

Problem-Based Learning and the Construction of Citizenship: The University of São Paulo Project.

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Contemporary society has been prompting the university, without denying its traditional scientific attributions, to accept an increased institutional responsibility in terms of the ethic and moral education of its students, a concern with citizenship and the search for solutions to social problems. Based on such demands, universities from all over the world have been promoting curriculum transformations, and actually transformations in their own teaching and research purposes so as to guarantee an enhanced ethical and professional responsibility among those future professionals who study at the institutions. Some do it more timidly, by introducing new classes into the curriculum, while others more intensely, by basing their curriculum structure on issues of ethics and citizenship.

The University of São Paulo (USP), one of the largest public universities in Brazil and Latin America (with premises such as these as reference), as well as other new scientific advancements that demand new forms of conceiving and producing knowledge, created a new campus in the Eastern Zone of the City of São Paulo. Called **East USP**, it serves 4,080 students from 10 different professional careers. This new campus was designed to promote an academic initiation for new students in interdisciplinary proposals focused on the reality of the society and the community in which the new unit is inserted. The academic project seeks to join the multi- and interdisciplinary work with socially relevant themes as a way of creating new solutions for the production of knowledge and construction of social justice.

The academic and physical project for this new unit was managed during a two-year period, involving the participation of over 100 professors of the university from all areas of knowledge. Organized into Work Groups and under the coordination of a Central Commission associated with the university's President's Office, their goal

was to prepare the new careers proposals designed to innovate and reorient knowledge production processes.

The result of this work was the construction of **East USP**, now formally called the School of Arts, Sciences and Humanities (EACH – *Escola de Artes, Ciências e Humanidades*). It is a unique teaching, research and university extension unit without the departmental organization characteristic of most universities. Its 260 professors teach at the 10 specific academic bachelor's degrees and at the *Basic Cycle*, the freshmen year taken by all students regardless of their professional careers. At this freshmen year 1020 students from different areas of knowledge (Physical Activity Sciences, Gerontology, Environmental Management, Public Policy Management, Leisure and Tourism, Nature Sciences Licensing, Marketing, Obstetrics, Information Systems and Textile and Garment Technology) share the same spaces, times and laboratories.

The Basic Cycle of **East USP** is structured into three hubs of curriculum organization:

1. **Introductory education in the specific field of knowledge of each degree:** the students complete selected introductory classes of their degree designed to give them an overview of the conceptual bases of their profession. This provides them basic knowledge of the professional field they chose from the very start of their studies.

2. **General education:** the objective of this hub is to provide East USP students a wide and general education stressing the complexity of natural, social and cultural phenomena. Therefore, the institution planned an integrated education in the areas of natural sciences, humanities and arts, with an emphasis on theoretical and methodological aspects, grounded in the philosophical foundations of scientific knowledge, society-nature relations and socio-cultural aspects of contemporary society, with notions on human rights and citizenship, among others. Consequently, all 1,020 students must take the following classes during the first year: Society, Multiculturalism and Rights; Society, Environment and Citizenship; Arts, Literature and Culture in Brazil;

Psychology, Education and Contemporary Themes; Data/Information Analysis; and Nature Sciences. There are also elective classes such as Citizenship Practices; Culture, Creativity and Communication; the Body and Health; and Interpretations of Brazil.

3. Scientific and professional education through Problem Solving: Based on the principles of Problem-Based Learning (PBL), this hub of the curriculum has a central role in the East USP academic project in the search for integration between theory and practice and between scientific knowledge and daily social life. We will dedicate more time to this third hub later on, seeking to demonstrate its role in the ethical and moral education of students.

With this curriculum during their first year, the education of East USP students assumes a scientific, social and political character intended to give them unique personal and professional knowledge. The university aims at educating professionals that, besides having the required specialization in their field of work, will also have a more encompassing vision of science and society, achieving the following objectives:

- Seek strong academic and scientific education for students.
- Encourage students and their group of colleagues to act as protagonists in the quest to understand the complexity of natural, social and cultural phenomena.
- Facilitate exchange and cooperation between the professionals and students involved in the resolution of scientific and social problems.
- Bring the university closer to the local community.

Attempting to explain how the university aims at achieving these objectives, we present next some of the founding principles of the East USP academic proposal and how these are presented in the curriculum.

The protagonist role of the individual who learns

Traditional teaching sets its roots in an epistemological model that assumes the idea of knowledge external to the individual. This means that the source of knowledge is, for instance, in nature, society, books and people, and the individuals who will learn something must internalize that knowledge from such sources. This is the principle used to organize the classic forms of teaching in which the role of the professor and books, for example, is to transmit to new generations the knowledge produced by humanity or found in nature.

This role, of a certain “passiveness” on behalf of the student, who must simply receive the content transmitted by the society or, at the most, interpret “reality,” has long been questioned by philosophy, sociology, psychology and science. The action and the protagonist role of human beings in the construction, production and transformation of reality has been seen as a more appropriate way for us to understand the role that students and professors should have in the relationship between teaching and learning.

Such a change of perspective, however, does not mean an inversion of roles. Discarding the model in which the professor teaches and the student learns should not lead to a dichotomous model in which the student learns alone or based exclusively on his/her own effort. Such a perspective reduces the historical role of humanity and the importance of the society and its agents in the education of new generations and in the production of new knowledge.

Therefore, we refer to a model of interaction between the individual who learns and the objectives of knowledge in which the student is the protagonist in the educational act, mediated and oriented by the society and its agents. The East USP academic project assumes such an epistemological perspective and proposes that such academic and scientific education can take place through Problem-Based Learning, or as it is called there, **Problem Solving**.

Problem Solving

Promoting academic and scientific initiative through Problem Solving (PS) is one of the innovative approaches that has emerged over recent years and has been occupying an increasingly larger space at some of the main universities worldwide. The Problem Solving proposal adopts as a principle the active role of students in the construction of knowledge. Working in small groups and collectively, the students must research and solve complex problems¹ related to the reality of the world they live in.

In general, the steps characterizing the academic Problem Solving processes at East USP involve groups of students who work as follows:

- Identifying problems within a particular theme chosen for study.
- Discussing a specific problem related to that theme.
- Using their own knowledge and experience with the help of professors and others in the search for answers and an understanding of the problem approached.
- Studying a series of hypotheses that can explain and solve the problem.
- Seeking to investigate the hypotheses raised.
- Indicating possible answers and solutions for the problem studied.

The Problem Solving proposal adopted by East USP, although inspired in international movements that organize curricula using Problem-Based Learning (PBL), cannot be taken for the traditional way with which such a model has been implemented at several universities worldwide.

In the creation of East USP, the PBL model adopted by the Aalborg University (Denmark) turned to be the main reference. At this institution, the work with Problem Solving joins the work with Project-Based Learning (POPBL), thus changing the

¹ It is worth pointing out that working with Problem Solving does not mean that the students must resolve the problem in a literal sense, since the very complexity of the terms does not permit this. Therefore, an approximation should be sought with such problems, seeking information and analyzing

traditional principle of PBL, which focuses on learning based exclusively on the student, to a more collective vision of learning that involves problems linked to comprehensive projects that must be studied and dealt with in a team.

We understand at East USP that Project Work joined with Problem-Based Learning brings out new perspectives to the relationship between teaching and learning since it is more in line with the demands of the modern world and job market into which our students will be inserted. Leading the students to learn how to confront interdisciplinary problems contextualized in daily and professional life in a collective way opens innovative paths for the way in which the university deals with knowledge production, the learning of its students and their ethical education.

Problem Solving at East USP

The work with Problem Solving at East USP based on previously mentioned ideas covers themes such as: strengthening of citizenship, solving social problems and the linkage between scientific knowledge and daily problems. The development of studies has taken place by employing the project strategy and prioritizing both collective and cooperative work of the students. Its main characteristics, as well as its method of operation, are as follows:

Organization of classes and work groups

- Problem Solving classes consist of 60 students divided into 10 groups of six students from different degrees. Or in other words, each group of six consists of students from different careers.
- Under the professor's supervision, each group must elaborate and construct during the first weeks of classes a problem to be studied during the semester, related to a General Theme chosen by the class.

different hypotheses and solutions that allow the students to face them. Problem solving is not the same thing as resolving problems.

General Theme

- Each semester, students are presented three general themes that give origin to the problems to be addressed by the different classes. On the week of classes, each class must choose one among the themes proposed.
- As the class includes students from a range of different careers, the general themes are generally encompassing and broad enough to allow for their study based on various perspectives.

The functioning of Problem Solving classes

- The Problem Solving classes alternate between collective meetings involving the 60 students and group meetings with six students.
- The collective classes (approximately four per semester) have, among other functions, the responsibility of sharing the knowledge produced and working out more general aspects of the problem by means of: expository classes, conferences, round tables, debates, symposia, film exhibits, data sharing, etc.
- The meetings in small groups (approximately 12 per semester) are intended, among other functions, to elaborate strategies of action and to collectively search for solutions to the problems analyzed.
- Each Problem Solving class has 60 students, five tutors, each one responsible for two groups of six students.
- Under the tutor's supervision, the students are expected to take part in the preparation of the problem to be studied and to actively participate in all activities to be developed during classes.

Evaluation in Problem Solving:

- During the semester, each group produces both a partial and a final scientific report. Each one of these reports and each student receive different evaluations: the group's tutor assigns grades to the work of each student (50% of the grade). The other tutors assign grades to the work of each group (30% of the grade). Each group assigns grades to each student individually (10% of the grade). Finally, the students make self-evaluations (10% of grade).
- The reports are shared by means of seminars and posters, when members from the community are invited to participate and discuss the results.

In-Service Learning and Problem Solving

As we determine that the Problem Solving themes to be studied and developed should be related to issues of ethics and citizenship, we prompt the students to undertake collective social investigation projects, providing new bases for their personal and professional education and to change the social reality, primarily nearby the university.

Therefore, since 2005 the following General Themes were determined by the faculty to direct Problem Solving projects of all 1,020 students enrolled at East USP every year: Citizenship and Inequalities; Quality of Life and Spatial Occupation; Technology and Society; Values and Prejudice; Pleasure and Diversity; University, Knowledge and the Community; Globalization, Local Cultures and Education; and Health and Well-Being. Three of these themes are proposed each semester, and as previously mentioned, each class elects one of them to prepare a study problem.

With such themes in mind and a whole methodological system for getting close to the community and for carrying out social intervention in different fields of knowledge, the East USP students are given a unique education starting at the first year at the university.

To get an idea of the magnitude of the ongoing work, the 1,020 students are divided into 170 groups of six people each. This means that each semester 170 research projects within the perspective of Problem Solving are developed

simultaneously, in harmony with the In-Service Learning concept. Most of these projects take place near the university, primarily using public areas and equipment, and in poor neighborhoods. For example, the major field of actions is *Jardim Keralux*, a neighborhood slum with severe socioeconomic needs located next to the university campus.

The following projects exemplify the type of work developed at East USP and the link between Problem-Based Learning and In-Service Learning. It is important to point out, however, that the students who took part in those projects were attending their first semester, and therefore the projects adopted an exploratory nature as an approximation with the daily social reality and the search for the elaboration of future intervention projects.

Prenatal care for pregnant women in Ermelino Matarazzo.

Ermelino Matarazzo is a low-income neighborhood near East USP. This project sought to establish a correlation between the prenatal care situation of the pregnant women in Ermelino Matarazzo with the parameters set by the World Health Organization and the Brazilian Ministry of Health.

A questionnaire that used the cited parameters was used to interview 23 pregnant women undergoing prenatal care at the region's Basic Health Units and hospitals. The questionnaire covered three general topics: socioeconomic conditions; women health; and prenatal conditions.

Among the countless results found in terms of women health and prenatal care, we highlight the following:

a) Women health – In Ermelino Matarazzo, nearly 100% of the pregnant women had their blood pressure and belly size measured, and blood tests were performed for almost all of them. Urine and HIV tests were performed for approximately 85% of them, while Pap smear tests were performed for only 60% of the women.

b) Prenatal care – Fetal weight and heartbeat were checked for all women, while information on contraceptive methods was provided to only 30%.

The findings of the work showed that, although the prenatal care provided to pregnant women in Ermelino Matarazzo seems to be properly carried out, several actions could improve it, primarily as to sex education.

Health and quality of life among the elderly in Jardim Keralux

Under the theme “Quality of Life and Spatial Occupation”, the students investigated both the health conditions and the quality of life of the elderly in Jardim Keralux.

The research was developed at the Jardim Keralux Basic Health Unit (BHU) with the support of community health agents from the Family Health Government Program (FHP). Data on elderly people were provided by the clinics and also collected in household visits by students together with community health agents. The study involved 60 elderly individuals.

We highlight the following results: 60% of the elderly individuals have monthly family income of between one and three minimum salaries (between €150 and €450 per month); 92% live with their family; and 62% are females. Concerning health, it was remarkable that 36% suffer from hypertension and 12% from diabetes.

By the end of the work, the group structured a series of preventive action procedures that could be adopted for the inhabitants of Jardim Keralux, aiming at improving their health and quality of life.

Accessibility and quality of life of the elderly in Jardim Keralux

Realizing that the accessibility conditions strongly influence the quality of life of the elderly, a group of students analyzed the conditions of access to public spaces (commercial establishments, public streets and transportation) in Jardim Keralux.

Two questionnaires were used as methodology for the study: the first one was designed to evaluate the physical space in the neighborhood as to accessibility (Brazilian Association of Technical Norms); and the second one collected the opinions of the elderly as to the accessibility conditions in Jardim Keralux.

The study observed insufficient adaptation of streets, transportation, curbing and building entrances, which made it difficult for the elderly to get around on their own. However, the interviews revealed that, despite the precarious accessibility conditions in the neighborhood, the elderly were not aware of the problem and did not demand major improvements, except for the paving of public streets.

By the end of the work, the conditions of accessibility in Jardim Keralux proved to put in risk both the well-being and the autonomy of the local elderly population, since their right to get around is restricted by the inadequate conditions of the neighborhood they live in. To solve such problem, the group proposed lectures to help raise the awareness of the inhabitants, primarily the elderly, as to their rights and the laws that can guarantee better accessibility conditions in the neighborhood.

Improving leisure and quality of life of Jardim Keralux residents

Jardim Keralux has some 7,000 inhabitants and few spaces for leisure available to the population. After an initial survey on the neighborhood's infrastructure and leisure conditions, the group decided to investigate leisure alternatives available to the residents, their perception of leisure and free time, the places where they practice leisure activities and which activities they usually perform.

The initial survey involved leaders in the neighborhood, commercial establishment owners, residents and students. Once the spaces and resources available were identified, the group visited them and evaluated their usage conditions. The second phase of the research included field work, involving residents of different age groups, on the activities they consider most pleasing, as well as on activities they would like to implement in the neighborhood.

The only public leisure spaces the neighborhood offers are a plaza, which is abandoned, and a dance hall. There are also the elementary school facilities, but

they are only available on weekends. The immediate demands that emerged indicated the need for a multi-sports court and a space where families could safely gather and develop projects and activities (a community center). The use of the school spaces should not be restricted to weekends.

The group completed the work by developing physical and sport activities, cultural theater projects, recycling and others that could enhance the population's quality of life.

The relationship between popular leaders and the government

A group of students decided to analyze the organization and mobilization structures used by the leaders in Jardim Keralux to take to the government the community demands.

Local residents identified the main neighborhood leaders, which came down to two names, who were later interviewed to discover their role within the community, the difficulties they face, their entity's organization and how they deal with those demands which involve local authorities.

The analyses reinforced the importance these leaders have in spreading the democratic exercise of power. They also pointed to the importance of increasing actions that provide the community with wider access to information on their rights and the exercise of citizenship, as well as to the expectation that the university will help them to achieve these objectives.

Citizenship Practices for Children and Youth²

In the sphere of the so-called "Diversified Studies", it is worth noting the elective course "Citizenship Practices", offered to the 17 classes of East USP and which has been attended by at least one-third of the 1,020 students of the Basic Cycle.

² This course is coordinated by Professors Ulisses F. Araújo and Patrícia Junqueira Grandino.

In this class, the students must plan and implement a practical citizenship project during the semester together with the disadvantaged communities near the university. During four months, the students attend conceptual classes on Human Rights, Childhood and Youth, as well as the Statute of the Child and Adolescent (ECA – Estatuto da Criança e do Adolescente³), followed by workshops on these themes that aim at giving the students more practical and contextualized knowledge on the reality of the community near the university.

Another important step for the preparation of citizenship actions is having contact with the community. At the beginning of the semester, in addition to promoting visits to the sites where the projects are to be developed – such as the elementary school, the daycare, Jardim Keralux and its community associations and the Social Support Center (NASCE) that the university maintains in Ermelino Matarazzo –, the university invites community leaders to present the students their demands and needs.

Once they attain such knowledge, aware of the community demands and reflecting on their own interests and availability, the students, divided into groups that may or may not be from the same major, prepare community action projects that must be developed in the community before the semester ends. Such actions, which make up the so-called “Community Action Weeks”, must generate written reports that explain the steps and results achieved. Delivered by the end of the semester, they are then evaluated by the professors responsible for that subject matter.

In 2006, 74 community projects were developed covering themes as varied as: reading classes with children at community associations; sports and physical activity workshops with adults and elementary school students; actions designed to promote and generate income for teenagers; workshops on sexuality, sexual orientation, health, hygiene and arts and crafts; youth information projects on education and job market; and political awareness raising actions.

Final Considerations

³ Brazilian law that regulates and legislates the rights and duties of children and adolescents and the role of society to guarantee such rights and duties.

We realize that the reports of the work presented, as well as the structure of this new University of São Paulo campus give us a glimpse of how the institution is facing modern scientific and social challenges, which require greater concern as to the ethical and moral education of the professionals graduating from the university, while simultaneously connected to new forms of knowledge production.

The ongoing work obviously reaches much further than can be explained in these few pages, since countless other ethical education activities are developed at the same time, and as much as possible, in an integrated way. To mention just a few examples, we can talk about the general classes required for all students, dealing with different contemporary social themes like multiculturalism, violence, human rights, the environment and cultural and artistic differences. In diversified studies, besides “Citizenship Practices”, other subjects are offered, such as health and physical activity and courses on digital and free cultures.

The driving force behind the East USP academic project, however, which opens doors for other work and studies, is Problem-Based Learning, implemented through Project Oriented research. It brings the students closer, from their first week in the university, to the concrete social reality of the world they live in, transforming the relationship between theory and practice and associating a different meaning to professional studies that will be developed during their professional education.

This is one way to view the relationship between In-Service Learning and the role of the university in building citizenship. We are still in the implementation process, only three years old, and still performing several evaluations of the processes and procedures of this university teaching model. However, we believe this experience can bring new perspectives for higher education and for the construction of a happier world, with more justice and solidarity.

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