, Mini Project X will be due, by, say, Week 5. This will require that the group members conduct research on Topic X starting from what has been discussed in class, applying it to a real world situation and writing about and submitting Mini Project X a few weeks later, so that the topic is not covered in class and then forgotten until exam time when it is quickly glanced over in preparation. The research related to that topic keeps it alive longer in students' minds and helps connect it to the next topic covered in class and the cycle of knowledge building, integration and application continues.

Since the projects also require considerable writing and a final presentation, they address learning outcomes related to building communication skills in writing and presentation. While these skills are not necessarily the primary focus of Business and Economics courses, building them is integral to achieving the College learning outcomes.

Projects topics thus follow the order of classroom discussion topics, with a lag of a few weeks. They also have the same logical progression so that the connections of the classroom material are repeated and reinforced in the projects. Parallel to topics in the course, these projects are scaffolded in terms of difficulty and the use of material covered in earlier weeks being used as a basis for what comes later.

4.2. Semester-Long Process

The project is introduced in the first class of the semester. Groups are formed within the first two weeks. Some class time is set aside for this and also for group members to get to know one another. This serves to alleviate the anxiety of working in a group as discussed by Strauss, U and Young [16]. Guttman students are quite used to working in groups and most of their first-year general education courses require group work. However, Hansen [17] has noted the problems that can arise with group projects and the author works with the groups both proactively and on an ongoing basis to try and circumvent them. Following guidelines provided by the instructor, groups decide on their topic shortly thereafter.

As topics are introduced in class, their connection to the relevant section of the project is clarified. Some class time is set aside for discussion of the project and to address students' questions. All written assignments are submitted to a course electronic portfolio. They are graded, with comments and returned (typically, in less than a week) to the groups. They then have a short (2 days) deadline to make corrections and improvements in response to the comments and resubmit the assignment, should they choose to do so.

The final written part of the project requires compiling all the previous sections while addressing the comments and questions raised by the instructor. If students have already addressed this in the first iteration, they may not have much work to complete at this point, highlighting to all groups the value of availing themselves of the initial opportunity. Some groups may choose to further improve on their earlier revisions, which helps their overall performance. These papers are also graded and returned to groups within a few days.

During the last week of the semester, groups present their work, ideally having also addressed feedback on their final paper. The process needs some careful planning to stagger the class discussion of a topic and it becoming the focus of a section of the project; to grade and return students' work rapidly so that they have the information and time to improve upon it if they choose to; and to give students the space and time to complete work for this course and others they may be taking.

4.3. Evaluation

Electronic portfolios are extremely useful in the evaluation process. They are practical in reducing the use of paper and the possibility of losing assignments. More importantly, students have ready access to their work and feedback so that they can build and improve on it.

Depending on the course, such projects count for 20-25% of the overall grade. This would be divided between 4-5 written sections, the presentation and a peer evaluation. The written projects are evaluated by the instructor, based on rubrics provided to all students. Each group's presentation is evaluated by the instructor and by members of other groups. Peer evaluation is conducted by each student for the other members

of the group, based on a peer evaluation rubric. The presentation and peer evaluations are confidential to the instructor. Following Jin's [18] suggestions, the peer evaluation is relatively simple. It includes a few questions related to group members' work and a space for comments being sufficient to get a clear picture of each student's contribution to the overall project. Thus the major part of the grade for the project is common to all participants in the group, while the remainder depends on how members' partners evaluate them.

5. An Example

As an example, for a project in a Microeconomics course, groups examined different aspects of a business of their choice. The topics for different sections of the project included the company's product and customers; elasticity of demand for its product; its cost structure; competition and market structure; and legal and ethical issues, especially from the corporate social responsibility perspective. In all cases, there was an underlying theme of recommending how the business could improve its performance.

In this course, groups chose to study companies such as Airbnb, Apple, Berkshire Hathaway, Google, Netflix and Uber. In the past the author has sometimes assigned companies to groups, but now has them choose their own, which he has seen increases their connection to, engagement with and enthusiasm for the work they do. Also, since our curriculum attempts to contextualize content as much as possible, affording groups the opportunity to decide on their topic helps increase their investment in their assignment. Students have the leeway to select the subject of their projects, as long as they fall within certain parameters common to all groups. This way, they can start with a subject that is familiar to them, or about which they are interested in learning more and build from there.

The short assignments (2-3 pages each) followed by a few weeks the time the related topics were discussed in class. Typically, in the interim, students also completed a separate homework assignment related to that topic. Table 1 below summarizes the timeline for team projects that the author has assigned in this Microeconomics class:

Table 1. Class and Project Topics.

Topic	Covered in class during week	Addressed in project during week
Law of demand, elasticity	2-3	5
Supply, costs	4-5	7
Market structure	6-7	9
Legal and ethical issues	9	11
Full written project		12-13
Presentation		13-14

Each part of the team project built on earlier classwork and prior assignments; it intentionally provided context to topics being covered in class, thereby reinforcing the classroom discussion. A single part of the project thus helped in learning for that topic and subsequent ones. No single short assignment would doom a group to a low grade, but the full project comprised a significant proportion of the course grade. Consequently, group members tended to work collaboratively

given the collective high stakes, and the individual "grade" each was being assigned by their peers.

6. Discussion and Conclusions

Small group projects can be beneficial in several ways. Each section of the project is doable and manageable, so that there is a greater likelihood that it, and the complete project, will be

completed. The group aspect of such assignments can result in better outcomes from the synergistic efforts of individual members. The way research projects are structured can serve to increase students' engagement with course materials, build their interest in those topics and result in improved learning.

What began as an attempt to offer context and connection among course topic and between course topics and the business environment has somewhat serendipitously evolved into projects that achieve broader learning outcomes. In addition to pushing students to apply classroom concepts to examine real-world situations, these short assignments promote integration of course topics. They build the skills necessary for successful collaboration. They reinforce students' research and writing skills, which serves them well in other courses, as well as professionally. The feasibility of each section also makes for greater success in completing the overall project and contributes to student learning.

Such projects require students to collaborate in person and/or virtually and are submitted online. This helps them become adept in the use of technologies such as wikis, discussion boards and electronic portfolios. These are skills that are valued by our institution and ones that students can continue to use and build upon in their continued academic or professional trajectories.

The author has been generally pleased, and sometimes impressed, by the quality of work students have submitted. It exhibits thought, research skills and an ability to connect the classroom topics with the business/economic issue that students are investigating. Particularly gratifying are students' anonymous comments about how they had felt involved in the course, appreciated the opportunity to learn more about something of interest to them and the skills they had built from working as a team.

It should be noted that such projects are fairly labor intensive for the instructor. They require a significant amount of planning, as well as the flexibility that can be necessary when plans do not materialize perfectly. Since students are writing 4-5 short papers instead of a single long one, that multiple of grading is required, though of a smaller volume work each time. This can be further magnified if students are allowed to resubmit their work to improve upon it, as is the author's practice.

The extra work is the cost of improved performance. Such assignments can and do promote students' learning and longer-term success. They can be rewarding for instructors in terms of the quality of work we receive from our students and the satisfaction of seeing them perform well.

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