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On the project pedagogy: experience leading the individual to theory

Sobre a pedagogia de projetos: a experiência conduzindo o indivíduo à teoria

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Sérgio Rodrigues de Souza
Ph.D. in Pedagogical Sciences. Post-Ph.D. in Social Psychology.
Scientific Consultant. Pedagogue.
E-mail: srgrodriguesdesouza@gmail.com

Sandro Dau
Post-doctorate in Philosophy (Ethics) and Doctor of Philosophy (Ethics). Master of Philosophy (Ethics). Graduated in Social Sciences. Bachelor in Anthropology of Communication. BA in Philosophy. BA in Ancient Philosophy.

Vinícius da Silva Santos
Master in Education and Technologies.
Teacher at the Espírito Santo State Education Network - SEDU.
E-mail: viniciusbiologo33@gmail.com

Cleidimar Rosalino Pereira
Master in Education. PhD candidate in Pedagogical Sciences at the Universidad de Ciencias Pedagógicas "Enrique José Varona" - Ciudad Libertad - La Habana (Cu).
E-mail: cleiderosalino@hotmail.com

Deborah Ketlyn Pacheco Ferreira
Undergraduate student of Veterinary Medicine at Faculdade Multivix - Pólo Vila Velha (ES).
E-mail: deborapacheco768@gmail.com

ABSTRACT

This article-essay is about the pedagogy of projects: the experience leading the individual to theory. The proposal is to clarify that learning happens through empirical contact with reality and with the phenomena that happen in nature. Its scientific relevance lies in the fact that it presents a technical discussion about a study methodology that allows a direct, reciprocal, and simultaneous relationship between practice and theory. Its social relevance lies in making available to society a mechanism that exponentially increases students' learning gains, allowing them a pragmatic view of the syllabus with which they have academic contact. The methodology used for this research was the bibliographic one, added to the pedagogical and didactic practice of the authors in teaching. We tried to present a deep and wide discussion, in which the supremacy of experience over theory is advocated, in which the former leads the latter, expressing and communicating the acquired knowledge. Project Pedagogy arose from the need to develop a pedagogical work methodology that aimed at valuing the participation of the student and the educator in the learning-teaching process, considering that learning takes precedence over teaching. By proposing Project Pedagogy as a teaching methodology, this means ending the monopoly of the traditional teacher who decides and defines himself the content and the tasks to be developed and which truths should be considered and/or denied, valuing, within strict academic-scientific principles, what the students already know and respecting what they want to learn at that moment, aware that the

problem-situation raised is the leitmotiv of the experience to be put in evidence, culminating in learning. When we talk about project-based learning we are necessarily referring to the formulation of questions by the author of the project, by the individual who will build knowledge from a problem situation.

Keywords: Project pedagogy, Learning and teaching, Experience versus theory, Active methodology.

1 PRESENTATION

Project Pedagogy was created at the beginning of the last century by the American philosopher John Dewey (1859-1952), in which this educator was based on the idea that education is a process of present life and not a preparation for future life, that is, school should represent the now, the students' practical life, the society they face today. Along with this comes the idea that educational training should be pragmatic, admitting that individuals should be trained to solve the problems they face on a daily basis. By extension, they would distance themselves from the utopia of being prepared to face a future that never arrives; because the way their education is being conducted from their studies, their lives become more and more crowded with small difficulties, which accumulate, making their most ordinary relationships more and more unbearable.

The Pedagogy of Projects arose from the need to develop a pedagogical work methodology, which had as a goal the appreciation of the participation of the student and the educator in the learning-teaching process, considering that learning takes precedence over teaching, making them directly responsible for the elaboration and development of each Work Project; therefore, they would become capable of acting freely in their daily lives, enabling them to make decisions in an autonomous way.

Vygotsky (1896-1934) always alerts to the fact that most educators are always concerned about the student's learning; however, they forget that between this and the teaching is the learning, which is the process that is composed through the elaboration of experiences, the search for knowledge, the gaps, the doubts; in short, what will really make a difference in the student's life, because intelligence and everything that comes from it, such as skills and competence, are direct results of the application of the intellect to situations that challenge logic.

More than an attractive and practical technique for the transmission of pragmatic and programmatic content, as many think, the proposal of Project Pedagogy aims to promote a change in the way of thinking and rethinking the school, education, the curriculum and the didactic-pedagogical praxis, with experience taking center stage in the learning process; in other words, education up to now has been *ad orecchio*, with the student as an automaton receiver, without

voice or turn. Added to this is the distance that exists between the theoretical-oral explanation of the teacher and an empirical presentation of the procedures of pedagogical action on the subject under discussion, which has as its objective the learning.

In defense of Project Pedagogy there are numerous thinkers, who present its advantages both in the scope of the student's space and in the valorization of the teacher's action; to stay with only one illustrative case of this vision, we can cite José Armando Valente, who states that,

> In developing the project the teacher can work with [*the students*] on different types of knowledge that are imbricated and represented in terms of three constructs: problem-solving procedures and strategies, disciplinary concepts, and strategies and concepts about learning (VALENTE, 2002, p. 4).

What is added, as an extremely relevant factor in this process of empirical development is the teacher's preparation to master these three stages of teaching performance, a fact that has shown to be a difficult problem to be solved and overcome, because since their initial and continuing education, It does not overcome the mechanistic sense of understanding and application of knowledge and useful knowledge to the scientific performance of students, which leads to an unnecessary opposition between scientific research and labor action, as if during the performance of the simplest tasks, the professional would not make use of a complicated range of processes, requiring the application of scientific principles of all kinds.

In this way, learning through projects induces the student to think of solutions from the elaboration of problem situations and to seek explanations in other scientific fields and other sciences, which help to explain the phenomena in their conceptual function and not in their objectivity, as if this contributed to the epistemological construction of intelligence.

The elaboration and application of concepts about elements of a scientific nature is a task that requires searches in other fields, of all the variants that encompass the theme on which they are acting, in order to know which components are present in the definition that contemplates it, such as linguistic, cultural, and temporal influences.

What we are faced with, when we take the proposal of J. A. Valente (2002), is the construction of a new paradigm, in such a way that the student is able to apply his intelligence in the creation of a logical chain of investigation as a way to answer the questions posed by the society in which he is inserted and this culture of scientific search becomes part of his knowledge production process, that is, the experience determining the construction of knowledge to be applied in solving problem situations.

What is sought, effectively, is that the students leave the condition of mere consumers of other people's knowledge, which are pasteurized, packaged and standardized, and start to build

their own paths, autonomously, in such a way that enables them to achieve their proposed learning objectives, generating, with such attitudes, an authentic way of doing science, at the same time that transforms them into an individual who demonstrates the ability to decide freely in front of a world that opens before them.

The understanding comes from the proposal that, with Project Pedagogy applied to students, the teacher will be able to develop ways of understanding their objectives, taking their own perspectives as a starting point. This makes pedagogical work more difficult, because the teacher will have to assume the obligation of guiding the development of investigations in networks, building and developing didactic and pedagogical materials, aware that in school spaces, these materials are scarce; therefore, they will have to use their empirical-theoretical knowledge in the search for overcoming operational difficulties.

With the current reinterpretation of Pedagogy, this movement has provided subsidies for a dynamic pedagogy, centered in the students' creativity and activity, in a perspective of knowledge construction by the students themselves, focused no longer in the transmission of knowledge, solely by the teacher.

In this way, Project Pedagogy brings more content to be inserted in the educational routine of students and teachers, besides opening new fields that were not thought of before. Another need that becomes more pressing every day is the formation of new researchers, new readers; therefore, the choice for Academic Education, because the next step for this student will be the deepening of *scientific studies in the field*. If the student lacks a degree of pragmatic culture when he or she enters the Academy, he or she will not be able to process the taught contents or create new learning situations from problem situations that are posed as routine activities by university professors. And, with the advances in Distance Education (DE), where the student is most of the time isolated in his private space, having the conditions to create logical processes of new situations of understanding, comprehension, perspectives and synthesis becomes vital for the advancement of his academic and professional career.

The Project Pedagogy is an easy-to-operate instrument, *as long as there are professionals trained to do so,* among the range of possibilities to achieve this goal. It is an educational work methodology that aims to organize the construction of knowledge around previously defined goals, in a collective way, between students and teachers, involving a specific problem-situation to be solved.

Prado states that,

> The project pedagogy should allow students to learn by doing and recognize their own *authorship* in what they produce *through research questions* that encourage them to *contextualize concepts* already known and discover others that emerge during the development of the project. In this learning situation, the student needs to select significant information, make decisions, work in groups, manage the confrontation of ideas, in short, develop *interpersonal skills* to learn collaboratively with his peers. The teacher's mediation is fundamental, for at the same time that the student needs to recognize his own authorship in the project, he also needs to feel the presence of the teacher who listens, questions, and guides, aiming to promote the construction of the student's knowledge. Mediation implies the creation of learning situations that allow the student to make adjustments, since the contents involved in the project need to be systematized so that students can formalize the knowledge put into action. Project-based work enhances the integration of different areas of knowledge, as well as the integration of various media and resources, which allow students to express their thinking through different languages and forms of representation (PRADO, 2018, p. 7).

With the development of the human brain condition and the emergence of the cortex, leading to the construction of an abstract and highly complex intellectual capacity, the ways of developing and adapting to human weathering systems became more linked to brain capacities in favor of biological response to these changes and consequent re-adaptation to naturally occurring systems. Thus, with today's world demanding faster and more violent adaptations, not only because of its transformations, but also because of its particular intermittencies, the need to use enhanced methods of empowering higher thinking becomes a category to be explored and mastered.

What Project Pedagogy intends is to stimulate the use of experience based on reflection when solving problem situations, taken from everyday life and from the various fields of knowledge and human activity, strengthening cognitive skills and competencies. Thus, the learning process in academic teaching would not only be more dynamic, but would also contribute to the construction of free individuals, who would be able to use their autonomy in their daily actions.

2 DIDACTIC-PEDAGOGICAL PROBLEM

The goal of Pedagogy is the pragmatic formation of man, which means his ability to solve problems that arise naturally as part of his development or those posed by society, in order to provide and raise the condition of individual and collective welfare. In turn, the objective of didactics is the formation, elaboration, structuring and application of the principles of learning and teaching, that is, its action represents the fundamental basis for Pedagogy to achieve its objective, since everything is in motion, techniques are constantly changing along with man; therefore, it is necessary to develop the capacity to create solutions in real time.

Higher Education represents a very important stage in the formation cycle of the human being, a moment in which the student faces a series of radical changes in his existence, such as the

admission of his legal majority, the political freedom and responsibility of assuming a professional career, the choice of an object of study, finally, the once so dreamed future, that the much desired political independence has arrived and with it, all the uncertainties and insecurities that modern life poses to everyone.

These challenges are not only posed to college students; it's a naked, raw, hard and massacring reality that adults and, especially, the school, the teachers and the educational systems, don't want to admit and, thus, place all the responsibility for their success or failure on the young people's backs. Nothing could be crueler, because after 14 years of formal schooling, to hand over to society an individual who does not even know the basics of reading, writing, mathematics and logical reasoning is an unprecedented crime. Not satisfied, the University accepts this individual and the diploma, giving him a license, through which he can act in various fields, as a qualified professional.

Knowledge is construction, and if the student lacks learning conditions, he will be a candidate very likely to abandon much of his interest in acquiring knowledge. In this sense, the school dropout rates have become an endemic[1] problem, one that is difficult to control. Allied to this are the shameful rates of school failure, which occur because of the terrible academic performance of students who, in their majority, have serious difficulties in the fields of reading and interpretation. There are countless theories about this problem, most of them sociological in nature, blaming poverty, social inequality, lack of access to consumer, cultural and leisure goods, assumptions that only divert the analysis from the focus of the problem, which is more centered on a outdated, plastered curriculum that does not promote real learning situations for students.

The regular school works with its contents in a special way and far from the reality of each student; by extension, it does not present in its political-pedagogical proposal a connectivity between the contents taught by the teachers of the disciplines, which results in no inter, transdisciplinary connectivity, as well as with the society that surrounds them, which ends up producing a repetitive curriculum, without causal link and that proposes nothing to the student in terms of challenges and innovations.

The subjects when taught in isolation from their historical, sociological, epistemological, psychological, geographic contexts and still not taking into account the presence of Individuals and their psycho-pedagogical nuances, deprived of the possibility of testing their hypotheses, form

[1] Understanding endemic as that which applies to the negative thing or fact that is frequently repeated and widespread (Note of the authors).

individuals endowed with a distorted critical sense, nothing more than a nescient[2]. Because, in order to carry out the activity of thinking in a logical way, it is necessary to use experience as the object of learning. This is called knowing the psychology of the object, which is demonstrated by the object itself when subjected to examinations and tests that induce it to express its empirical nature and, based on this knowledge acquired through experience, develop the theories, as well as didactic and pedagogical actions and interventions that prove to be necessary and possible.

What is missing for some students to understand is that life and social existence depend on challenges, which are increasingly capable of providing direct contact with the world they live in and face, because it is from these conflict situations that intelligence expresses itself, in the form of creativity. When the student arrives at school, all he hears from his teacher is the same thing that is being discussed in the various mass media; consequently, he starts to question the real advantage of being there, simply to hear what he supposedly believes he already knows, or that he can hear from the sofa in the living room at home. Getting the student to question the possibilities of answers and interpretations about the target object of study is the turning point for the development of critical thinking. This is where a challenging methodology makes all the difference to the student, because it forces him to find and give an answer unlike anything he has access to, in all media and didactics, because the answer he will offer does not exist anywhere else, not even in his brain, and he must submit the problem to empirical examination until it shows him the answers. He may even decide to go home, but the problem will haunt him like a shadow, demanding a plausible solution.

With the use of new methods, he is put to think about the causes and consequences of the problems posed by the school, which, in turn, has received them from the society in which it is involved, and in this dynamic process, the student commits himself to be directly accountable to the community of which he is part as a member, as a citizen. And, the possibility of seeing his ideas being put into practice by managers is a condition of social recognition for his genius and social commitment.

This is a condition that the Project Pedagogy can offer without all that demagogic discourse of forming a critical and participatory citizen who, to show his value, has to do all kinds of public stunts and speak out against something; this does not mean having critical thinking, where, for the authors of this text, being critical means acting with scientific rigor.

[2] Nescio is an anagram of Sciens, which means science, scientific, scientist, scholar. Therefore, to say that an individual is nescient is to emphasize the characteristic of someone who has little knowledge, capacity, sense or coherence, perception of things, that is, he is an ignorant, stupid, incompetent, incoherent individual. (Note of the authors)

Thus, the student who acts with *scientific rigor* will present his critics to the current models, when he starts to investigate them and present their weak points and propose direct interventions, through experiences. What is proposed, the Project Pedagogy methodology, is to stimulate logical, deep, analytical, interpretative reasoning to reach the state of synthesizing the knowledge acquired through experiences, the results achieved through scientific research. This condition of thinking about the problem, having in mind the need to find an adequate solution to it, is what motivates thinking, which leads to the *construction of new technologies to make the individual's life better in society*.

Based on the above-mentioned idea, the absence of academic conditions that are adequate to the demands of this historical moment, together with decontextualized curricular proposals and high failure rates have as consequences the generation and/or the increase of demotivation in students, causing them to only comply with a constitutional norm and a collective vanity. And this demotivation, combined with low academic performance rates, causes teachers to feel a strong sense of indignation and low self-esteem in relation to their academic work. Finally, a problem that seemed to be isolated can now be seen as a chain of effects, erupting on an individual with no future perspective and condemning him to the most execrable social exclusion, in which, after the experience of *going through the Academy*, he will live on the margins, mainly of the formal labor market.[3].

Nowadays, the requirement to overcome the challenges in the formation of capable individuals has been to promote teaching that combines experience and theory. Project Pedagogy values, first, experience and then theory. The student does the experiments and then presents his results in a theoretical way. This becomes possible because when preparing a project, one has to describe the situation as it first appears, which is a collection of empirical information; then, one has to analyze this collected data in order to check its validity and consistency, to hypothesize about the best ways that can be applied, directly and indirectly, to try to solve the proposed problem, and also to test these ideas after they have been proved to be theoretically valid, through the principle of refutability[4].

[3] "Education, a right of all and duty of the State and of the family, will be promoted and encouraged with the collaboration of society, aiming at the full development of the person, his preparation for the exercise of citizenship and his qualification for work" (FEDERAL CONSTITUTION OF 1988, Art. 205).

[4] "For K. Popper, a proposition could be considered true or false not from its verifiability, but from its refutability (or falsifiability). Scientific observation, according to him, is always previously guided by a theory to be proved, that is, science based on the inductive method selects the phenomena that will be investigated to prove something that is already assumed. For this reason, the verifiability criterion will not always be valid. The principle proposed by Popper, instead of seeking the verification of empirical experiences that would confirm a theory, sought particular facts that, after being verified, would refute the hypothesis. Thus, instead of worrying about proving that a theory was true, he was concerned with proving that it was false. When the theory resists refutation by experiment, it can be considered

The student must be led, from an early age, to have a broad scientific view of the world that surrounds him, seeking to carry out experiments and, through them, be able to explain natural and social phenomena from objective, clear and convincing answers as to what is to be solved, presenting useful, efficient and effective results.

It is necessary to understand that it is not enough to have a profession, one must have mastery over the skills and competencies required as its scope, and personal experiences alone are not enough to make someone more or less skilled in a certain field of knowledge. He must understand what happened, why it happened, and if the event was, know how to reproduce it, and if it had a negative effect, know how to predict and/or prevent its occurrence. For this, one must know how to think, study, make calculations, not rely on luck or bad luck, considering that everything can be predicted through controlled experiments and through mature and well-designed analysis until one is able to produce something that improves the individual's life.

The process of development of human thought follows a linear logic: from oral memory, that is, each human being was the faithful depositary of the ability to teach skills, knowledge and secrets on how to do things, mankind built its ways of storing acquired knowledge, going from oral tradition to the graphic process, and although this was rudimentary and subject to various inclemencies of weathering, it had conquered a space that there would be no way back. From then on, no one thought for a long time about how to store knowledge, because this problem had been solved, there being another type of problem-situation, in which less volatile material and subject to bad weather could keep the knowledge archived for access by future generations.

Man's main achievements were technological, epistemologically no different in almost any way from the first modern men of 12,000 years ago. This inability to keep up with the changes that occur outside the walls of the Academy is not the fault of the student, as some geniuses of the marvelous lamp want to suppose, propose and impose. The object with which it works has a maturation process that obeys the hard laws of Biology and Psychology, i.e., the march of human evolution takes too long to be up to the level of understanding certain levels of abstraction, requiring the educational work to be of the disciplinary order, that is, to prepare the student to indoctrinate his cognitive potential to act directly on the problem-solutions by linking the various

proven. With the principle of falsifiability, Popper established the moment of criticism of a theory as the point at which it is possible to consider it scientific. Theories that offer no possibility of being refuted by experiment should be considered as myths, not science. Saying that a scientific theory must be empirically falsifiable means saying that a scientific theory should offer the possibility of refutation - and, if refuted, should not be considered (SANTOS, Wigvan Junior Pereira dos. "The principle of falsifiability and Karl Popper's notion of science"; Brasil Escola. Available at: https://brasilescola.uol.com.br/filosofia/o-principio-falseabilidade-nocao-ciencia-karl-popper.htm. Accessed on March 25, 2020).

historical strands of actions and reactions on the given problem, trying to understand it and after such a conquest, to be able to analyze, decipher and synthesize it.

Thus, for the sake of clarification, Project Pedagogy seeks to optimize human thinking, through situations through experience, in which experience would be more important than logical reasoning, in which the student would be free enough to find the solution that best answers the need presented by the problem listed.

3 LOGICAL-PRAGMATIC LEARNING

Human learning is a response achieved by applying the intellect to tangible problems, using known and available tools, resulting in discoveries and inventions that, in many cases, end up not being known or available. The result obtained from this practice is still, immediately, what can be called learning, and as this achieved knowledge is tested, refuted, improved, expanded and applied to reality, solving feasible problems, it becomes learning, i.e., an abstract act of thinking of different solutions in the midst of conflicting situations, not sticking to these immediate answers, understanding that each situation, in particular, will require an action consistent with the problem raised and its particular dimension, and the results achieved, with this experience, can be universalized.

Here, it is already explicit that learning does not occur from nothing; it is a direct result of the application of knowledge acquired over problem situations, and the entire development of the action until reaching the solution is considered a learning process, assuming that by acting in this way, the individual acquires cognitive competence. Human learning grows exponentially when practical and theoretical activities are merged, due to the intermingling of action and visualization, in which several senses are put into dynamics at the same time. The human condition of learning is not formed and consolidated in a straight line or in an ever ascending staircase system. It presents itself in the form of a spiral, called the *Knowledge Spiral*, which both ascends and widens, following a verticality. For this reason, the defense defended here, regarding the improvement of the learning and teaching methodology, using the Project Pedagogy, which began to be known in Brazil, from the spreading of the movement known as New School, opposing the principles and methods of traditional education, based on the patristic methodology, which was nothing more than a teaching style based on revelation, in which a priest disguised as a teacher would dedicate hours on end to an endless rhetoric about something he considered useful to the moral principle of life.

The School-Novation Movement was the result of research by great European educators such as Maria Montessori (1870-1952), Jean-Ovide Decroly (1871-1932), Édouard Claparède (1873-1940), Adolphe Ferrière (1879-1960) and had, in North America, two great representatives: John Dewey (1859-1952) and his disciple, William Heard Kilpatrick (1871-1965). It was these Americans who created the Project Method and their pedagogical proposals were introduced and disseminated in Brazil mainly by Anísio Teixeira (1900-1971) and Lourenço Filho (1897-1970) (DUARTE, 1971).

Education through projects allows learning through the active participation of students, experiencing problem situations, reflecting on them and taking epistemological attitudes towards facts and phenomena. The teacher is responsible for retrieving the learner's experiences, if any, to help him/her identify and provide scientific research in order to explain the occurrence or manifestation of the problem and then present plausible and viable solutions.

In working with projects, the origin of the theme does not matter, the treatment given to it is essential, because it is necessary to know how to stimulate the work so that it becomes of interest to the group and also interesting for it, not just for some students or for the teacher. Almeida corroborates these ideas by pointing out:

> That the project breaks with the disciplinary boundaries, making them permeable in the action of articulating different areas of knowledge, mobilized in the investigation of problems and situations of reality. This does not mean abandoning the disciplines, but integrating them in the development of the investigations, deepening them vertically in their own identity, at the same time, establishing horizontal articulations in a relationship of reciprocity among them, which has as its background the unity of knowledge under construction (ALMEIDA, 2002, p. 58).

When the author expresses about disciplinary boundaries is referring to this type of curriculum that remains restricted to each particular content, treating them as if it were something already given and defined, without any kind of link with the other disciplines and other sciences of the human scope. Thus, the interdisciplinary thinkers appear as if they were endowed with a magic stick that could save education, but they end up in the same swamp of inertia that everyone else finds themselves in, for the simple fact that they do not add their theories to a specific methodology that is able to absorb a range of diverse thoughts.

Most people [*almost*] absolutely delight when they see someone endowed with an impressive mnemonic capacity and a wealth of knowledge in various fields and take all this as intelligence: this is the first misconception for such an attribute. The fact of having quick access to a wide range of information on various subjects is one of the necessary and highly relevant attributes to make and prove oneself creative.

What happens is that, because they believe in this, even teachers have fallen for this bait, which has led education professionals to assume a way of doing education in which the more knowledge and information the student can access and store, this would be a demonstration of his intellectual capacity; by extension, he is seen as possessing a high intelligence potential; therefore, receiving support from the entity in which he studies, as well as a high value in the education system.

The first paradigm that this work proposes to break, therefore, is that creativity is the empirical demonstration of the ability to mobilize knowledge in order to solve real problems. Philippe Perrenoud classified this action as competence; however, this is a consequence, as creativity is consolidated and the individual understands that each situation is unique, in time and space, therefore, the knowledge mobilized to solve a certain situation here in Brazil may prove to be of little use, to solve a similar situation in another country, so tests and experiments must be applied through which knowledge can be attained and applied to solve the problem situations presented.

In this sense, the role of Project Pedagogy is extremely didactic, because it aims to prepare the student to reach the full capacity of finding viable solutions to problems that are posed, through experiences, inductions, and interpretation of the results obtained. By itself, it exhorts the individual to be an eternal student, a scientist, always in search of finding new ways of facing, understanding and solving the problems posed by society. With this, it is expected that the student learns to analyze the problem-situations that present themselves to him and seek the best solutions, or even develop mechanisms that, if not solve them, at least minimize their negative impacts on the objects of conflict. The objectives proposed with this methodology go beyond the simple reason of teaching programmatic content, going beyond, making the student understand what a systematic action on the problem is, in which, sometimes, his understanding opens horizons and real possibilities for other problematic situations to be understood, thus expanding the range of empirical knowledge.

In the wake of the above thought, Prado argues that,

> In project pedagogy, the student learns in the process of producing, raising questions, researching and creating relationships that encourage new searches, discoveries, comprehensions and reconstructions of knowledge. Therefore, the role of the teacher is no longer to teach through the transmission of information - where the center of the process is the teacher - but to create learning situations that focus on the relationships that are established in this process, and it is up to the teacher to provide the necessary mediation so that the student can find meaning in what he or she is learning, based on the relationships created in these situations (PRADO, 2018, p. 3).

As already explained, the proposal of the Project Pedagogy aims to expand practical creativity and not abstract intelligence, having as its target the student showing himself capable of acting on the problem-situation in an autonomous, critical and creative way. Much more important than this capacity is that the student is potentially able to elaborate problem situations, based on his worldview, now amplified by direct contact with challenges that were not previously posed to him, as such.

When confronted with the reality that is in front of him, he realizes that the object of his judgment is no longer those who are responsible for his education, but he himself must become this object about which he passes judgment, judging what he knows and what he has learned through experience, and how much all this adds, in the form of abstract and/or concrete value, to his individual and collective existence.

The greatest achievement that a scholar can reach in his life is when he realizes that he is an object immersed in a world that revolves around new conquests from his search and the application of his knowledge on real conflict situations, where the viability of such learning comes from the experiences that he himself applies, as an investigation mechanism.

One of the greatest achievements achieved by applying the Project Pedagogy methodology is that the evaluation of the applied ideas and results is up to the student himself, who is challenged by the results of the research. If the student-researcher has found a viable solution to the problem, he proves that his search was satisfactory; if not, he automatically shows that he is wrong in his propositions, ideas, inductions and deductions, and should go back to review his research plan, without any imposition by his mentor, only guidance on which paths to follow in order to achieve the proposed objectives, expanding his range of knowledge.

The most interesting thing is that who ends up being evaluated is no longer the student, but his ideas and his ability to create solutions, make fast connections, and his capacity for mnemonic mobilization, differently from what was advocated in patristic education. The student becomes obliged to create abstract learning situations, because the value judgment leaves his person for what he can add of usefulness to scientific knowledge.

The challenges leave the sphere of the singular universe (experience) and assume the space of the wider, global universe (theory), because it is not about being recognized for what it is; but for what it can provide of advances in terms of ideas and solutions, where recognition is placed at a higher level, beyond the being, entering the field of pragmatism, where the theory would lead to subjectivation and idealization.

The weight to measure the student's knowledge is given by his global epistemological dimension, the applicability of his developed techniques and the direct and indirect impact on society and the scientific community, as a result of the experience leading him to theory. Treated at this level we have the increment of a thought in which the conjuncture that surrounds the student becomes more interesting than himself (the thought), because the acquisition and mastery of this knowledge generates a positive return for himself, becomes useful, transforms him into a pragmatic individual.

Liberal education, which is empirical, puts the individual in first place, but without forgetting the welfare of society and, based on this principle, makes the need for learning to emerge and grow exponentially; and, in this process, students will face the contents of the various subjects, understood as valuable cultural tools for understanding reality and intervening in its dynamics. With the work projects, students don't get in touch with the subject contents from abstract concepts and in a theoretical way, as has often happened in school practices.

In this change of perspective, the contents are no longer an end in themselves and become means to expand the students' education and their interaction with reality, in a dynamic way. There is, also, the rupture with the concept of *neutrality* of the subject contents, which gain diverse meanings, based on the social experiences of the students involved in the projects.

Student involvement represents the most relevant key feature of project work, a conditio sinequa non for the success of pedagogical work which presupposes an objective that achieves unity and provides meaning to the various activities, as well as transmuting into a final product that can take very varied forms, but which seeks to respond to the initial objective and reflect the personality of the work done. In this sense, the students involved become co-responsible for the work and choices throughout the development of the project. In general, they do it in teams, which is why cooperation is also almost always associated with the development of the work.

Prado presents an argument to the effect that,

> Project Pedagogy, although a new challenge for the teacher, can provide the student with a way of learning based on the integration between the contents of the various areas of knowledge, as well as between different media (computer, television, books), available in the school context. On the other hand, these new educational challenges do not yet fit into the structure of the school system, which maintains a functional and operational organization - such as, for example, 50-minute class hours and a sequential curriculum grid - that hinders the development of projects that involve interdisciplinary actions, that contemplate the use of different media available in the school's reality and imply learning that goes beyond the class time and the physical space of the classroom and the school (PRADO, 2018, p. 9).

The curricular design offered to schools and formal education does not take into account the dynamics of a world that is renewing itself in terms of knowledge at a speed that is impossible for anyone to keep up with. In this sense, Project Pedagogy is, besides a methodology, a technique that should be well applied and followed to the letter, so that the results are as comprehensive as possible. What is intended by it is not the increase of the student's theoretical knowledge, it is the ability of the student to develop the capacity to mobilize this knowledge in his own aid, when challenged by learning and teaching situations.

A change in the positivist methodological chains of thinking, academic production, learning and teaching prove to be almost impossible to accomplish in regular teaching spaces, because immediately, this would represent a loss of control over the students. All this will generate a state of necessity, in which teachers, tutors and mediators will be immersed in the search for answers together with the students, because they will find many answers, hypotheses and theories and will need specialized help to filter the range of knowledge and information that will flood their cognitive world, requiring them to apply their potential for interpretation and decoding on the results of the experiences carried out. It is from this instant on, when the student is excited to produce the best answers; consequently, building theories to try to explain the phenomena, which gives rise to a condition of dynamic intelligence, i.e., the intellect being put, effectively at the service of science, highlighting that, in science, what is relevant are the discoveries, even if the scientist does not know how to explain them theoretically.

The problem to be solved must be relevant and have a real character for the students, being presented by the teacher as part of his/her praxis. It cannot be a mere reproduction of content, which is handed to the students ready-made. Moreover, the problem is not independent from the sociocultural context and the students try to build personal and original answers. The main goal of Project Pedagogy is a problem or a problem-generating source, which requires empirical and intellectual activity for its resolution; therefore, it involves the choice of the main goal, the formulation of the problems, the planning, execution, evaluation, and dissemination of the results achieved through the execution of the work, clarifying that all this is built with and from the empirical action of the student.

Project Pedagogy translates a certain conception of academic knowledge, bringing up a reflection about student learning and the contents of the different subjects, empirically tested. There is a tendency, quite widespread in pedagogical thinking, to place, as opposing issues, student participation and the appropriation of subject content. We must understand that learning represents a dynamic process of dialectic action between practice and theory, in which the more the learner

is involved in practical action, the greater the possibilities of internalizing actions and answers, being more agile in the elaboration of objective scientific questions.

The interest in using Project Pedagogy in formal learning processes is to enhance the capacity of mnemonic mobilization of knowledge and know-how and, especially, to make the student understand that nothing is absolute in nature, taking as a foundation of Project Pedagogy the condition of letting the student make experiences, from which he can build knowledge about the world around him.

It makes it very clear that the range and domain of knowledge that he has about the problem raised, serves as a breakthrough in the real understanding of what he is facing, that is, puts him in the forefront, ahead of those who have not yet had any contact with the problem-situation, but one cannot believe to be an absolute connoisseur, because each situation in particular is represented by multiple variables that can facilitate a solution or hinder it to the point of making it almost impossible or unfeasible technically, scientifically and economically.

Technically, a project has the enlightening dimension of showing the limits, the potentialities and the feasible possibilities, the dependent and independent variables that mark a work to be developed. When added to all this, Pedagogy as a science that aims at the pragmatic formation of man, and didactics, which aims at the guidance and execution of learning processes, the result is a technique that aims at grounding the praxis from a psycho-pedagogical interpretation, within technical standards, that results in a greater potential for knowledge of oneself and the surrounding reality.

With the projects, the student learns from the choice of a specific theme for his research through its delimitation, when he learns to define his target-object with the utmost clarity and objectivity, managing to align which objectives he intends to reach with his empirical search, knowing the limits he sets for each of them if they are not too far beyond, or too short of, his interests and also of those who proposed them the challenge of the investigation.

From the point of view of the learning condition in the development of pedagogical work by projects, Prado (2018) highlights the possibility of the student recontextualizing what he or she has learned, as well as establishing meaningful relationships between knowledge. In this process, "the student can give new meaning to the concepts and strategies used in the solution of the research problem that originated the project and, thus, expand his learning universe (PRADO, 2018, p. 7).

As the investigations to understand and solve the problem situation advance, the students themselves understand that their initial proposals need to be revised and the judgments made

before the process no longer apply as a value to clarify the proposed object. This maturation is what is expected from the student, because when he comes face to face in his life outside the school walls and alone with situations that demand complex decisions and long, deep and difficult to understand studies, he will have to deal with changes in intellectual behavior, reading and interpretation of the mechanisms without this leading him to despair at believing that he is wrong in his new understandings and, consequently, learning propositions.

The fear of facing the new propositions posed by the object of study is one of the biggest challenges for undergraduate students, especially because, when they should be prepared to face uncertainties, in all senses, they were protected by their professors from such feelings, through a curriculum that does nothing but castrate all the potential of creativity of the students, in the name of order and ease that the positivist model of teaching offers and provides, because the learning, the results achieved inside and outside the classroom speak for themselves.

A very deep and challenging question that the project requires of the student is that he conducts a historical search about the occurrence of the phenomenon he is studying and investigating and, in this attitude of understanding the past, in which he develops a link to the present, he learns about the cycles of events of other phenomena and how scientists, philosophers, thinkers and the population, in general, faced such a problem, ranging from the most bizarre beliefs, superstitions, to more daring methods of confrontation; what experiments they conducted in order to deepen their knowledge and achieve empirical mastery of the situation.

The point is not that the student learns about all this in real time; the point is that he learns to make nexus-causal connections between human action on nature and what this can cause in immediate effect and throughout history, because of the modifications that take place in the whole system, be it behavioral, physical or psychological. It is not expected with this systemic approach that, from now on, we will have creatures that can predict the nearest or farthest future, but that have the potential to understand, in a sensitive way, the impacts of the answers they will find to the problems that are challenging them.

Connecting all this to the learning and teaching system is what has proven to be an [*almost insurmountable*] challenge to education in this century (we can say that it was the theme of the 15th, 16th and, currently, 17th centuries after Hypatia), because after centuries working with a system that has trained and highlighted great figures on the national scene to abandon everything and start from scratch is a bold and risky proposal. This is not to say that the child should be thrown out with the bathwater, only that the systems have undergone drastic changes and that the next steps in this adaptation process require that one be connected in a systemic way with the world

that surrounds him. For this to become a peaceful object of occurrence, both teachers and students need a methodological instrument that provides such an investigation and response when applied to the objective reality of individual and/or collective studies.

The project is a resource, an aid, a working methodology aimed at bringing to life the content taught during the classes of each subject, making the school and the learning processes more attractive. Human beings need an explanation for everything, and if they can't find one, they invent one or simply import one. And, by raising a problem situation, the students will have something to get involved with and create their own means of discovering the meaning and significance of what they are looking for, especially since every scientific explanation is the product of some scholar's experience. We must remember that the answer found, and this expression is a euphemism, because the researcher does not find answers, he elaborates them and applies them to the phenomenon, adjusting them until they are plausible to the point that they can be presented to the scientific community.

By proposing Project Pedagogy as a teaching methodology, this means ending the monopoly of the traditional teacher who decides and defines himself the content and the tasks to be developed and which truths should be considered and/or denied, valuing, within strict academic-scientific principles, what the students already know and respecting what they want to learn at that moment, aware that the problem-situation raised is the *leitmotiv* of the experience to be put in evidence, culminating in learning.

Challenges to pedagogical practice is a constant and what makes the teacher always innovate his methods and mechanisms for learning and teaching are the limits and the provocations that arise, in a natural way, from his students and colleagues that hurt his ego and a defective academic training.

Along with all this, it is necessary to work with a methodology that provides this impulse of the desire to discover new strategies and new experiences, in many cases, having to create new mechanisms, because those available are not able to provide the necessary gain of knowledge that is necessary to achieve the expected degree of response to clarify and/or explain the phenomenon studied. Hence, the application of Project Pedagogy to field studies and experimentation serves to provide students with direct contact with the reality that surrounds and passes through them.

To put this method into practice it is necessary to disregard the supposed facilities that are presented by various means, while trying to find what is shown to be closest to objective reality; if, by chance, it is not found, the search should not be considered over; therefore, the investigation

proposals and planned objectives have to be reviewed, based on previous experiences that may be closer to what is being studied at the moment.

The student needs to understand that chains of thought are not formed or sustained as closed blocks, which are not allowed to crack. In reality, it is the opposite that occurs with thought, because it is full of small cracks, almost invisible at times; however, they are what make it possible to insert new thinking proposals, therefore providing real advances in the investigations. It occurs this way, because one begins to question the infallibility of the processes that are given, without all that panacea of puerile desire to destroy what is set; only innovate, broaden the spectrum of discussion about what one has as an idea of learning and teaching, given that the current moment requires greater ability to think and decide at high speed, which is not always possible; but it must be in line with what one has as factual reality.

With the proposition of a unification between common knowledge and scientific knowledge, learning comes to be seen as a complex and global process [*complex, in Edgar Morin's conception, which says that it is everything that brings together several intertwined elements*], where theory and practice cannot be presented in a dissociated way, where knowledge of reality and intervention on it become sides of the same coin and products of the same pedagogical proposal. In this, due care is taken to ensure that the epistemological examination starts from common sense and culminates in scientific knowledge and not the opposite.

Thus understood, learning is triggered from a problem that arises and leads to the need for deeper investigation, the search for information inherent to the problem situation presented, leading to the systematic construction of new concepts. With the work projects there is a possibility to avoid that students get in touch with the subject contents, based on purely abstract concepts and only in a theoretical way.

In this paradigm shift, the contents are no longer seen as ends in themselves and become means, which enable and enhance the praxis to expand the students' education and their interaction with reality in a critical and dynamic way. The disciplinary contents start to gain different meanings, from the social and epistemological experiences of the students involved in the projects, through appropriate procedures.

In Project Pedagogy, the activity of the individual learner is determinant in the construction of his or her operational knowledge, and this individual, who is never alone or isolated, acts in constant interaction with the media and with his or her colleagues and tutors, who are around him or her, seeking to value the practice, in which experience is the one that should provide the answer.

The role of the teacher, in his didactic-pedagogical interventions, is to stimulate, observe, and mediate, creating meaningful learning situations.

According to Prado (2018), Project Pedagogy, from the perspective of integration between different media and content, involves the interrelation of concepts and principles, which, without proper understanding, can weaken any initiative to improve the quality of student learning and change the teacher's practice (which tends to value theory). However, when well planned and applied to the learning and teaching processes, through projects it is possible to have a deep and broad learning with proper participation of students, experiencing the problem situations, reflecting on them and taking investigative and scientific attitudes towards the facts given.

From this conquest, the next step is to make teachers understand that school is not the place to make decisions, nor to seek child and adolescent protagonism beyond that which the teacher imposes on students as a task to be accomplished in an objective and conscious manner. Understood the part in which the academic space is a prestigious place for formal learning and teaching, it is up to us to seek, develop, and discover the techniques that prove to be more efficient and more effective to achieve the results that are proposed didactically.

Breaking with the formalized and constructed thinking model that sustains the entire educational machine, without causing too much damage to the bureaucratic armor that is there is a state's dream. However, we must clarify that, from the moment the conditions are offered for individuals to think beyond their limits, to submit their doubts to experience, to stop seeing life in a vertical way and start seeing it horizontally, they will not return to the previous stage and will demand new processes of pragmatic development, based on what is lived and not on what is preconceived as an ideal. This is something that Project Pedagogy can provide as a pragmatic methodological resource.

Project Pedagogy is a methodology based on the principles of pragmatism, that is, what is learned should prove to be useful, detaching itself from the philosophical aspect that is built or elaborated from ideas and concepts without seeking to apply them to objective reality. Thus, the categories to which it is linked will be carried out by practical action, the *how*, thinking of direct proposals that are linked to life and its various problems.

The idea of transforming the student of the regular public institution into a critical citizen has been created and, for this reason, the overwhelming majority of teachers believe that a critical individual is an individual who does not produce anything useful and who only lives to defame the State and everything that makes it better and more productive, in line with the reality in which

they are all inserted, directly, because no one is left aside from the development of human political processes.

The first criticism to be launched against this *theory* is that being critical presupposes being able to think beyond what is given as fact and understand, with full transparency, the difference between fact and phenomenon, between cause and effect, and from this distinction, create proposals for solutions to the problems posed, to then, if desired, present rational explanations, in which one can understand the manifestations of the phenomena and if, by chance, it is the kind of problem that happens cyclically, that individuals know how to face them and overcome them or minimize their direct and indirect effects on the population. It is at this point that the Pedagogy of Projects impacts directly on the formation of an autonomous individual, because at first you can raise all the hypotheses you want, however, if none of them proves to be useful and/or impactful in solving the problem, it must be discarded and the imminent search must continue until you have an answer consistent with the need. In a short time, the student realizes that he can no longer think uselessly, because this means lost opportunities in the race for recognition of his creativity, considering that everyone uses the same *intelligence* capacity, what differentiates one individual from another is the rearrangement he produces with his knowledge.

What makes Project Pedagogy recognized as a learning and teaching methodology is the possibility it offers to the student and the teacher to insert several other themes and sciences of the human scope, so that there is a direct and unhindered interaction in the mechanisms of didactic and pedagogical action and intervention. One of these intersecting lines is that of interdisciplinarity, which lives in circles trying to elaborate mechanisms of discussion and connection with other empirical and epistemological strands.

What is sought is to reach a level of excellence in the processes of didactic transposition, where what is known needs to be applied to objective reality; however, the first thing to be considered is the audience that will receive this teaching, which, in most cases, does not have the necessary technical training to understand the subject, thus, the need arises for the forms of expression to be adapted to those who will receive the information, considering that, otherwise, the whole work will be doomed to imminent failure.

Thus, through problematization at this level, one can elaborate ways of communicating and transmitting knowledge, know-how, and values from the empirical study of the students, through the results of their experiences. It is of utmost relevance to perceive children and adolescents as developing beings, with their own will and decisions, whose knowledge, skills and attitudes are acquired according to their experiences, in contact with the environment and through active

participation in solving problems and difficulties that challenge them and that cross their respective fields of pragmatic action.

When developing a work project, those involved must be aware that some essential steps must be followed in order to achieve an effective result. The first of these is the *intention*, in which one must organize and establish its objectives by thinking about the problems that, later on, instrumentalize and problematize the subject, directing their curiosity, to the assembly of the project and its subsequent solution. Next comes the preparation and planning. In this second stage, the development is planned with the main activities, the strategies, the collection of research material, the definition of the project's duration, and how the study will be closed. Still in this phase, the teacher must elaborate the project's diagnosis with the students, an act that consists in recording the previous knowledge about the theme *(what is already known)*, the doubts, questionings and curiosities about the theme *(what one wants and what one hopes to know)* and where to research about the theme, aiming to find answers to the previous questions *(how to find out)*.

It is in the execution or development phase that the planned activities are carried out, always with the active participation of students, because they are active subjects in the production of knowledge and, after all, when the decision is made to work with Project Pedagogy, the idea that teaching is not about transferring knowledge, but creating and recreating possibilities for its systematic construction has already been consolidated. It is interesting to periodically make partial reports, oral and/or written, in order to follow the development of the theme.

And, finally, the final appreciation, in which it is necessary to evaluate the work that was planned and developed, always giving the students the opportunity to verbalize their feelings about the development of the project, because in this way, when the process is resumed, the class organizes, builds knowledge, knowledge and skills, gives opinions, evaluates, and presents conclusions; which promotes growth both cognitively and in the social, affective, and emotional aspects.

It is possible to carry out two or three concurrent projects with great benefit, since they can cover several areas of knowledge, which provides an opportunity for the development of autonomy to solve problems with the academic purpose of initiative and solidarity.

The problematization represents the beginning of the project. In this step, students should express their ideas and previous knowledge they have about the problem at hand. This step is very important, because the entire development of the project depends on it. The students already bring explanatory hypotheses, conceptions about the world around them, and it is from these hypotheses

that the pedagogical intervention must start, because, depending on their initial level of understanding, the process takes another path. At this stage, the teacher raises what the students already know and what they do not yet know about the topic in question. It is also from the questions raised at this stage that the project is organized by the group.

Development is the moment when strategies are created to seek answers to the questions and hypotheses raised in the problematization. Here, too, the student's action is fundamental. Therefore, it is necessary that they face situations that force them to compare points of view, review their hypotheses, ask themselves new questions, face other elements posed by science. To this end, it is necessary that they create work proposals that require them to leave the school space, organize themselves into small and/or large groups, use the library, the internet itself, encyclopedias, invite guests to the school, among other actions. In this process, the students must use all the knowledge they have about the theme and face conflicts, inquietudes that will lead them to unbalance their initial hypotheses.

The Synthesis represents, throughout this dynamic process, the initial convictions that are being overcome and other more complex ones being built. The new learning becomes part of the students' knowledge schemes and will serve as prior knowledge for other learning situations, in an eternal epistemological cycle.

Although three moments in the development of a project are highlighted in this scheme, they are continuous processes that cannot be reduced to a list of objectives and stages. They reflect a conception of knowledge as collective production, where lived experience and systematized cultural production intertwine, giving meaning to the learning that is yet to be built.

In this sense, the work projects are not only part of a proposal for the renewal of academic-school activities, they become more creative, and become a change of attitude, which requires a rethinking of the pedagogical practice, meaning, therefore, a paradigm shift.

According to Leite, by participating in a project, the student is being involved in an educational experience in which the process of knowledge construction is integrated to the practices experienced. This is because the determining factor in his research conduct is his curiosity. This student is no longer, from this perspective, just a learner of the content of any area of knowledge, but a human being who is developing a pragmatic activity and, in this process, will appropriate, at the same time, a certain object of knowledge, the product of his experience. Therefore, the Pedagogy of Projects is a way to transform the school into a space open to the construction of learning, using, as a tool for acquiring knowledge, the individual experience.

Every time a student is taken to the extreme and the only viable way out is to find a solution to the problem raised, through systematic studies, he will engender in his spirit the characteristic that knowledge can only be achieved through study applied to the solution of problems, using, for this, his intellect that, in turn, must be applied on the instruments and these promote the symbolic and real advances that are necessary for human development.

We must clarify that Project Pedagogy is a methodology that brings together a technique, a strategy, specific procedures aimed at responding to a need for advancement of thought towards a world that is improving, beyond the human capacity to follow such leaps of overcoming, relying on their own luck or depending on their adaptive nature.

Children arrive at school, nowadays, at a very early age and all this implies high investments by governments, in physical spaces, trained personnel and management, and, after decades of systematic studies and millions of reais spent, the result is a semi-illiterate person, an individual who cannot read, write, think for himself, cannot express himself in accordance with his mother tongue, neither orally nor in writing. If this is the objective that the establishment wants to achieve, the school and the Brazilian education are achieving it in the most perfect way possible. However, such an investment in teacher training is not justified, unless the real intention is to deform them pedagogically.

Dewey and Kilpatrick's *Project Methodology* is considered a *method* that can become a pedagogical stance. Project Pedagogy has been seen, somehow, as another fad in the educational field, since practically all schools work or claim to work with projects nowadays. However, the lack of knowledge about this practice has led teachers to conduct totally incipient activities, labeling them as Projects.

With the work projects, there is a possibility of avoiding that students get in touch with the subject contents, based on abstract concepts and in a theoretical way. In this change of perspective, the contents are no longer an end in themselves and become means to expand the students' education and their interaction with reality in a critical and dynamic way. The disciplinary contents begin to acquire different meanings, based on the social experiences of the students involved in the Projects. This change in perspective brings consequences to the way of selecting and sequencing the subject contents, generally based on a staged and accumulative conception, where one content must be *overcome* before another is *presented*.

This condition of learning and teaching is a product of the student's maturity, who must learn to make more or less scientific connections, as he follows his studies advancing on experiences and from them, he will internalize knowledge from various empirical sources, on

which he can only manifest and attest its reliability after submitting them to the principle of refutability and reproducibility: the two conditions of Science. The most interesting point in the methodology of Project Pedagogy is the need for this examination to validate the knowledge acquired. Learning and teaching represent goals of a science, therefore, they are not simple categories. It is within these didactic-pedagogical parameters that the various learning situations are developed, which receive their classifications, presenting the respective derivations of didactic intervention. When a methodology such as Project Pedagogy is used, the objectives are clear and the results, because they are the result of well-planned and well-conducted experiences, are more persistent in terms of learning.

4 PRAGMATIC CONSIDERATIONS ABOUT THE IMPLICATIONS OF THE STUDY

The present article-essay assumed the intention of analyzing how the introduction of Project Pedagogy in university curricula and the implementation of inter, multi and transdisciplinary projects in regular classes can contribute to the promotion of improvements in the formal processes of learning and teaching of the students, in a generic way, having repercussions in the praxis of their teachers, In addition, it would contribute to the increase in teachers' expectations of their students and programmatic contents, so that the latter may feel prepared to face the professional labor markets and compete more securely for an academic life as scientists.

The results achieved in the latest large-scale exams conducted by governmental agencies and educational development agencies, both national and international, make it very clear and evident what educators indicate: the reality that the learning methods considered as traditional and the classical model of education and its syllabus no longer correspond to the demands of today's society, which is dynamic and characterized by technological innovation: the model of the curriculum organized in subjects arranged in the fragmented way, without correlation or causal link between them, needs to be rethought and must be replaced, so that the school and contemporary education get closer to society and prepare students for the challenges that exist and can have a greater involvement with the process of knowledge development through experience.

With this argumentation as its foundation, this study has as its main objective to increase the use of interdisciplinary projects in teaching at the academic level and the use of Project Pedagogy as a tool for disciplinary training.

One of the great paradigms to be overcome in education is to break with the concept of the new and the fears that come with it. Generally, when a new didactic and pedagogical proposal

appears, everyone tends, at first, to reject it under the allegation that they don't know it. In most cases, the way they are presented to the teaching staff causes this immediate scare and possible rejection. However, once put into action, several independent actions arise, which could be called occasional, that is, which are not planned or foreseen by the teacher. These are occasional situations in which some important content is at stake and must be worked on in the classroom, even if it does not appear to have a direct relationship with what is being addressed in the didactic sequences or in the planned projects.

In this sense, in order to clear up doubts and unrelated questions, it is important to clarify that every problem posed to students comes from the society in which the school is inserted and that affects it directly and/or indirectly. Based on this possible situation, this paper sought to discuss the possibility of using learning and teaching strategies through interdisciplinary research projects.

When we approach the issue of learning through projects, we are necessarily referring to the formulation of questions by the author of the project, by the individual who will build knowledge from a problem situation. When proposing the introduction of Project Pedagogy in the curriculum it is assumed that the student can never be considered a *tabula rasa*; i.e., it is assumed that he already has a previous thought on the subject, a notion, but not yet systematized. To reach this level of knowledge and didactic culture among teachers is a task that demands a lot of dedication and time from the researcher and the pedagogical support team, because it will have to destroy a traditional culture, which is rooted in the educational discourse, to implant another, which will face a natural process of resistance.

The human being, at birth, only has a partial mastery of the environment around him; over time he begins to build a knowledge, still rudimentary, about everything that surrounds him and its nuances, through the contact he weaves with it. And, it is from his previous knowledge, from his doubt that the learner will move, interact with the unknown, or with new situations, to appropriate specific knowledge - be it in the sciences, in the arts, in the traditional culture or in the changing culture, taking care here to clarify the euphemism, because every human culture is in permanent transformation, adding new values, adapting old ones or even refuting those that are no longer appropriate to it, for various and extraneous reasons.

An issue that raises questions among teachers is the fact that not all curricular contents planned to be studied in a certain grade are possible to be addressed in the context of a project.

This is a situation that shows that the project cannot be conceived as a *Damocles' Alley*[5]; for there are times when other pedagogical strategies need to be put into action so that students can learn the concepts, understanding that pragmatic maturity cannot be measured by a table assembled in advance and that can serve as a determinant of the results achieved through experience. Within a class, there are different levels of learning potential, and it is up to the teacher to make use of valid instruments to determine the level of knowledge and creativity of his students and, based on this empirical finding, to develop his didactic and pedagogical action and intervention plans.

In this sense, it is necessary that the teacher be open and flexible to constantly evaluate his practice and the pedagogical strategies he applies, in order to provide the student and himself with the maximum construction of knowledge. The teacher's educational commitment is to know what, how, when and why to develop certain pedagogical actions. And, for this, it is fundamental to know the student's learning process and be as clear as possible about their pedagogical intentions, considering that this generation will have to face an increasingly demanding labor market.

In this sense, we conclude that the insertion of Project Pedagogy in the academic curriculum can bring among other direct benefits, to students and teachers, the possibility of building new knowledge from everyday empirical situations and experiences that challenge scientific understanding and comprehension.

[5] *The Sword of Damocles - It is said that Damocles was a rather sycophantic courtier in the court of Dionysius I of Syracuse - a tyrant in the 4th century B.C. in Sicily. He said that as a great man of power and authority, Dionysius was truly fortunate. So, Dionysus offered to trade places with him for just one day, so that he too could get a taste of all this good fortune.So, in the evening, a banquet was held where Damocles loved being served like a king and did not realize what was going on above him. Only at the end of the meal did he look up and see a sharp sword suspended by a single strand of ponytail, directly over his head. He immediately lost interest in the excellent food and the beautiful women or eunuchs around him, and abdicated his seat saying that he no longer wanted to be so fortunate.The Sword of Damocles is thus an allusion, often used, to represent the insecurity of those with great power who may suddenly lose it due to any contingency or feeling of impending doom.*

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