

The Problems that Impact the Quality of Project Management Courses Developed Following a Project-Based Learning Approach with the Support of Community Partners

*Joao Alberto Arantes do Amaral **

ABSTRACT

This case study presents findings regarding the problems that impact the quality of a Project Elaboration and Management course, developed following a project-based learning approach. From 2014 to 2019, the course was taught 27 times, involving 596 undergraduate students from Federal University of Sao Paulo, Campus Osasco, Brazil. The research objective is to reveal the main problems encountered both in setting up and delivering the course, and to analyze their impacts on the quality of the course. Data was collected from the professor's notes, from correspondence between the professor, students, and other stakeholders, minutes of meetings between the professor and stakeholders, and from the students' reports about the projects. The data was analyzed following a qualitative systemic analysis, revealing the impacts of the identified problems on the course. The article concludes by presenting possible ways of reducing such problems.

DESCRIPTION OF THE CONTEXT

The Project Elaboration and Management course is taught to undergraduate students from the Federal University of Sao Paulo (thereafter UNIFESP), Campus Osasco, Brazil. From 2014 to 2019, the course was taught 27 times, involving 596 undergraduate students. Each course is developed in fifteen weeks, following a project-based learning approach with the participation of community partners (organizations that help people in need). The course was designed to provide hands-on experience for students: the students learn project management concepts while working on real-life projects. Groups of students (on

* Joao Alberto Arantes do Amaral, Federal University of Sao Paulo, Unifesp Osasco, Brazil
Email: jarantes@alum.mit.edu

average 5 in number), plan and execute projects that create products and services on behalf of the community partners (thereafter CPs).

The CPs provide the professor with the needs of the organizations, referred to here as *project themes*. The project themes vary: sometimes the project objective could be the acquisition or the development of a product while at others it might be the accomplishment of a service. The professor then selects the projects he thinks have the most chance of succeeding within the context and lets each team of students chose the one they want to work on. The course follows a project-based learning approach: the students are challenged to reflect on their use of the project management tools to accomplish real-life project. The students are also challenged to reflect on their learning process. The courses take place in regular UNIFESP classrooms.

The UNIFESP occupies a rented building located in the city of Osasco. The building lacks good infrastructure: classrooms have no air conditioning and acoustic conditions are poor. There is only one restaurant and a very small canteen to serve the approximately 1,750 students.

The campus was created in 2011. It has 106 professors allocated in five Departments (Multidisciplinary, Economics, Accounting, International Relationships and Administration). The Project Elaboration and Management course is taught by one professor of the Multidisciplinary Department to students coming from all other departments. In spite of the importance of the course, it is obligatory only to the students in the Departments of Economics and Accounting. The organizational climate is far from ideal. There are conflicts among professors springing from academic rivalry.

THEORETICAL FRAMEWORK

Several researchers have followed a project-based learning approach to teach project management (De los Ríos-Carmenado, Lopez, & Garcia, 2015; Arantes do Amaral, Gonçalves, & Hess, 2015). Scholars point out the benefits of challenging the students to accomplish real-life projects on behalf of real-world clients, including the development of critical reasoning (Barron et al., 1998; Boss & Krauss, 2014) and of problem solving and communication skills (Arantes do Amaral, 2018; Jacoby, 2014). This approach also fosters knowledge sharing among the students, and between the students and the real-world clients (Arantes do Amaral, 2019). Researchers have also pointed others benefits such as the development of sense of concern over social issues (Yusop, 2013). Although there is substantial literature about the benefits of teaching project management following a PBL approach with the support of community partners, it seems that there is still a lack of information regarding the problems that may occur in the development of courses with

these characteristics. This case study aims to address this gap. Our research questions follow:

1. What are the problems that may occur in setting up and delivering an Elaboration and Project Management course following a PBL approach that has the support of CPs?
2. What are the impacts of these problems on the quality of the course?

CONCRETE IMPLEMENTATION

Each course had clearly defined milestones and deliverables. The students were required to create project plans and put them into practice. The students had to develop fundraising strategies, manage risks, assure the project' quality and revise their plans if and when they encountered setbacks. The courses led to the development of 138 projects on behalf of 23 CPs. Throughout the courses, the professor collected data about the problems that impacted the course quality. The data was collected from notes of observation, from the correspondence between the professor and other stakeholders, and from minutes of meetings between the professor and the Standing Committee for Promotion and Tenure and between the professor and the Committee on the Undergraduate Program.

RESULTS AND REFLECTIONS

Analyzing the problems that emerged from the data collected about the courses, we identified six main categories of problems (Table 1).

Problem categories	Type of problems	Percentage of the courses where the problem occurred	Impact on course
Problems created by other professors vis a vis the course	• Barriers to enrollment	95%	High
	• Devaluation of course	95%	Medium
Problems created by students vis a vis each other	• Dropouts	100%	Low
	• Conflicts between students	10%	Medium
	• Lack of commitment	12%	High
Problems created by the professor vis a vis the students	• Difficult project theme	10%	Medium
	• Choice of unsuitable community partner	5%	High

Problems created by the university vis a vis the course	<ul style="list-style-type: none"> Lack of inter-department planning 	100%	High
	<ul style="list-style-type: none"> Inadequate classroom facilities 	100%	Low
	<ul style="list-style-type: none"> Inadequate food facilities 	100%	Low
	<ul style="list-style-type: none"> Inadequate public transport to campus 	100%	Low
Problems created by the university vis a vis the professor	<ul style="list-style-type: none"> Class cancelations 	100%	Medium
	<ul style="list-style-type: none"> Administrative burden 	25%	Medium
Problems created by community partners vis a vis students	<ul style="list-style-type: none"> Lack of participation in classroom activities 	95%	Low
	<ul style="list-style-type: none"> Communication issues 	25%	High
	<ul style="list-style-type: none"> Change of project's scope 	10%	High

Table 1. Problems' categories.

Category 1: Problems created by other professors vis a vis the course

Academic rivalry, unfortunately, is a problem we have faced here. Sometimes a department blocks the course itself, based on non-academic criteria (personal bias against the professor who teaches the course). Even when the course is approved, it is approved in a time window that allows very few students to attend. Another problem occurs when professors from other departments deliberately devalue the course to their students with the goal of discouraging them to enroll.

Category 2: Problems created by the students vis a vis each other

In all course taught there were dropouts. This problem led to change in the structures of the teams. Eventually the team members had conflicts and disagreements that impacted development of the project. Lack of commitment of some students was also a problem that occurred. In addition, sometimes the students made inefficient use of project management tools.

Category 3: Problems created by the professor vis a vis the students

Sometimes the professor did not select appropriate project themes from themes offered by the community partners. For example, sometimes he allows a theme that was too easy to deal with. On other occasions, the professor selected an inadequate CP, a partner that didn't give the students the information they needed to accomplish the projects.

Category 4: Problems created by the university vis a vis the students

The students' workload sometimes was too high. This occurred when the departments didn't plan adequately which courses should be offered to the students at a specific semester. The other courses were sometimes too demanding; therefore, the students had very limited time to work on the projects.

Moreover, as we said previously, the UNIFESP campus lack adequate food facilities: the campus has only one restaurant and one canteen. Sometimes the students had to stand in line for several minutes in order to get their meals. This made them arrive late for class, missing some classroom activities.

The classrooms themselves were not suitable: they lacked adequate noise and thermal insulation. Therefore, the classrooms were hot in the summer, cold in the winter and noisy all year.

Finally, the lack of adequate public transport forced the students to leave the classroom early, in order to catch the last train to their homes.

Category 5: Problems created by the university vis a vis the professor

In UNIFESP the professors are also evaluated by their participation in administrative work. In other words, the professors must to serve on committees, perform departmental or university-wide tasks in order to be promoted. However, there are a large amount of committees that demand several meetings, reducing the amount of time the professors have to improve their courses.

In addition, there are academic events such as "Accounting Department Week," where the department offers a series of activities and workshops whose scheduling conflicts with the course and forces class cancellations.

Category 6: Problems created by the community partners vis a vis the students

Sometimes the community partner changed the scope of the project during the project's execution. These changes forced the students to revise their goals and/or rework project activities. On other occasions, the community partners failed to provide the students with the information they needed to perform their tasks in a timely manner. When this happened, projects were delayed and became more difficult to accomplish.

Finally, the UNIFESP campus is located in a region that is not easily accessible by public transport and unfortunately not very safe. Several assaults occurred in the region of the campus, which discouraged community partners from participating in the first class (when the project begins) and the final class (when the project ends). The participation of the community partners in these classes is very important for two reasons: in the first class the community partners explain their work and their needs to the students. Their presence

motivates the students to choose the appropriate organization and project theme. Community partner participation at end of the project helps the students grasp the consequences of their work and the impact of their projects. The absence of the community partner in these classroom activities therefore impacted course quality negatively.

REFLECTIONS

In this section we perform an analysis, following a systemic perspective. We analyze the impacts of the problems on the quality of the course. We do so by using a system dynamics tool, a causal loop diagram (Figure 1).

The quality of the course impacts on students' enthusiasm, thus influencing whether information about the course is spread by word of mouth in a way that sparks the interest of potential new students. (Figure 1, feedback loop "Course quality"). Others researchers have reached to similar finding (Arantes do Amaral & Gonçalves, 2015; Moens, 2006).

However, the course quality is impacted negatively by the stress felt by the students, which in turn is created by the problems encountered dealing with the community partners, with the university itself, with the professor and with each other. (These causal relationships are shown at the top of the figure 1). This finding is in accordance of the findings of other scholars (Arantes do Amaral, 2019; Blumenfeld et al., 1991).

The quality of the course is also impacted negatively by the stress felt by the professor. Administrative burdens, class cancelations and the negative influence of other professors all contribute to the problem. (These causal relationships are shown at the bottom left of the figure 1). Academic rivalry leads to the creation of barriers to the students' enrollment, which increases stress on both students and the professor and takes time to counter (Figure 1, feedback loop 'Escalation').

Similar findings have been reported by other scholars (Fogg, 2008; Frazier, 2011; Raineri, Frear, & Edmonds, 2011).

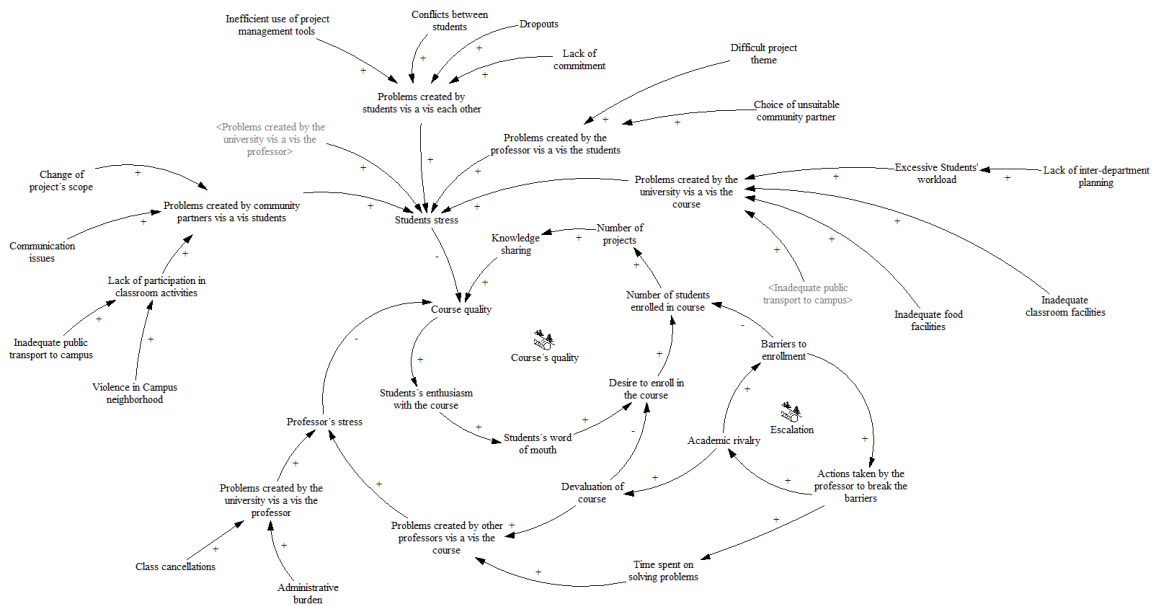


Figure 1. The systemic impacts of the problems.

SO WHAT DID WE LEARN FROM THIS CASE STUDY?

We were able to identify the six major problem areas that can influence the success of the projects. Some variables are under the professor’s control, such as choosing adequate community partner, selecting adequate project themes, and managing the conflicts between the students.

However, exogenous variables such as the violence in the campus neighborhood, the inadequate classroom and food facilities, and the lack of public transportation to the campus are those that the professor can do very little about, except by reporting them to the university and asking for help. We do understand that these problems are very difficult to solve. However, UNIFESP is building a new campus in a safer area with better public transportation. Therefore, we are hopeful that some of these problems may begin to resolve themselves.

There are also variables that make the course less attractive than that should be (such as the lack of the presence of the community partner in classroom activities) that may be addressed with the supportive actions from the university to the community partners (such as providing taxi or shuttle bus to bring the community partners to the campus). Nowadays there is a movement in UNIFESP going on, in order to create a service-learning center that would help on these issues.

Other variables that impact the course negatively such as those created by academic rivalry are currently being addressed by officials of the school. Actions are also being taken by academic boards to improve collaboration and coordination between departments, with the aim of reducing the students' workload and the professor's stress.

We speculate that similar problems may be occurring in other universities where PBL centered courses are being conducted. Thus, we hope that our study may be helpful to other scholars that are dealing with similar problems.

References

- Arantes do Amaral, J. A., & Gonçalves, P. (2015). The use of system thinking concepts in order to assure continuous improvement of project based learning courses. *Journal of Problem Based Learning in Higher Education*, 3(2), 109-119.
- Arantes do Amaral, J. A., Gonçalves, P., & Hess, A. (2015). Creating a project-based learning environment to improve project management skills of graduate students. *Journal of Problem Based Learning in Higher Education*, 3(2), 120-130.
- Arantes do Amaral, J.A (2019). Combining Community-based learning and project-based learning: a qualitative systemic analysis of the experiences and perceptions of students and community partners. *Partnerships: a journal of service-learning and civic engagement*, 10(1), 129-137.
- Arantes do Amaral, J. A. (2018). Reflections On Thirteen Years Directing Community-Based Learning Projects. *Collaborations: A Journal of Community-Based Research and Practice*, 2(1), 1-19.
- Barron, B. J., Schwartz, D. L., Vye, N. J., Moore, A., Petrosino, A., Zech, L., & Bransford, J. D. (1998). Doing with understanding: Lessons from research on problem-and project-based learning. *Journal of the Learning Sciences*, 7(3-4), 271-311.
- Blumenfeld, P. C., Soloway, E., Marx, R. W., Krajcik, J. S., Guzdial, M., & Palincsar, A. (1991). Motivating project-based learning: Sustaining the doing, supporting the learning. *Educational psychologist*, 26(3-4), 369-398.
- Boss, S., & Krauss, J. (2014). *Reinventing project-based learning: Your field guide to real-world projects in the digital age*. Michigan, MI:International Society for Technology in Education.
- De los Ríos-Carmenado, I., Lopez, F. R., & Garcia, C. P. (2015). Promoting professional project management skills in engineering higher education: Project-based learning (PBL) strategy. *International Journal of Engineering Education*, 31(1), 184-198.
- Fogg, P. (2008). Academic bullies. *Chronicle of higher Education*, 55(3), 10-11.

- Frazier, K. N. (2011). Academic Bullying: A Barrier to Tenure and Promotion for African-American Faculty. *Florida Journal of Educational Administration & Policy*, 5(1), 1-13.
- Jacoby, B. (2014). *Service-learning essentials: Questions, answers, and lessons learned*: New York, NY: John Wiley & Sons.
- Moens, G. A. (2006). The mysteries of problem-based learning: combining enthusiasm and excellence. *U. Tol. L. Rev.*, 38, 623-632.
- Raineri, E. M., Frear, D. F., & Edmonds, J. J. (2011). An examination of the academic reach of faculty and administrator bullying. *International Journal of Business and Social Science*, 2(12), 22-35.
- Yusop, F. D. (2013). The benefits and challenges of implementing service-learning in an advanced instructional design and technology curricula: implications for teaching professional courses. *The New Educational Review*, 32(2), 230-232.