

“UM BOOGIE-WOOGIE DE PANDEIRO E VIOLÃO.” A METODOLOGIA POR PROJETOS NO CONTEXTO DO ENSINO MÉDIO TÉCNICO INTEGRADO BRASILEIRO

“UN BOOGIE-WOOGIE DE PANDEIRO Y GUITARRA.” LA METODOLOGÍA DE PROYECTOS EN EL CONTEXTO DE LA ENSEÑANZA SECUNDARIA TÉCNICA BRASILEÑA

“A BOOGIE-WOOGIE OUT OF A TAMBOURINE AND A GUITAR.” PROJECT BASED LEARNING APPLIED IN THE BRAZILIAN VOCATIONAL EDUCATION CONTEXT

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RESUMO: O presente artigo tem um cunho etnográfico, e objetiva mostrar como a metodologia por projetos pode ser aplicada ao ensino técnico integrado no âmbito dos Institutos Federais Brasileiros. Para tanto, foram utilizados principalmente meus diários de campo, as avaliações e autoavaliações feitas pelos alunos, seus depoimentos e algumas filmagens. Os resultados dessa prática apontam que, desde que adaptada ao contexto local, a metodologia por projetos, ao colocar os estudantes como protagonistas desse processo, consegue auxiliá-los no desenvolvimento de várias das competências e habilidades almejadas para o século XXI, tais como: colaboração, autonomia, senso crítico e pensamento sistêmico.

PALAVRAS-CHAVE: Metodologia por projetos. Ensino médio integrado. Educação para o Século XXI.

RESUMEN: *Este artículo tiene un carácter etnográfico que objetiva mostrar como la metodología de proyectos puede ser aplicada a la enseñanza secundaria técnica integrado en los institutos federales brasileños. Para ello, fueron utilizados principalmente mis diarios etnográficos, las evaluaciones y las autoevaluaciones realizadas por los estudiantes, sus testimonios y algunas grabaciones del proceso. Como resultado de esta práctica, desde que la metodología sea adaptada al contexto local, se puede percibir que la metodología de proyectos ayuda a los estudiantes, poniéndoles como protagonistas en este proceso, en el desarrollo de varias de las habilidades y competencias esperadas para el siglo XXI, tales como: la colaboración, la autonomía, el sentido crítico y el pensamiento sistémico.*

PALABRAS CLAVE: *Metodología de Proyectos. Enseñanza secundaria. Educación para el Siglo XXI.*

ABSTRACT: *This article is based on an ethnographic work that aims to show how project based learning can be applied to vocational education at the Federal Institutes of Brazil. For*

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that, I used mainly my field diaries, the evaluations and self-assessments made by the students, their testimonies and some audio recording of the process. As a result, we were able to conclude that, since it is adapted to the local context, Project Based Learning can help students, by placing them in the center of the process, while developing several skills and abilities demanded by the 21st Century, such as: collaboration, autonomy, critical thinking and systemic thinking.

KEYWORDS: *Project Based Learning. Vocational education. Education for the XXI Century.*

This research draws on the same standpoint as Buss and Mackedanz, 2017; Oliveira, 2006; Demo, 2010; Moran, 2015, among others, who have discussed traditional teaching and the use of new methodologies in the classroom. Their conclusions are the same we listen to at schools, teachers' rooms and other educational settings: the Brazilian educational system is ill (OLIVEIRA, 2006). Students do not learn and schools have become a conservative entity that is detached from reality, no longer being able to accomplish its social role.

The world has been through a big revolution and society has achieved certain goals that were previously considered a privilege. Nowadays, we live in the so-called knowledge-based society and, along with the current changes, new challenges have come up. When knowledge was restricted and information became difficult to access, school's main role turned out to be the dissemination of knowledge; to spread information and perpetuate it (CÂNDIDO, 2012). Thus, it was possible to control what was seen, read, studied etc; lecturing, in this context, was the most frequent methodology. In addition to libraries, that were few and non-digital media available (which only became popular within the last 50 years). Unfortunately, they are the most used methods in Brazilian schools even nowadays. According to Leão (1999 apud BUSS; MACKEDANZ, 2017), this relationship was also established oriented by the belief that intelligence "was intrinsically linked to the capacity to store information and that knowledge is cumulative. Thus, in this panorama, "the role of the one in the learning process is basically passive one" (LEÃO 1999, p. 190)². First, such conception of intelligence reflects a teaching methodology based on transmission which, as Not (1991) affirms, is grounded on the assumption that it is possible to transmit knowledge from one person to another without going through the process of experiencing it. Secondly, intelligence could be shaped by the school through erudition and its cumulative character. However, in the digital technologies age, the ability to store information is no longer

² My translation. Original version: "estava intrinsecamente ligada à capacidade de armazenar informações e o conhecimento possuía um caráter cumulativo. Assim, nesta situação, 'o papel do indivíduo no processo de aprendizagem é basicamente de passividade'".

considered as a synonym of intelligence, since the information began to be stored in computers and later in cloud, making it available for all those who have information searching abilities. If accumulating information is no longer the most desired skill, finding, evaluating, correlating, working with and transforming it into knowledge, on the other hand, has become one of the most valued competences³ of the 21st Century.

Unfortunately, schools often continue to develop in students the same skills as they did before society became a knowledge-based one. Traditional methodologies favor the transmission of summarized and pedagogically transformed knowledge to be delivered to students: "The student gets everything ready, not being encouraged to problematize and he/she is not asked to question or relate to what he/she learns with what he/she already knows. Therefore, it is often characterized as passive" (OLIVEIRA, 2006, p. 2)⁴. On the other hand, we find student-centered methodologies, commonly named “Active Methodologies” in Brazil, whose main goal is to place the student in an active position, in a position of agent in relation to the knowledge, and not only of receiver of adapted fragments of information which are often decontextualized. According to PCNEM (2002), in the present world, in order to be prepared for life, it is necessary to know

[...] more than reproducing data, naming classifications or identifying symbols. It means: to know how to inform, communicate, argue, understand and act; to face different problems; to participate socially in a practical and supportive way, to be able to elaborate proposals and to point problems; and, especially, to acquire an attitude of constant learning (PCNEM, 2002, p. 9).

If one of the main tasks of school described in this document – which is a governmental guideline to be applied in high schools – is to prepare the student to be competent and to develop lifelong learning, schools must use methodologies that meet this goal, such as student-centered methodologies. It is important to emphasize that I believe that some passive methodologies can and should be used in the classroom, but they ought not to be the axis on which classes, content and the entire school are structured on. They should be considered as another method to be used, but it can no longer be the priority, since it is difficult to reach the goals proposed for the 21st Century education which are present in the guidelines for secondary education.

³ Competence being understood here as the intersection among knowing, acting and being as defined by Barnett & Coate (2005).

⁴My translation. Original version: O aluno recebe tudo pronto, não é incentivado a problematizar e nem é solicitado a questionar ou fazer relação do que aprende com o que já conhece. Por isso, é frequentemente caracterizado como passivo.” (OLIVEIRA, 2006, p. 2)

Another important skill is to know how to develop a collaborative work within a network. Schools used to prepare students for lonely and individual competition in the working environment. However, as we now realize that the world is made up of networks, collaboration and the ability to establish networks became one of the biggest demands of the 21st Century education (DELORS, 1996) and, therefore, one of the main skills to be developed in the classroom. Nevertheless, as Charlot points out, when working in a teacher-centered methodology perspective, the teacher still tries to draw all attention to himself/herself and "prevent relationships between children to be established. These relations must remain clandestine and its event is experienced by the master as a pedagogical slippage that can lead to the mess"(1976, p. 164).⁵ In other words, one of the main skills to be developed in school is neglected and it only has some space to be developed outside the class as homework (group work) or at break time. When students try to develop interaction in the classroom, this is usually not looked favorably by the teacher who a) finds him/herself lost, since he or she cannot focus the attention of 35 adolescents on him/herself; or b) sees such an action as a lack of interest, disrespectful and impolite, and brings about that recurring speech: "This generation doesn't want to be tied down to anything."

In this scenario, how would schools a) develop the skills and competences necessary for the 21st Century in their students, b) follow the development of society, c) get students committed to their own education process and d) make education, as described by Dewey, "an active and constructive process" (1959, p. 41)⁶ that involves more senses and abilities than merely apprehending and reproducing?

In 2014, I took part of the first version of Vocational Educational Teacher Training (VET program), which took 27 Brazilian teachers to Finland in a five-month-experience. During that period, I was able to observe the way that country, through the use of student-centered methodologies, managed to solve many of the problems using a hands-on approach instead of theoretical knowledge. Finland's educational approach focuses mainly on breaking the school ties with conservatism and revolutionizing the educational system with new conceptions of teaching and learning, amongst them we find the student-centered methodologies, or active methodologies. In this program, I was able to observe how methodologies such as flipped classroom, Problem Based Learning, and many others, are

⁵ "impedir que se instaurem relações entre as crianças. Mas essas relações devem permanecer clandestinas e sua aparição é vivida pelo mestre como uma derrapagem pedagógica que tem o risco de levar à bagunça" (1976, p. 164).

⁶ My translation. Original version: "um processo ativo e construtor" (1959, p. 41)

used in most classes and I was also able to follow and observe projects. However, I have to admit that the one which I found most appealing to me was Project Based Learning (PBL).

PBL is built on the elaboration and execution of a project, in a given school context, based on problematizing carried out by the students on a given question. The teacher has the role of leading and assisting the student to his or her research as well as in the construction of his/her project as a guide. In this process, the stages of the project, as well as its purpose and applicability, should be defined at the beginning of the activities. The main goal of this methodology is to help the student to acquire certain knowledge, skills and abilities necessary for his or her development. (MOURA; BARBOSA, 2006 apud OLIVEIRA, 2006). In this context, the student is the protagonist of his or her learning process as the teacher is his or her supervisor and, the other students play the part of his or her research colleagues.

The main names associated with the PBL are John Dewey, precursor of the PBL, César Coll, Josette Jolibert and Fernando Hernández (CASANOVA; ALVES, 2016). In Brazil, PBL has its roots in the movement Escola Nova (based on the New School of England, 1889) that had its strongest era during the 1920's and the 1930's (MATOS, 2009 apud CASANOVA; ALVES, 2016).

Research Target Audience

PBL has been applied for three years with vocational students of IFPR⁷ - Curitiba Campus and has been through modifications in the way it is taken to the students every year, in order to make it more adaptable to the student's local demands and their specificities. IFPR is a public federal school, focused on vocational high school education integrating technical and regular subjects on students' curriculum. The campus offers vocational high school courses, vocational courses and undergraduate degrees in many areas. According to the law that created the Federal Institutes (Law No. 11.892, of December 29, 2008 in its article 6, sections II and V and in article 7, section V), in the educational process, the development of the citizen and the social and regional demands should be treated as inseparable aspects. In this sense, the educational process within the Federal Institutes should always take into account regional specificities and demands, empirical research and investigative processes. Therefore, student-centered methodologies could support this entanglement, especially PBL.

At Curitiba Campus, where I have been developing my research, classes with the vocational high school students only occur in the face-to-face courses, the campus offers a

⁷ Federal Institute of Paraná

total of eight courses, four of which I have worked more frequently over the last three years: Mechanics, Computer Science, Game Design and Gas and Oil. Each class has on average 35 students between 14 and 18 years of age. Each course has its own specific profile, knowledge and skills. As an example, Spanish as a foreign language, the subject I teach, in Mechanics and Gas and Oil all through the courses, while Computer Science and Digital Games Spanish is taught only in the second year of vocational high school. These students have to deal with an average of 19 different subjects to be taken every year in order to complete the credits in three years. In this context, Spanish-speaking classes are reduced to two lessons of 50 minutes weekly, as are almost all other subjects that are not technical related. One of the main challenges to the foreign language class (LE) for vocational high school courses, taking into account the specificities of each of them, is making the learning of a second language something as meaningful. It is also a challenge to make students interested in the Other (PENNYCOOK, 2006), language, culture, ideology or the overlapping of all these.

Methodology

This is an ethnographic research that aims to show how PBL can be applied to vocational high school education in Brazilian Federal Institutes. Within this goal we highlight the peculiarities of the way PBL was applied, as well as the description of some of the issues experienced and some possible explanations for them. It will be even possible to relate some of these experiences observed in Finland to contrast with the experiences lived here. For that reason, I mainly used my field diaries produced during the period in which I was in Finland for the VET program, as well as those produced during my IFPR classes, the assessments and self-assessments made by the students during the process, statements given during classes and some audio recordings produced by the students.

Creating an environment for PBL

Among the groups which I have been working with, none of the students had previous experience with PBL, so it was very important to present it and prepare them so that they could feel confident enough to take advantage of the process of making the projects, as Grant (2002) suggests in his studies on the application of PBL. For that reason, in the first two terms, students were enabled to develop a project at the end of the second term, with pre-established themes, and then with themes that the big group or each small group chose. This is

aligned with what Fontes (2014) claims to be expected in the education for the 21st century: that the teacher gives voice and values the students' position, including their history, context, choices, ideologies and interests.

The first important activity is to encourage students to know their strengths as much as the aspects that they find important improving, or which they do not like in themselves. It is also important that they realize which characteristics they can put in favor of the group which they will be part of. The suggested initial activity, then, is to ask the students to share their skills, hobbies, interests, things they are proud of and aspects they could contribute to the group, as well as aspects that still need some improvement. One thing that constantly takes place is that a large number of students reports that they do not have positive or important skills or characteristics that they consider themselves proud of. On the other hand, it is very easy for these same students to report the aspects that they still wish to work on or the characteristics they consider to be not so good. Martinelli and Sisto (2006), in their book on affectivity, report that Brazil is one of the countries with the greatest number of students with learning difficulties, mostly due to the huge amount of learners that get to the end of elementary school with serious learning issues. The main hypothesis is based on the way school has been related itself with students. That is, the way teaching and learning process has taken place and how it affects students. The educational system focused on the quantitative evaluation and in ranking students. In the case of Brazilian vocational high school, the system brings a large number of subjects. As a result, it tends to bring about a number of problems regarding students' self-esteem. The idea of having a standard average to be reached, given by a certain grade in each subject, by all human beings raises the feeling, to those who do not reach it, that they are out of the standard, that they are not good enough. This feeling, being repeated over and over again, can lead to the tricky idea that these students have more points to be developed than they have to offer. Consequently, the educational system ends up valuing the missing existing characteristics, instead of valuing the presented potentialities.

It is worth emphasizing several testimonials⁸ from students showing how they felt more confident and comfortable with the simple fact that assessment was based on something that they decided to study and not on a traditional test. After all, in the final presentation of a project there are no surprises, but learning can be checked during this process and at the presentation of the final product.

⁸ These statements were made by students who participated in this study by the various instruments narrated. Their identities were, are, and will be kept confidential at all stages of the study.

"[...] the project presentation measures a person's ability to be confident about their knowledge and how to pass on it, which is much more important than a formal assessment that measures only the short-term memorization capacity of a person." (Pedro, 16, Computer Science, 2nd year)

"I feel more confident now after presenting the project." (Maria, 17, Computer Science, 3rd year)

"A lot of people end up having bad grades on tests despite knowing the content because they get nervous. In the presentations, as I know what I want to talk about, I feel calm and less anxious." (Joana, 18, Computer Science, 2nd year)

"The students are good, you can trust them." (Lucas, 17, Mechanics, 2nd year)

According to Grant (2002), Assessment can be quite difficult to conduct when applying PBL. As an alternative, apart from formal evaluations, group and individual assessment it is conducted in a number of ways, such as the presentation of, the evaluation of the other students about the group, the self-assessment of each team member about his or her group, and self-assessment that each student handles at the end of the process. Bell, on his experience in applying PBL, states that "students become critical friends by giving constructive feedback to each other, which helps them become aware of their own strengths and improve on their interactions with each other." (2010, p. 5). Thus, through peer-assessment, students may realize their strengths and points to be improved and build a relationship of respect and appreciation with their colleagues' opinions, because in this process all opinions count. At the end of the process, the group and each one of the students can access the results of this set of evaluations and can think of actions so that the group can improve the aspects that are still needed and might burst their strengths.

PBL gives space for students to be in the center and let them choose to work with what they have more affinity and interest in, which makes possible to personalize a little bit more of the learning process in classroom. Students start to trust on their ability to learn and work with other students, what is extremely important in order to develop the citizen we want for the 21st Century.

Of course, this space has a price and a factor that is not easy to coordinate: time, many students have stated that although they have enjoyed a lot working with this methodology and

feel more motivated to study, they believe that it asks a lot more from them, especially many studying hours , “[...] *as for a common test you can easily study a day before it without any problem [...]*” (Cristina, 17, Computer Science, 2nd year). At the same time, it is necessary to assign a specific amount of time and schedule for each of the stages of the project development together with the class. It is also important, that a student (according to their personal characteristics) volunteers himself/herself to be responsible for the task of assisting in the execution of the schedule with the class. Before starting, it is very important that all stages of the project and its parts are explained and debated in the classroom so that students can get familiar the the next steps. Even being able to change them.

At first, students should have a moment to think about the different possibilities of themes that they can choose within the two major themes given in the second term by the teacher. On the next terms, they will be choosing together. Then, the topics that they have chosen are presented and the group decides which themes remain and which should be cut off. Based on their affinity to the topic, students divide themselves into teams. One of the first classes in which I used PBL, was a very difficult moment. Students did not seem to be excited about working with the subjects they had proposed. When asked why such discouragement occurred, they reported that those subjects were boring, but they thought they would be the ones I, the teacher, would like them to work on. They were very surprised when I said that I had no themes to be worked on and that they could choose whatever they wanted to do. One of the students then asked me if he could create a game, like a webquest, in which a group of IFPR students would have to save the city from a zombie attack. Doing so, he and his team could raise interesting and curious aspects and bring knowledge about the aspects of the city in which we live to the other students. I reaffirmed to the students the only mandatory aspect would be to develop all the project using Spanish, nothing else. From that moment on, projects became more audacious and creative.

Students felt motivated to study topics that interest them and present the results to their colleagues. The confidence the students say we can have in them is due to the fact that they become protagonists and builders of their knowledge. The studies on constructivism (HAREL; PAPERT, 1991; KAFAI; RESNICK, 1996) also state that students learn more effectively when they build something they can share with their peers. Something they enjoy doing and can be proud of.

"I'm more open (to learn), because I researched what I wanted." (Felipe, 17, Digital Games 2)

"I feel very motivated to continue studying. (...) Now I see that Spanish is as important as any other language and learning a new language opens up even more horizons, so much that I now think of going to Spanish-speaking countries when looking for a place to travel or a place to study. "(Marina, 18, age 3)

*"I like [to work with projects] a lot, because we are doing our best to avoid hampering the project or the other groups, and it seems like the content is learned easily."
(Paulo, 17, Digital Games 2)*

One of the main motivations for this project seems to be the group and the partnership established in it. "We work harder not to hamp the group" says the student, just like Bell (2010) affirms in her studies about the elementary students when applying the PBL: students do not want to disappoint each other. That is why it is very important that the individual role and importance of each member in the team is highlighted. Each team member must have a specific role during the project.

After they have defined the theme, students have a week to prepare the skeleton of their projects and do a three-minute-presentation of it to their colleagues about their final product and how it will be presented to the class. The whole group and specially another team assigned to that is responsible for discussing and presenting new ideas to the group which is presenting (also respecting the set time). Only then teams can write the project they want to do. The project should contain a very clear program of how it is going to be developed and should be handed in the following class. After that, students will have three to four classes to work with the project.

As time is limited, the schedule of classroom activities should be very specific and must be followed by the teacher who discusses with students about their project every class. Teacher could help them finding references, new ways of presenting the project, establishment of contacts, etc. After all, this is the role of the guiding teacher in applying a student-centered methodology (OLIVEIRA, 2006).

When it was necessary, depending on each group's needs, another student was chosen by peers or volunteered to work as libero (term taken from volleyball) in technologies. The libero would be a student who would work assisting teams with the production of material, video recording, editing, presenting etc. At the end of the process, projects were presented and the results were debated by the class. This process of creating a libero was so interesting for

the students that there were many projects which brought attention regarding this technical aspect, developing research projects aimed at understanding and producing mini workshops designed to teach other students in the most diverse techniques as: dubbing, subtitling, videos remixing etc. One of these classes, for instance, put the techniques together in a single project and shared them into small groups. The final product would be to record a four-minute scene from a novel. The first group proposed that they record a scene from a novel (preferably a dramatic one) and record it in Portuguese. The next group then taught the class how to edit this recording. A third group taught them to record the text in Spanish and do the dubbing of the recording. Students enjoyed learning these techniques so much that they use them in many other projects and presentations in other subjects.

According to the Brazilian Curricular High School Orientations (OCEM, 2006), one of the main goal of a foreign language in the curriculum is the formation of an individual who is critical and conscious of his / her citizen role. Thus, it puts students in contact with a set of values and intercultural relations from other cultures that are presented by the different languages to be studied so it produces questions about who I am and who the other is. In order to understand the other, it is very important to understand who I am and know how to read the place from where each person is standing. School for many years maintained the proposal of passing knowledge through without relating it with student's reality, without encouraging them to change or intervene in their reality through school. Looking at how projects developed Finland's schools impact (are meant to be meaningful) on student's daily lives and the community around school, I began to wonder whether the role of teaching would not be as well linked to the four main principals of education for the 21st Century. After all, as Oliveira affirms: "traditional methodologies have been inefficient to help students to learn how to think, to reflect, to create autonomous solutions to practical situations, to the problems they face" (2006, p. 3).⁹ On the other hand, with student-centered methodologies, it is necessary to analyze the environment and the possibilities of intervention so that projects can be carried out.

If students should know the problems and potentialities of the places where they live in then they must learn to live with the most diverse amount of people possible, especially the ones around them, who attend the same spaces they do, could not they, together, think of ways of improving these spaces, especially school? So, every time I started a project

⁹ My translation. Original version: “as metodologias tradicionais têm sido pouco eficientes para ajudar o aluno a aprender a pensar, refletir, criar com autonomia soluções para as situações práticas, para os problemas que enfrenta” (2006, p. 3).

assignment, I suggested my students that the projects should have an impact on their daily lives, whether at school or outside, in the local community. Many groups accepted the challenge and designed their projects so that they had a substantial impact on the school. One of them was the project of a second-year group of mechanics that in the second term of 2015 decided they would build and / or restore the sports equipment that were not working for lack of maintenance. As the whole group was a big sports fan, they divided themselves into teams seeking to develop a project that would have as final outcomes: a) construction of an aerodynamic ramp for skateboarding; (b) reforming, restyling and painting football court locks, (c) setting up basketball hoops with recyclable materials, (d) set up a table for ping-pong with recyclable materials and (e) production of educational videos about the other projects from the other groups. As in all other projects, the students developed a plan on how they could develop the project and theoretically formulated the basis for its execution. With the help of other teachers, such as arts, welding, and skateboarding at school, students could develop the action plan and put it into practice.

The students were very excited and happy about being responsible for their study and the impact that these actions had on the school. They felt responsible for their environment and feeling as part of it, students developed a sense of responsibility and appreciation for their own work.

"It's so nice to play soccer on a court that I helped fixing. It was a very nice experience for me. "(Luiz, 18, Mech. 2)

"I loved seeing my art on the ramp and being able to paint it, understanding the meaning of what I painted and the colors. [...]. "(Ana, 17, Mec 2)

During the presentations, I also realized that students needed some clear help with their language doubts, such as grammar, lexicon and the pragmatic use of some expressions etc. Therefore, during the preparation of the projects, I began to guide the students in some specific language issues and helped them in how to seek explanations and exercises and clarify their doubts at home. So, they could gradually learn how to establish a personal foreign language study plan that could suit their specific needs and her or his individual way of learning. Students enjoyed the idea and their development in foreign language is greater now than when they had classes in traditional methodologies. During this year, students are being encouraged to have, as part of their project, some lexical and grammar exercises produced by them based on the specific difficulties they faced during the project. It is sent to the other

students a week before the team presentation, so that they can also study about it. Thus, students have access to language issues that may help them to improve understand the presentation of the project, as they are able to study these items before.

Final considerations - Perceptions of here and there

The differences between the way PBL is implemented in Finland and how it has been experienced at IFPR have points of great divergence, but at the same time they have been equally fruitful. The main differences to be highlighted are related to the different aspects that affect the classroom. The first is the fact that the IFPR students, as well as society as a whole, are still taking their first steps related to autonomy, collaboration, collective work etc. Students have often reported difficulty in keeping the focus when working in groups and in producing a study plan for the period they are outside classroom. These issues are further strengthened by the fact that Spanish is one of the only subjects to use a non-traditional methodology (in some cases the English courses also used PBL in its classes). I believe that if the set of subjects using PBL and / or any other student-centered methodology were greater, students would have a better adaptability to the process and would even have their workload diminished, because several subjects would be able to work in an integrated way in that in process. The way assessment was done also caused strangeness, at the beginning, to the students, since they were not used to assess their colleagues' opinion and the others presentations, as something worth paying attention to. As time went on, these aspects changed and the resistance of the students diminished. In order to do so, some points were very important during this transition: the work gradually and carefully explained with and on the methodology used, the increasing insertion of new steps in each project and the constant dialogue with the class students. As a global result, I conclude that, with the adjustments required by the context and with dialogue, it is possible to use PBL for vocational high school education. Based on student's statements, I think that after undergoing this process, they present: a) greater autonomy in their learning and are responsibility for it, b) better ability to work in groups in a more fluid way, since they rely more on themselves and in their colleagues, which makes them able to recognize their skills and competencies; c) a more accurate perception of their environment and their active role in relation to it. Fundamental issues that enable students to develop the necessary skills for the 21st Century.

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