

The Systemic Impacts of An Educational Project Conducted by One University in Partnership with Fifteen Organizations

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ABSTRACT: The systemic aspects of educational projects that involved universities, organizations and communities are issues that concern a number of researchers. In this paper, the authors present the processes and findings related to a one-year educational project. The educational project is accomplished through two sequential courses, which are taught by representatives of one university and fifteen organizations -- schools, art galleries, foundations, NGOs, hospitals, humanitarian organizations, and corporations -- that provide educational opportunities to people from poor communities of São Paulo, Brazil. The seventy-six course members are individuals involved in the social projects accomplished by these organizations. The courses follows a project-based learning educational approach. The research objective is revealing the systemic impacts of this educational project. In this study, the authors follow a systemic action research approach. They develop a qualitative study based on document review, questionnaires, interviews, videos and observations. The main findings are as follows: 1) Coordinated actions between the university and the diverse organizations may create synergies that promote intense knowledge sharing, contributing to the development of the skills in the course participants; 2) The use of project-based learning techniques improves the learning and strengthens the ties between the course participants. 3) The educational project leads to the empowerment of the course participants, allowing them to promote meaningful actions in their communities.

KEY WORDS: systemic action research, systems thinking, university-community partnerships, knowledge sharing, non-governmental organizations

INTRODUCTION

This research focuses on the analysis of the systemic aspects of an educational project that had a very particular and complex structure. It involved sixteen organizations (the University of São Paulo, schools, art galleries, NGOs, hospitals, humanitarian organizations, corporations,

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foundations) and was aimed at members of the communities who worked on projects with these organizations.

The educational project had the goal of empowering the course members by promoting knowledge sharing of successful social experiences and developing their project management and systems thinking skills. The project was completed through two courses, offered at no cost. It was accomplished from May of 2009 to April of 2010, in São Paulo, Brazil. The lecturers were professionals from these organizations, in a leadership position, who have worked on successful social projects.

The purpose of our paper is to share the findings of the dynamics studied. The authors consider that this study is significant as it shows in detail a practical example of systemic action research that can be of interest to other academics involved in similar projects with institutions and communities.

RESEARCH QUESTION

The research question is:

1. What are the systemic impacts of an educational project conducted by sixteen organizations?

REVIEW OF RELEVANT LITERATURE

In this article, the authors reflect upon an educational experience that involved partnerships between academia, communities and diverse institutions. Researchers (Maurrasse, 2002; Wright et al., 2011) point out that these kinds of partnerships are growing in fields such as engineering, social sciences, health, law and many others. Scholars (Lindner & Kubat, 2014) argue that collaboration between universities, companies and public organization can provide students with a range of educational opportunities.

In fact, the educational strategy Community-Based Learning (CBL) focuses on sharing knowledge between academia and communities. Prast and Viegut (2014, p. 2) explain the concept as follows:

Community-based learning is an educational strategy that one educator can use to increase the student engagement, make the curriculum relevant and experiential and strengthen the connection between the community and schools.

In addition, researchers (Hall & Hall, 2002) argue that CBL can help the students to associate theoretical, abstract ideas and concepts with practical, real-world applications. Researchers (Melaville, Berg, & Blank, 2006, p. 1) stress that “education must connect subject matter with the places where students live and with the issues that affect them.”

More than that, academics (Søndergaard, 2008, p. 4) point that “universities have an obligation to serve their communities in meaningful ways...developing democratic university-community partnerships.” Buchy and Ahmed (2007) show that university-community partnerships can lead to real-world interventions. One way of doing a real-world intervention is by means of project-based learning (thereafter PBL) centered courses. According to Markam(2003, p. 4)

Project based learning is a systematic teaching method that engages the students in learning knowledge and skills through an extended inquiry process structured around complex, authentic questions and carefully designed products and tasks.

Researchers (Capraro & Jones, 2013) state that science, technology, engineering and mathematics education (thereafter STEM) is especially appropriate for PBL, since the students have to combine knowledge of different fields in order to create the products/services required. In a PBL course the students work in groups: they are in charge of their own learning and the professor acts primarily in order to facilitate the learning process (Hmelo-Silver, 2004). Project-based learning STEM courses provide the opportunity for students to be creative, to learn by doing, and to apply their knowledge in solving practical problems (Dischino, DeLaura, Donnelly, Massa, & Hanes, 2011). More than that, studies (Sahin & Top, 2015) suggest that the use of PBL can foster student voice and choice in STEM education.

Arantes do Amaral & Matsusaki (2016) report an educational project-based learning experience that lasted fourteen years and that involved two universities and 40 institutions. In their article, they describe how their students develop 138 projects that lead to the creation of a large variety of products and services such as civil engineering projects, software development projects, architecture projects and many others. Experiences like these give the students the opportunity to learn and apply not only STEM skills, but project management skills, on behalf of the communities that support the university.

While there are several articles that describe the benefits of partnerships between universities and institutions, there remains a lack of information about the systemic impacts of educational projects

accomplished by universities in partnership with organizations. In this article the authors contribute to filling this gap.

METHODOLOGY

In this research, the authors follow a Systemic Action Research (SAR) approach. In order to understand what SAR is, it is necessary to define Action Research. Bradbury(2015, p. 1) defines Action Research:

Action research is a democratic and participative orientation to knowledge creation. It brings together action and reflection, theory and practice, in the pursuit of practical solutions to issues of pressing concern. Action research is a pragmatic co-creation of knowing *with*, not *on* people.

Action Research is one of the twelve specific types of qualitative research(Yin, 2015).Stringer (2013, p. 41) emphasizes that “Action research is a legitimate, authentic, and rigorous approach to inquiry”. Action Research has been used by several researchers to promote Community Based Learning (Buchy & Ahmed, 2007; Stringer, 2013). Action researchers usually interact with communities, which are systems.

A system, in the context of this article, can be understood as a group of interconnected and interrelated components, which work together in a way of achieving a purpose (Meadows & Wright, 2008; Senge, 2006). In this research the authors make use of systems thinking concepts, which Burns (2007, p. 21) defines as follows:

Systemic thinking means taking into account the whole, and seek meanings in the complex patterning of interrelationships between people and groups of people...looking at things systematically is useful because it helps us to make connections that we would not otherwise make.

Systems thinking can be very helpful to understand the connections between the different elements of a system in which the researcher acts. It provides modeling tools that can help the researcher to comprehend the system's structures and anticipate the possible outcomes of an intervention. Researchers highlight the relationship between systems thinking and action research (Flood, 2010; Ison, 2008).

Nowadays there is a research approach, derived from action research, called Systemic Action Research (SAR).According to Vasstrøm et al.(2008, p. 103):

Systemic action research merges systemic thinking with action research...it is a participatory paradigm that seeks to create desirable change for the people involved while at the same time stimulating their learning

We use Systemic Action Research with two complete cycles (Figure 1). SAR is cyclical, as is action research; it develops through a sequence of phases. The literature assigns different names to the cyclical phases, many of them derived from the work of Kolb(1984). In this research, the authors use the names *planning*, *developing*, *observing* and *systemic reflection* to describe each phase.

A general SAR starts with the diagnosis of the situation, which leads to the definition of the intervention’s goals. During the planning phase, the researchers develop a plan to achieve the goals. In the following phase (developing), the plan is put into practice. In the next phase (observing), the results are collected. After that, a reflection of the whole cycle is accomplished. In our research, we name this phase *systemic reflection*, once we also incorporate systems thinking into it.

We create models using system dynamics tools (causal loop diagrams) to represent the dynamics that developed during the cycle. In doing so, we have a deep understanding of the consequences of the actions implemented. After the systemic reflection, a new planning phase is developed and the cycles repeat themselves.

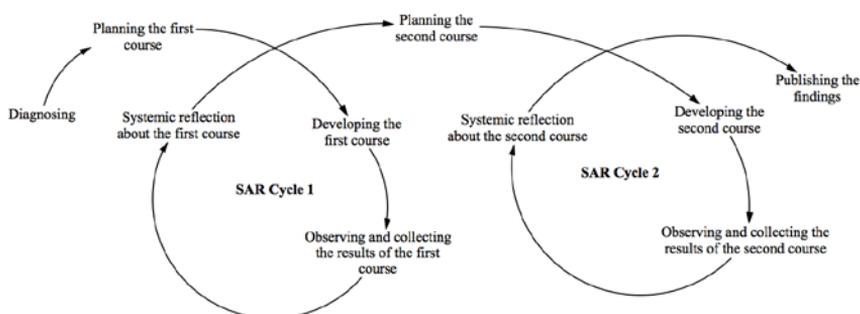


Figure 1. The phases of our research

The role of the researchers

The first and second author worked as researchers, course facilitators and lecturers. Their work was to assist the other participants, help to organize the course, to find resources, to manage the course schedule, to give lectures, to collect the data and to conduct the systemic reflection.

The participants

There were three participant categories: the course organizers, the course lecturers and the course members.

The course organizers

There were three organizers: the first author, who worked for Fundação Vanzolini-FV (Foundation Vanzolini, thereafter FV), the second author, who worked for the NGO Cidade Escola Aprendiz-CEA (Learning City School, thereafter CEA), and the project manager of Associação de Engenheiros Politécnicos-AEP (Polytechnic Engineers Association).

Learning City School (CEA) is an NGO, located in São Paulo, Brazil, which works with the concept of educational cities, identifying educational opportunities within the city and presenting these to school leaders (directors, head of departments, parent-teacher association leaders and students' representatives). The NGO looks for educational activities offered by museums, art galleries, public gardens, companies and communities. Their goal is to make connections between institutions, community members and schools, providing educational opportunities to the students and knowledge sharing to all involved. Over the years, CEA has developed several partnerships with schools, NGOs, foundations and communities from all over São Paulo city.

FV is a private foundation of professors from the Department of Manufacturing of the Polytechnic School of Engineering of the University of São Paulo. It manages several MBA courses from the Manufacturing Department.

Associação de Engenheiros Politécnicos (AEP) is an association of alumni from the Polytechnic School of Engineering of the University of São Paulo (thereafter POLI). This organization provides financial support, professional guidance and job opportunities to students from low-income families.

The course lecturers

The lecturers were from 16 organizations (Table 1). All lecturers had a leading position in social projects accomplished by their institutions.

Table 1. Organizations List

Organization	Description
Fundação Vanzolini (Vanzolini Foundation)	Private Foundation
Associação de Engenheiros Politécnicos (Polytechnic Engineers Association)	NGO of alumni of Polytechnic School of the University of São Paulo

Cidade Escola Aprendiz (Learning School City)	NGO that works with educational methodologies
Colégio Santa Cruz (Santa Cruz College)	Private College
CIEJA Campo Limpo (Campo Limpo College)	Public College
Fundação Alphaville (Alphaville Foundation)	Private Foundation
Colégio Visconde de Porto Seguro (Visconde de Porto Seguro College)	Private College
Instituto Cultural Kinoforum (Kinoforum Cultural Institute)	NGO that develops short movies and documentaries
Pinacoteca de São Paulo (Pinacoteca Art Gallery of São Paulo)	Public Art Gallery
Casa Redonda (Round House)	Private Company
Escola Politécnica da Universidade de São Paulo (Polytechnic School of the University of São Paulo)	Public University
Movimento Nossa São Paulo (Our São Paulo Movement)	Network of organizations
Unicef	United Nations Children's Fund
Centro de Saúde de Pinheiros (Health Center of Pinheiros District)	Public Health Center
Doutores da Alegria (Doctors of Joy)	NGO that works with clowns who go to hospitals and interact with the patients
Hospital Samaritano (Samaritan Hospital)	Private Hospital

The course members

The course members were our principal stakeholders, the ones that were most affected by our intervention. We had 76 course members. The majority of them were invited by the lecturers from the institutions presented previously (Table 1). From these 76, 19 worked for NGOs, 17 for companies, 9 for colleges, 4 for public institutions, 3 for hospitals, 2 for the Navy, 1 for a consulting firm, 1 for a foundation. We also had 2 priests, 1 judge and 1 firefighter. Five course members were undergraduate students and 2 graduate students. We had 9 course members who were unemployed at that time. Out of all students, 48 (63%) were working or had worked for social projects (projects on behalf of people in need, such as poor elders, victims of violence, orphanages).

Data gathering

The authors gathered data by means of questionnaires, one-to-one interviews and videotaped segments of students talking about their experience. The authors employed questionnaires to collect qualitative data at three points:

- 1) at the beginning of the course, to gather information about the participants and their backgrounds;
- 2) at the end of the course, to gather feedback about the course itself and what students had learned, and
- 3) six years after the course finished, to gather feedback about how the students made use of the knowledge they received from this educational project.

Questionnaire #1 included two open-ended questions:

- 1) Tell us about your academic background and your experience in social projects.
- 2) Tell us what are you interested in learning with the course.

We designed these questions so that we could use the information in their responses to create a personal webpage for each course participants. We wanted students to be free to share as much information as they wished. We told them that other participants would have access to this information. The webpages helped the students both to get to know each other more quickly, and to help them identify which participants they might like to work with on their projects. The information collected also helped us to plan the course according to the participants' expectations.

Questionnaire #2: At the end of the first course, we sent the students a second questionnaire, with these two questions:

- 1) Did the course meet your expectations? If not, please let us know what was missing.
- 2) Please let us know which subjects you want to learn more about.

We designed these questions because we wanted to know if the courses were addressing the students' needs. Their answers helped us adapt the second course to their interests, so as to increase motivation and participation. The information collected helped us to accomplish the systemic reflection of the first systemic action research (SAR) cycle.

In addition to that, we also collected data from short interviews we did with course members, usually at the end of each lecture. We chose students at random, so as to have a good cross-section of participants. Our objective was to receive immediate feedback from the students in

order to make adjustments for the following lecture. We asked them the following questions:

- 1) How was this lecture?
- 2) It was easy or difficult to follow?

We designed these questions because we wanted to adjust the course based on the answers received. The students' answers helped us gauge which aspects of the course might need to be adjusted so that students could better understand the material. We wanted to provide the best course to students we were able. The information collected helped us to improve the quality of lectures and the quality of the course support readings.

We also collected data from the documents the students developed during the course. These documents included the project plans. The project plans reflected the students' understanding of the theoretical aspects presented in the lectures. By analyzing these plans, we could figure out which topics should be better explained to them. The information collected helped us to improve the second course, by addressing the issues the students had more difficulties to understand.

Questionnaire #3: Six years after the end of the educational project we sent the students a third questionnaire, with the following question:

- 1) To what extent have you used the concepts you learned during the courses in the work that you now do in your community?

We designed this question because we wanted to know if the courses empowered the students; we wanted to see to how the students had used the concepts they had learned in real life projects on behalf of their communities. We wanted to know the ripple effects of our efforts. The information collected helped us to accomplish the systemic reflection of the second systemic action research (SAR) cycle.

In addition, we collected data from 18 videos created by Foundation Vanzolini's media supporting team. The supporting team recorded all lectures from the first course. Each video was approximately 90 minutes long. The videos captured the lectures given and the interactions between the lecturers and the course members. Watching these videos, we were able to learn more about the classroom dynamics. We could see which aspects of the lectures the students responded to with enthusiasm, and which aspects elicited more member participation. The information collected gave us insights; it helped us to fully understand the connections between our actions and the students' responses.

Procedures used for distilling and interpreting information

The authors made use of system dynamic modeling tools to analyze the information we gathered from the diverse sources previously described. We were able to identify the main dynamics, representing them utilizing causal loop diagrams. The use of these tools allowed us to describe the cause-effect relationships, to identify the interrelationships and the feedback loops. Our goal was to identify the system's structures responsible for the patterns of behavior observed.

PROJECT DESCRIPTION

In this section, we will describe the project, following the SAR phases presented in Figure 1.

Diagnosing the problem

The project arose from a single meeting between the first author, the founder of the CEA and the CEA directive board, in February of 2009. The first author was a professor from the MBA courses of FV, with experience of leading several project-based learning projects with his graduate students and community partners (NGOs and public institutions).

The CEA founder was a well-known journalist, involved in several educational projects in the city of São Paulo. These projects involved many NGO's, public institutions and companies. In this meeting, the CEA founder let us know that there was an informal request from the CEA's partners for the creation of a course that would help them to empower the members of poor communities with which they were working. The CEA's partners let the CEA founder know that most of them shared a similar concern: many of the community members with whom they worked lack the necessary skills and knowledge to perform activities in the projects in which they were involved. The CEA's partners asked if CEA could somehow help them to empower the community members through a course. The course would be focused on the development of the management skills of the members of these communities. In addition, the course would allow the participants to make connections with each other and to receive information about the social projects that were happening in São Paulo.

The CEA founder shared their concerns and the desire of the attending partners' request. However, he wanted support from the University of São Paulo. He understood that partnership with FV could

raise academia's interest in the project. Therefore, he invited the first author and asked for his support in developing the partnership. The association would allow FV join CEA into an educational project that would approach community members, universities and institutions.

Planning the course

In this first meeting, the CEA's founder presented the following ideas: CEA's partners would provide the course members with several examples of successful social projects that they were working with. He suggested that the FV and University of São Paulo professors would teach the course members key management concepts. All participants liked the idea and agreed to meet again to figure out ways to make the course happen. In the following meetings, we defined the project's goals. We agreed that the intervention goals would be:

1. To provide a high-quality free course to people who otherwise would not be able to attend paid courses. The course would allow knowledge sharing between the organizations and the participants.
2. To foster the development of the course members, people that would make a difference in their communities, individuals who would replicate the lessons they learned throughout their groups.
3. To stimulate to course members to create bonds among them, through short-term practical projects.

We also agreed that CEA would be in charge of introducing the first and second author to the CEA's partners. The partners would also provide them with the contacts (email addresses) of five possible course members. The course members would be people from poor communities which are receiving benefits from the projects carried out by CEA's partners. The course members, in the future, could be responsible for significant social changes in their communities. They would act as knowledge multipliers, disseminating knowledge gained from the course within their communities.

As the CEA's partners developed projects in different areas (such as education, health, arts, film-making, children assistance) with various communities, it was expected that the course members would form a very diverse group.

The FV would be in charge of recruiting the best professors from its staff and from the University of São Paulo, professors able not only to present management concepts and tools to the course members but to inspire the course members to continue their learning after the end of the course.

We designed the course in a way to promote in-depth inquiry at each lecture. At the end of the lecture, the lecturer and the participants would have enough time to discuss the concepts presented and share knowledge and experience. We wanted to create connections between the members, making them work in teams on practical projects. We planned to challenge the course members to develop projects plans (aimed to help poor and vulnerable people within their communities) for future work.

Based on the suggestion of CEA's partners, it was decided that the course would focus on six core themes: education, culture, health, urban planning, local productive initiatives and management tools. For each of the first five topics we would have lecturers from organizations in the public sector, private sector and third sector (non-governmental and non-profit organizations). Lectures on the last theme would be given by professors from FV and the University of São Paulo.

The course organization was planned to be a joint effort of FV, CEA and AEP. We decided that each organizer would contribute in a particular way. AEP would loan its auditorium for the realization of the lectures. FV would provide professors from the University of São Paulo. FV would also provide one video-recording team to record all lectures and make them available on the Internet. The CEA would contact its partners and recruit the lecturers. The first author was appointed as the project manager and the second author was his project assistant. The course was planned to be accomplished during the final semester of 2009 and the first half of 2010.

We had two months to organize the course (March and April of 2009). During this period, the first and second author took several actions. They visited each of the sixteen CEA's partner facilities, discussing with them the course objectives, listening to their ideas and involving them in the course planning. The first author also contacted each potential course member by email, inviting them to the course and answering their questions. He also created the course website. The website had information about the course schedule, the lectures, the lecturers and supporting material (such as articles, videos and so on). The website provided information about each participant: a short resume with contact information.

Course structure

The first course was structured in six modules based on initiatives undertaken in six key areas. Each module had the objective of providing examples of different projects done on behalf of people from poor communities.

We planned three lectures for each module, though there was some variation in each module. At each lecture, we invited a speaker from a different organization to the students about a successful project he or she had completed.

Educational Initiatives provided examples of educational projects directed to children that live in shantytowns and to children with disabilities. *Creative Initiatives* had the objective of sharing experiences about cultural projects developed by museums, private corporations and NGOs. *Health Initiatives* aimed to describe experiences about work accomplished by hospitals in association with NGOs on behalf of their patients. *City Initiatives* had the objective of presenting large urban planning projects that involved networks of several organizations working together, on behalf of the population of Sao Paulo. *Local Productive Initiatives* focused on smaller projects accomplished by universities and private companies with people from communities located close to them. *Management Tools* had the goal to present the students the knowledge about useful tools that could be used in managing projects like those described in the previous modules. The course began in May and ended in September.

Course facilities

We planned to use the AEP auditorium for the course. However, the University of São Paulo offered us a better place. They offered us two classrooms: one for the lectures and an adjoining room for group activities. The first classroom was an auditorium, with a multimedia projector and 100 chairs. The second classroom, adjacent to the first, had hexagonal tables and chairs to facilitate group dynamics.

The development of the first course

The course began on 6 May 2009. At the first meeting, the course members were welcomed by the course organizers and received information about the schedule and website. The course members were also informed that they would work in teams of five, and, at the end of the course, each team should present a project plan that would be an action on behalf of one community they chose. We let them know that we were going to follow a Project Based Learning approach: there would be the creation of the project plan, deliverables and milestones. At each milestone the students should send us the work they accomplished.

The first module (Educational Initiatives) began on the following week. The first lecture was given by an employee of a city agency. She talked about the project Bairro-Escola Barueri (Neighborhood-School

Barueri Project), a project from Barueri City Hall. This was an example of a public sector project that promotes after-school activities such as sports, cultural and educational activities for children. The second lecture was given by a public school professor. She talked about her experience as head of a public school, CIEJA Campo Limpo, situated in a violent region of São Paulo. Her school works with teenagers and people with special needs (blindness, Downs syndrome, learning disabilities). After the lectures, all participants discussed the projects presented.

The second meeting was about private sector experiences in education. The first lecture was given by a director of a private school Colégio Visconde Porto Seguro-CVPS (Visconde of Porto Seguro College). She talked about a CVPS project called "School of Community." CVPS is a very traditional and expensive private school. However, it provides courses for free to the children of a nearby shantytown. She discussed the challenges of this initiative and the results achieved.

The second lecture was given by a private school professor. She talked about the social projects of Colégio Santa Cruz-CSC (Santa Cruz College). CSC has several projects with the poor who live in Jaguaré, a region near the college. She talked about several projects accomplished by their students, parents and professors, in partnership with São Paulo City Hall, helping children and teenagers from low-income families.

The third meeting was about third sector experiences in education. The heads of FV and CEA explained the actions taken by each organization, the pedagogical framework, institutional partners and projects.

The second module, Creative Initiatives, included three lectures. The first lecture was given by the program coordinator of Núcleo de Ação Educativa (Educational Action Nucleus) from Pinacoteca in São Paulo. Pinacoteca is a public art museum, which develops a series of educational programs such as school visits, training courses for teachers and social inclusion actions aimed at a public with particular needs, such as blind people and the homeless. She discussed each educational program and shared the results of this initiative.

The second lecture was given by the head of a private company Casa Redonda-CR (Round House) that develops films and provides support for cultural activities. She described CR's actions with the local community.

The third lecture was about Kinoforum, an NGO that develops short films with people that live in poor city suburbs. The speech was given by a woman who is a film-maker and social researcher. She talked about the short movies created by people from those communities.

The third module, Health Initiatives, had a different format. There was a debate led by the founder of CEA. There were three participants. The first one the Director of the Health Center of Pinheiros (a public

institution), who talked about her experience working in partnership with criminals convicted by law of committing minor offenses. The second participant was the head of the NGO Doutores da Alegria-DA (Doctors of Joy), which he founded in 1991. DA has 47 clowns that visit hospital patients. The director talked about the partnership with the hospitals and results of their activities. The third lecturer was the project manager of the AMA Project (Love Project), a project of the Samaritano Hospital that helps children from low-income families.

The fourth module, City Initiatives, included three lectures. The first was given by the head of UNICEF São Paulo. She gave an overview of the projects developed by UNICEF São Paulo in partnership with more than 1,000 organizations, involving approximately 5,000 families. The second lecture was given by a professor from the Department of Civil Engineering of the Polytechnic School of Engineering from the University of São Paulo. He made an analysis of the challenges involved in giving the population access to education, housing and health. In the following lecture, an NGO manager discussed the actions taken by MovimentoNossa São Paulo-MNSP (Our São Paulo Movement). MNSP is a network of 700 NGOs, companies, citizens, community groups and public institutions that promote actions to transform São Paulo, making the city a better place to live.

The fifth module, Local Productive Initiatives, included two lectures. The first was given by a professor from the Mechanical Engineering Department of the Polytechnic School of Engineering of the University of São Paulo (POLI). He talked about POLI Cidadã-PC (Citizen POLI), a program he leads that involves undergraduate engineering students and community partners. The students and professors develop products to help poor communities, giving engineering solutions to specific problems (such as water treatment, garbage disposal and so on). The last lecture of this module was given by a manager from a private company, Diageo. He presented the “Bartender Project,” a free training course that qualifies people to work in bars and restaurants.

The sixth module, Management Tools, included four lectures, the first two given by professors from the Manufacturing Engineering Department of the Polytechnic School of Engineering of University of São Paulo and FV. The first lecture was entitled “Networks and Sustainable Development” and the second, “Project Management in Social Projects.” The third lecture, “Communication Management,” and the fourth lecture, “Human Resources Management,” were given by consultants who worked for FV. Different from the previous module, the lecturers focused on theory and practical tools.

The second author worked actively in all meetings as a course facilitator. She asked questions of the students, making them reflect on the

content of each lecture, connecting what was discussed in the classroom with the students' experiences on the subjects.

During the first course, the CEA founder wrote several short articles about the project in his weekly column of the newspaper where he worked. He also highlighted the project on his radio program. These actions gave extra motivation to all participants.

Observing and collecting the results of the first course

At the end of the first course, the authors focused on collecting data that could reveal what the course members had learned and what they did not. The project plans were a good source of information. The students created eleven project plans (Table 2). The plans were developed by groups of six students (on average).

Table 2. Project Plans created by each student team

Project objectives	Project details
Group 1: Develop a plan to create an NGO to work on environmental conservation and education.	This NGO would work with students from Vila Sonia district.
Group 2: Develop a plan to create the head office for an NGO named "ECOA." Observation: ECOA was an NGO established in the City of Bragança Paulista.	ECOA was using a rented building. The plan would help NGO managers to figure out all necessary actions required to build a new head office.
Group 3: Develop a plan to create the second module of the course.	To create a new module of the course, which could integrate the subjects learned in the previous course.
Group 4: Develop a plan to build a small house in the Aracati District.	To identify all actions required in order to buy a small portion of land and build a house for a low-income family.
Group 5: Develop a plan to develop community asset mapping.	To identify the resources needed to document all resources of a community from a poor district.
Group 6: Develop a plan to integrate all groups of the Polytechnic School of Engineering of the University of São Paulo that work on social projects.	To develop an action plan to identify all groups of students and professors that were working on social projects and combine them into a single group.

Group 7: Develop a plan to implement a knowledge management website.	Develop a website that would bring data, information and knowledge about the work done by third sector organizations
Group 8: Develop a plan create a guide about the development of social networks.	The plan would help the students to figure out the actions needed to develop social networks.
Group 9: Develop a plan to register all future activities involved in the course.	The plan would help to identify all resources (people, hardware, software) needed to register future courses and activities.
Group 10: Develop a plan of community mobilization.	The students worked in an NGO that develops activities in two of São Paulo's districts (Barra Funda and Parque dos Ciganos). The NGO needed strategies to improve their mobilization actions.
Group 11: Create a plan for developing a career orientation workshop for hemophiliac patients from the Hospital das Clínicas at the University of São Paulo.	The plan would help the hemophiliac group to identify the actions needed to develop a workshop for 15 patients (all teenagers).

Besides collecting data from the plans, we also sent a questionnaire to all course members. We asked them if the course met their expectations, and, if not, we wanted to know what was missing. Based on their answers, we identified that:

- 30% of the participants would like to learn more about systems thinking concepts,
- 27% wanted to understand project management concepts in more detail,
- 15% wanted to study more about sustainability,
- 15% would like know more about how to create community networks,
- 8% were interested in supporting people in need,
- 3% were concerned about knowledge management and
- 2% were interested in social responsibility.

The students said they wanted to continue to work together for further weeks; they wanted to learn more, to learn new theories and practical tools that could give them more insight for solving the real life problems they were facing. They asked for a formal meeting with us in order to discuss the possibility of offering another course. Their demand touched

us. We decided to schedule a meeting with them in order to plan together a second course that would address their needs.

Systemic reflection about the first course

In this phase, we were able to identify the five main dynamics that drove the first course. We could understand the interrelationship between the course organizer’s actions and the impacts on the CEAs partners’ willingness to participate (Figure 2, “CAE partner’s support” loop). We could also comprehend the consequences of the CEAs partners’ participation on the course quality and the course members’ motivation (Figure 2, “CEA partners’ support” and “Course members’ motivation” loops). The analysis helped us to understand the benefits of the CEAs founder’s actions, exposing the course in the media (radio, newspaper). We could acknowledge that his actions added benefits to the course, once it sparked the interest of other academics in supporting the course (Figure 2, “Media exposure” and “University support” loops). The analysis of the students’ plans made it clear to us that there were concepts (such as project management, systems thinking) that should be developed with them in more detail. The students’ questionnaire answers also highlight this issue. Based on the systemic reflection we could make adaptations for the second course that followed.

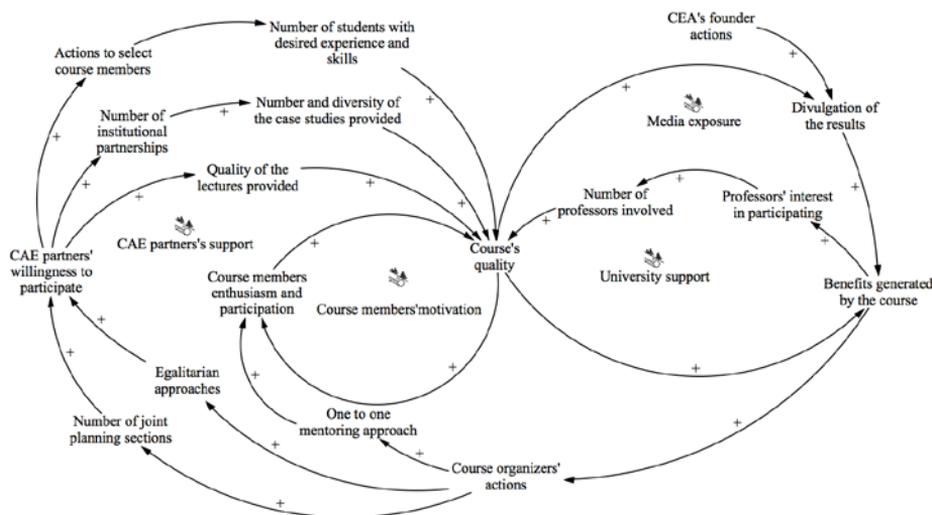


Figure 2. The main dynamics of the first course

Planning the second course

One week after the end of the first course, there was a meeting between the course organizers and course members' representatives. The first and the second authors facilitated the meeting, allowing the course members to present their wishes regarding the content of the new course. The meeting was carefully conducted in a way of assuring that the course members had a voice, in an egalitarian approach. After an intense brainstorm with all participants, the first author proposed that the new course could be named "Systems thinking for social change." As the first author had previous experience in teaching systems thinking concepts to graduate courses it would help him to develop case studies tailored to address the interests of the course members. A systemic perspective would allow the course members to have a broader view of the relationships and interdependencies between the diverse topics to be covered in the course.

The first author proposed that this new course could be longer than the previous one, with ten lectures. The first initial five lectures would be given by the first author and would cover systems thinking theory. Educators from CEA would teach the second module. The second module was planned, as requested by the course members, to address the issues they highlighted in the questionnaires. All participants agreed with these ideas.

The course would make use of the same classroom facilities as the previous course. The second author would continue to act as course facilitator. Unfortunately, for economic reasons, we would not have the support of FV's video-recording team to record the lectures.

The development of the second course

The second course began in February of 2010 and lasted until the middle of April. We let the students know that we are continue to follow a Project Based Learning Approach. The students were asked to made improvements in their project plans. We define the new deliverable some new milestones. As we did in the first module, in each milestone the students should send us the work they accomplished.

The first author conducted the first part of the module. In the first lecture, he discussed systems characteristics and mental models. In the second, he presented system dynamics modeling tools (causal relationships, positive and negative feedback loops, causal loop diagrams). The students worked in several individual short assignments, to become familiar with the tools. The third lecture was about the dynamics of project management. The course members worked together in groups in

order to understand the dynamics present in projects: the rework cycle, the dynamic of human resources and the consequences of managerial decisions. In the fourth class, the systemic aspects of sustainability were discussed. The course members accomplished a case study based on the documentary “The Story of the Stuff.” The students worked in groups to represent the main dynamics of the cycles of resources extraction, production, distribution, consumption and disposal. In the fifth lecture, the students analyzed the dynamics present in the process of creation of networks of community partners. The first author presented his experience of working collaboratively with a network of NGOs on behalf of people in need. The lecture covered the systemic aspects of creating, maintaining and expanding a network of community partners, an example of a joint effort between the university and third sector organizations.

A CEA representative conducted the second part of the course. The lectures were presented in a different format. In each lecture, the lecturer raised five questions about the topic of the day. The issues raised were related to the experiences presented in the first course. The lecturer challenge was to connect the systems’ theory with the cases the course members studied previously in the first course. The lecturer and the course facilitator fostered debates among the participants, aggregating different point of views. At the end of each lecture the lecturer wrapped up the discussion, stressing the points of agreement and disagreement between the participants.

Observing and collecting results

We wrapped up the course with some class dynamics: we asked the students’ opinions about the whole project, the two courses. The students stressed the importance of the concepts and tools they learned. They were very grateful for our efforts in providing them with the best educational environment that we could. They acknowledged the value of getting in contact with so many organizations and experiences. The students stressed the importance of the course for their professional formation.

Systemic reflection about the second course

In this phase, we reflected about the dynamics of the second course, which were substantially different from the first one. The second course was created based on solicitation by the course members. We created tailor-made content that addressed their interests (Figure 3, “Providing extra content” and “Empowering the course members” loops). The course members were willing to have a holistic view of the entire system. They wanted to understand the systemic impacts of the projects they studied on

the City of São Paulo. To help them, the lecturers created bridges between practice and theory (Figure 3, “Knowledge sharing improvements” loop). During the second course, the lecturers challenged the students to work together on several activities. This demand made it possible for students to share knowledge and also to strengthen the bonds among them (Figure 3, “Strengthening the bonds” loop).

These combined actions led to course members’ empowerment, one of the primary goals of our educational project.

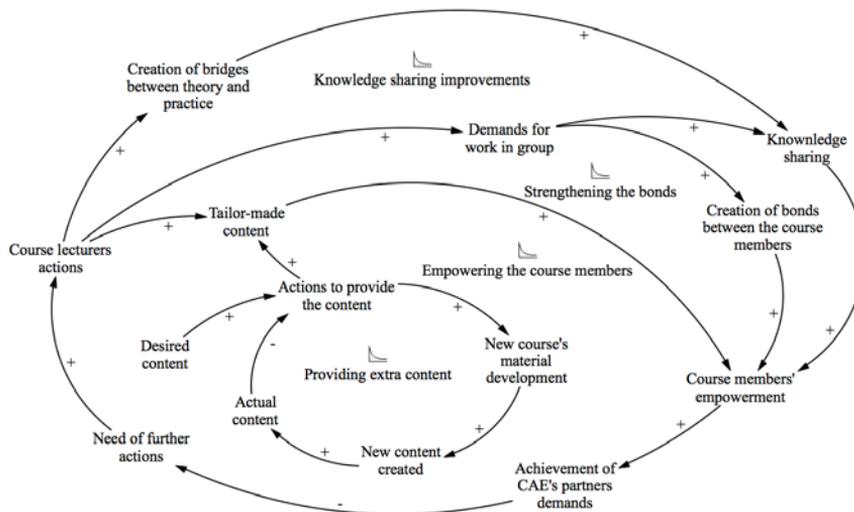


Figure 3. The dynamics of the second course

FINDINGS AND DISCUSSION

In this section, we intend to summarize the outcomes of our research, the main findings. We also share the course members’ viewpoints about the project. We begin by stressing our findings, related to the course organizers actions. We consider that their initial actions had great impact on the project. Approaching CEA’s partners in a respectful and egalitarian way was very appropriate. By doing so, the course organizers were able to break possible partnership barriers. This discovery is in accordance with the findings of Strier (2011).

Involving the CEA’s partners in the planning process was also critical. It motivates them to do their best, contributing to the course success. The decision to give the CEA’s partners the opportunity to identify the course members was also the right one. It addressed their initial request and facilitated the course organization. Moreover, the

course was seen by CEA's partners as a solution to an issue that they all considered crucial: to empower community members with whom they were working in social projects.

We think that the one to one mentoring approach, used by the course organizers to get in touch with course members was very appropriate as it motivates them. This educational project was not a regular course from a university. Therefore, we did not have a regular student class available, we had to build one. The CEA's partners helped us by providing the contact for people that they considered having potential to contribute to the course and to disseminate the experience through their communities after the course. However, the course organizers were responsible for contacting each potential student, explaining to them the nature of the course, answering their questions, creating their personal page and the course website. Although these actions took a lot of time and effort, it helped us to build good relationships with the course members before the course began. When it started, the participants knew who we were and valued our efforts. The one to one approach helped us to create strong connections right from the start, the course members joined enthusiastically with the project.

The CEAs founders' actions of providing media exposure was very helpful. This action not only motivated the course members, but also stimulated other university professors to join the project. From a systemic point of view, we can say that the combined actions of the course organizers and CEA's founder to stimulate participation and collaboration impacted positively on the willingness of CEA's partners to share their experiences, on the scholars' willingness to share academic knowledge and on the community members' willingness to participate (Figure 4, "Encouraging participation" loop).

This led us to our first main finding: coordinated actions between the university and the diverse organizations can create synergies that promote intense knowledge sharing, contributing to the development of the skills of the course members.

We consider that the second course was essential to fill the gaps that the previous course left behind. Our actions of fostering the course members' participation, letting us know what they felt was missing was very important. It is in agreement with Stringer (2013, p. 73) who stated that "projects that fail to capture the interest or commitment of the people they serve are often ineffective, inefficient, or both."

However, providing the extra content was not straightforward: it took a lot of effort to create suitable material for the second course in a short period. This effort was worthwhile: the second course contributed significantly to the knowledge sharing, to the creation of bonds between the course members and to their empowerment.

From a systemic perspective, we can say that the use of PBL techniques led to the achievement of practical projects, which had two impacts: the development of the course members' skills and the strengthening of the course members' ties (Figure 4, "Developing course members' skills" loop). This led to our second main finding: the use of project-based learning techniques improves the learning and strengthens the ties between the course participants.

The sum of the two dynamics ("Encouraging participation" and "Development of course members' skills") should lead to the course members' empowerment. Their empowerment would lead, probably, to members' actions for their communities, therefore empowering the communities (Figure 4, "Community empowerment" loop). But did it happen? That was a question that we could not answer at the time the educational project was finished.

Six years after the end of the project, we were interested in knowing if our efforts had brought at least some benefits to the communities. We wished to know if any of our course members were able to disseminate what they had learned throughout their communities. Fortunately, we still had the email addresses of some of them. We contacted them and, asked their perspectives about the project. We brought their answers to share with the action research community.

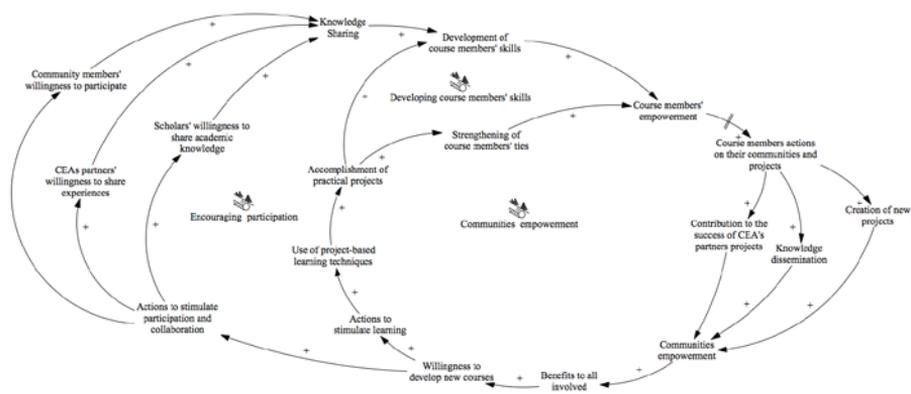


Figure 4. The systemic aspects of the educational project

Just a word of caution: we do not have the intention of using their testimonials in self-serving approach to promote our article. We just present their testimony here because we consider that sharing their viewpoints is a crucial issue in action research. In addition to that,

presenting their voices can help us figure out if the course has fulfilled its objectives.

The voices from our alumni

One of our former students has a fascinating life story. From the age of 14 to 19 years old, he worked as a drug dealer, involved in criminal activities. However, the murder of his best friend made him drastically change his life. He began to work with Casa do Zezinho (Little Joseph's House) an NGO that helps children at risk. Nowadays he is the head of the NGO Instituto Projeto Sonhar (Dream Project Institute) which supports children and teenagers who live in areas controlled by drug dealers. He and his team help children, making efforts to get them out of drug addiction and criminal activities. In his words:

The courses were vital to me, helping in my personal life and my professional activities. I liked the lectures and the way the professors and lecturers acted, always solicitous and ready to help us, answering our questions, listening carefully to our suggestions and even our complaints! Several techniques that I learned in that course I use today when I have to mediate conflicts. Nowadays my NGO is expanding its activities to Ilha Bela, a fishing community. We are achieving remarkable results and part of our success is due to the lessons we learned in the courses!

Another former student is a member of Instituto Portal Afro (Afro Website Institute), a social organization that collects and disseminates information about culture, memory, and tradition of afro descendants. Asked about the course, he said:

The greatest contribution of the course was to present to the audience the different views of the organizations, their projects and their success stories, which were described with a richness of details. Another contribution was the connection made between university and organizations. The course module, which focused on Systems Thinking, was excellent; it brought us new insights about structure and dynamics of institutions and the rationality behind organizational and personal decisions. It would be very important to continue the educational project, because of the benefits that it brings to the university and the communities.

Another alumna works as a manager in an NGO called Associação Cristã Caminhos da Verdade-ACCV (Christian Association Road to the Truth). ACCV helps more than 300 children from low-income

families, providing them with educational opportunities, food, clothes and toys. They also help orphanages and elders in retirement houses. She declared:

Being a student of this course was an enjoyable experience. The program allowed the organizations to exchange experiences from diverse areas (education, health, urban planning, etc.). Besides that, it was very good for creating networks. We had the opportunity to learn from other institutions, from their success stories. The lectures were very good, bringing us a lot of useful information. The organizations brought us more than stories; they brought us lessons of life.

One alumna is a physician in the Hospital das Clínicas da Universidade de São Paulo (Clinics Hospital of University of São Paulo). She attends patients from all over the city. According to her:

I see the course as an opportunity that has expanded the horizons of my life. I am doctor from a public hospital of São Paulo that works with patients with highly complex health problems. After the course I began to see the patients in a different way, with a holistic view. I changed my way of dealing with the patients, focusing not only in the health problem, but also trying to understand what they do in their daily activities, in their job, with their families, in the school, the whole picture. Acting this way, I changed the doctor-patient relationship, consequently providing them with a better treatment. The course brought together professionals from different areas of work, different social groups, all united for the common good. And beyond that, the course allowed intense social interactions, the course brought us a variety of themes, from writing reports to the creation of projects benefiting people in need. It was a wonderful experience! Another interesting point is that the course joined theory to practice. At that time, we had several people that wanted to learn how to structure their projects. The course helped them to achieve their goals.

The analysis of these voices led us to our third main finding: the empowerment of the course participants may allow them to promote meaningful actions in their communities.

CONCLUSIONS

Reflecting on the whole experience, we consider that Systemic Action Research was an adequate approach. The use of systems thinking tools allowed us to reveal the systemic aspects of this complex educational project, which involved several institutions. It enabled us to bring to the

surface the project dynamics, making it easy to understand the complex and entangled relationships.

Moreover, we consider the educational project as having achieved its goals, of providing a high-quality free course, fostering the development of the course members and stimulating the course members to create bonds among them. It seems to us that it brought benefits to all involved. The voices of the course participants suggest that the project created the empowerment we aimed for.

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