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Professor perception on the applicability of PBL in accounting education: challenges and limitations

Percepción de los profesores sobre la aplicabilidad del ABP en la educación contable: desafíos y limitaciones

Percepção docente sobre a aplicabilidade do PBL no ensino contábil: desafios e limitações

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Abstract

Objective: Analyze the perception of accounting professors at public HEIs about the use of the Problem-Based Learning (PBL) methodology in accounting education.

Methodology: Semi-structured interviews were carried out with the analysis units composed of nine professors from undergraduate courses in accounting at public universities located in Rio Grande do Norte. The information obtained in the interviews was transcribed and, subsequently, went under the coding process, carried out with the aid of the ATLAS.ti® software, enabling the identification of the units of meaning contained in the interviewees' discourse, leading to a content analysis. A data triangulation was carried out using the course plans of the subjects taught by the interviewees along with the information disclosed in the interviews.

Results: Based on the results obtained through the interviews, interviewees consider that problem-based learning is an applicable method to the teaching of accounting, especially in courses judged to be of a practical nature. In addition, it was found that the role of the teacher is essential for the successful use of this methodology. However, the analysis of the syllabuses of the subjects taught by the interviewees showed that traditional teaching methods are still predominant. It was observed that the demotivation of students, lack of knowledge of teachers about the PBL method, as well as lack of interest and incentives to use a learning approach based on problems and institutional aspects are factors that hinder and constrain the use of this pedagogical intervention.

Study Contributions: The findings contribute to the discussion about the implementation of active methodologies in accounting education, specifically PBL, by identifying aspects that present themselves as challenges that need to be observed and overcome in their use.

Keywords: Problem-based Learning, Active Methodologies, Accounting Teaching.

Resumen

Objetivo: Analizar la percepción de los profesores de Ciencias Contables de las IES públicas sobre el uso del Método de Aprendizaje Basado en Problemas (ABP) en la educación contable.

Metodología: Se realizaron entrevistas semiestructuradas con la unidad de análisis compuesta por nueve profesores de cursos de pregrado en Contabilidad de universidades públicas ubicadas en Rio Grande do Norte. La información obtenida en las entrevistas fue transcrita y, posteriormente, pasó por un proceso de codificación, realizado con la ayuda del software ATLAS.ti®, permitiendo la identificación de las unidades de significado contenidas en el discurso de los entrevistados para proceder con el análisis del contenido. Se realizó una triangulación de datos utilizando los planes de curso de las asignaturas impartidas por los entrevistados y la información de las entrevistas.

Resultados: A partir de los resultados obtenidos a través de las entrevistas, se encontró que los entrevistados consideran que el aprendizaje basado en problemas es un método aplicable a la enseñanza de la Contabilidad, especialmente en disciplinas consideradas de carácter práctico. Además, se encontró que el rol del docente es fundamental para el uso exitoso de esta metodología. Sin embargo, el análisis de los planes de estudios de las asignaturas impartidas por los entrevistados mostró que aún predominan los métodos tradicionales de enseñanza. Se observó que la desmotivación de los estudiantes, el desconocimiento de los docentes sobre el método ABP, la falta de interés e incentivos para utilizar un enfoque de aprendizaje basado en problemas y aspectos institucionales son factores que dificultan y limitan el uso de esta intervención pedagógica.

Contribuciones al estudio: Los hallazgos contribuyen a la discusión sobre la implementación de metodologías activas en la docencia contable, específicamente el PBL, al identificar aspectos que se presentan como desafíos que deben ser observados y superados en su uso.

Palabras clave: Aprendizaje Basado en Problemas, Metodologías Activas, Enseñanza Contable.

Resumo

Objetivo: Analisar a percepção dos docentes de Ciências Contábeis das IES públicas a respeito da utilização da metodologia de aprendizagem baseada em problemas (PBL) no ensino contábil.

Metodologia: Foram realizadas entrevistas semiestruturadas com unidade de análise composta por nove docentes de cursos de graduação em Ciências Contábeis de universidades públicas localizadas no Rio Grande do Norte. As informações obtidas nas entrevistas foram transcritas e, posteriormente, passaram por um processo de codificação, realizado com o auxílio do *software* ATLAS.ti®, possibilitando identificar as unidades de significados contidas no discurso dos entrevistados, permitindo a análise de conteúdo. Realizou-se uma triangulação de dados utilizando os planos de curso das disciplinas ministradas pelos entrevistados e as informações das entrevistas.

Resultados: Com base nos resultados obtidos por meio das entrevistas, foi constatado que os entrevistados consideram que o *problem-based learning* é um método aplicável ao ensino da Ciência Contábil, principalmente nas disciplinas julgadas como de cunho prático. Além disso, verificou-se que o papel do docente é fundamental para o sucesso da utilização dessa metodologia. No entanto, a análise dos planos de curso das disciplinas ministradas pelos entrevistados demonstrou que os métodos de ensino tradicionais ainda são preponderantes. Foi observado que a desmotivação dos discentes, a falta de conhecimento dos professores sobre o método PBL, a falta de interesse e incentivos para utilizar uma abordagem de aprendizagem baseada em problemas e aspectos institucionais são fatores que dificultam e limitam a utilização dessa intervenção pedagógica.

Contribuições do Estudo: Os achados contribuem para a discussão acerca da implementação de metodologias ativas no ensino de contabilidade, especificamente o PBL, ao identificar aspectos que se apresentam como desafios que precisam ser observados e superados em sua utilização.

Palavras-chave: *Problem-based Learning*, Metodologias Ativas, Ensino em Contabilidade.

1 Introduction

Accounting professionals are responsible for creating structured analysis, suggestions as well as conditions who help in the problem-solving aspect of the companies they work for. In order for them to have such professional range, the profile of accountants must be compatible with the market and the ever-changing demands that take place in the business context. This profile is a consensus in different countries, not being exclusive to Brazilian professionals (Araujo & Slomski, 2013).

In this context, it can be observed that there is a social demand of accounting professionals who possess more than technical expertise, the development of specific skills of the profession, such as: critical-reflective thinking and problem-solving capacity (Araujo & Slomski, 2013), that is, the labor market demonstrates a demand for professionals who present the so-called soft and hard skills, the latter corresponds to skills in the technical and administrative categories while the former skill corresponds to skills in the human, conceptual, leadership and overall interpersonal categories (Weber, Finley, Crawford, & Rivera Jr., 2009).

Thus, the literature continually warns that students entering the labor market do not have all the skills required by the market, suggesting that the reason behind said gap is due to current accounting teaching practices. The results of a survey among first-year accounting students at North-West University in South Africa indicate that the focus in accounting education is still on the syllabus and that teaching methodologies are primarily content-oriented, albeit several elements of effective teaching methodologies are present (Fouché, 2017).

Amongst the teaching methods reported in the literature, active methodologies stand out as methodologies not limited to "try" a different pedagogical activity with students or promoting debates in the classroom. In fact, this means that the effective use of these techniques requires a new philosophical posture from the teacher and the student. Such a stance is essentially different from that observed in traditional lectures, which only expect the teacher to "teach" and the students to "learn" (Konopka, Adaime & Mosele, 2015).

Active learning strategies have been increasingly used in school settings and studies have shown that active learning improves understanding and retention of information and that it is effective in developing higher-order cognitive skills such as problem solving and critical thinking (Konopka et al., 2015).

Therefore, a wide range of active methodologies can be explored in teaching accounting, such as collaborative learning, business games, project-based learning and case-based learning. Among those active methodologies, it is worth emphasizing that problem-based learning (PBL), developed in the 1960s in Canada, initially applied in medical schools and currently used in several areas of knowledge, has been included as a base method of disciplines in the curriculum of undergraduate courses (Araújo, 2011).

Its application in universities in several countries has been done as a way to provide future professionals not only with skills relevant to the technical content taught in graduation, but also the development of other complementary professional qualities (Casale, 2013).

In this vast group of future professionals, accountants stand out, considering that changes in the business context affect accounting practice and, consequently, the teaching of accounting. Thus, the use of innovative methodologies, such as PBL, allows teachers to continuously adapt their teaching method towards these new demands (Martins, 2017). In addition to that benefit, problem-based learning method enables the development of professional skills, meeting both the requirements proposed by international and national bodies, presented in the National Curriculum Guidelines for the undergraduate course in Accounting, through the CNE/CES Resolution No. 10/2004 (Martins, Espejo, & Frezatti, 2015).

Thus, starting from the premise that the PBL is an important teaching methodology in the training of future accounting professionals, considering that the method develops skills, skills and attitudes necessary for the accounting professional, the following issue stands out: **What is the perception of Accounting Science professors at public HEIs regarding the use of the PBL method for accounting teaching?** That is, this research aims to analyze the perception of Accounting Science professors at public HEIs regarding the use of the PBL method for teaching accounting. (Ribeiro, 2008).

The rationale for the study is the diversity of alternatives for applying PBL in different areas of knowledge and in different international and national HEIs. In this sense, it is intended to contribute with this study to the demystification of the Problem-Based Learning method to accounting teachers, whom, for the most part, tend to reproduce the teaching models experienced as students or experienced in practice.

The resulting findings of this study can contribute to the literature of the theme; to encourage its application in the accounting area by providing answers to the main questions found by professors in relation to the use of PBL in teaching accounting; and highlight the open field for teacher training to use this methodology specifically focused on accounting. Within this perspective, the study results can serve as a provocative agent for this active teaching approach to have its multiplying effect perceived in the field of Accounting education. (Martins et al., 2015).

2 Literature Review

2.1 Problem Based Learning

Problem-based learning (PBL) is an experimental method, grounded in constructivist principles (Gerstein, Winter, & Hertz, 2016), which is based on the contextualized use of a problem situation for self-directed learning, emphasizing the construction of knowledge in an environment of mutual collaboration (Barbosa & Moura, 2013). According to Silva, Azevedo and Araújo (2018), it is a methodology that has advantages over the traditional ones in relation to the development of professional skills, promoting autonomous learning.

Milne and McConnell (2001) explain that the method makes use of problems to drive learning and, by doing so, students develop their problem-solving skills while seeking and obtaining the appropriate knowledge. The biggest incentive for its use, however, is not restricted to the skills it develops in students, but the learning experience provided, very similar to the way cognitive psychologists suggest that people acquire, retain and recall knowledge successfully.

In line with this understanding, Borochovcicius and Tortella (2014) emphasize that the primary purpose of PBL is to provide students with the ability to build conceptual, procedural and attitudinal learning through the proposed problems that will put them in motivating situations, while consequently preparing them for the job market.

Following this perspective, Gerstein et al. (2016) argue that PBL, by allowing students to learn by actively engaging in problem-solving activities, leads to the learning of how to develop strategies while developing their content knowledge. Thus, the authors list as the main objectives of PBL the help it gives the students on developing flexible knowledge, problem solving skills, critical reasoning skills and collaboration skills, as well as cultivate intrinsic motivation through self-directed learning.

Therefore, five goals are listed, and can be conceptualized as follows: flexible thinking leads students to understand multiple domains of knowledge, so that they can synthesize and apply them in different situations; promoting problem solving is linked to encouraging students to use strategic reasoning and assess their progress in planning and achieving established goals; targeted learning requires students to recognize gaps in their knowledge and identify what they need to learn; the skill of collaboration consists of identifying, as a group, the points in common, resolving differences and deciding the decisions to be taken; and, finally, the intrinsic motivation is promoted, generating interest in the subject and allowing the achievement of job satisfaction (Gerstein et al., 2016).

Thus, this method meets several concerns: in relation to students, while it provides for the resolution of problems related to their future professions and encourages them to research, making them capable of learning to learn, being critical and making decisions; of the professors, because they encourage them to seek interdisciplinarity; and society, in view of the high competitiveness, competition and a globalized scenario full of rapid changes, based on the skills developed, it receives a professional able to seek solutions consistent with reality and needs (Borochovcicius & Tortella, 2014).

It must be noted, however, that according to Medeiros, Moura and Araújo (2017), limitations on the implementation of active methodologies exist both from the teacher's perspective, as well as in the specific sense of the method. For the first case, the limiting factor is the habit of using traditional methodologies and the lack of incentive for change. While in

the second, the restriction is related to adapting the method, the demand for content and class time, as well as the difficulty in using active learning in crowded classrooms.

2.2 PBL Method Application

PBL allows for work sequences that can vary according to the learning objectives that one wants to achieve. According to Barbosa and Moura (2013), it can be said that this method is developed in eight stages, in general: i. initial contact with the problem situation, which consists of the initial understanding of the problem and the search for the necessary clarifications to understand it in a comprehensive way; ii. generation of ideas through a brainstorming session, whose objective is to list possible explanations or solutions, based on current knowledge; iii. analysis, which must be developed from the breakdown of the problem into parts, identifying relationships, functions and structures; iv. creation of questions to guide the investigation or research and define the problem to be solved; v. definition of learning objectives; vi. individual study, and subsequent group discussion, with a record of the process followed; vii. synthesis and evaluation of the work developed and results obtained; viii. presentation of the work developed for the large group, in relation to the process, analysis and results.

The premise of PBL does not require a final answer on the last stage, yet, the method is focused on the whole process the individual students as well as the group went through in order to search for a solution, thus, the method values self-learning as well as group learning, obtained as the result of discussions, the focus on the problem, the self-motivation and the stimuli of critical thinking, observation and understanding (Barbosa & Moura, 2013; Guedes, Andrade, & Nicolini, 2015).

Milne and McConnell (2001) also add that with this type of approach, the emphasis is clearly placed not only on the process of knowledge acquisition, but also on students who are responsible for acquiring their own knowledge. Thus, learning is not restricted to acquiring knowledge, but understanding how to use it to solve a situation. The extension of the ways in which PBL can be applied in business areas offers a relevant opportunity to analyze the approach, in addition to meeting a student profile that has the potential to advance their learning beyond the solution to the case itself (Frezatti, Mucci, & Martins, 2018).

Gerstein et al. (2016) claim that problem-based learning is an effective learning method for teaching accounting in several ways and, considering the many skills developed in the process, within the perspective of the main goals, it also becomes a means for the acquisition of ethical values professionals.

In accordance, Stanley and Marsden (2012) point that the successful implementation of PBL on accounting may be a spearhead for change on the whole teaching process, that allows for better results of the accounting students learning process.

Within the reality of an active learning methodology, the teacher takes the role of the facilitator. On PBL application, it must act as a guide for useful guidance, doing so by instigating questions and student collaboration, helping them to think with greater insight, as well as following the students' progress, providing useful (Gerstein et al., 2016).

The students gather their abilities, through discourse, questioning and problem-solving, building knowledge, deciding the learning objectives, while the facilitator encourages and justifies the possible resolutions (Gerstein et al., 2016).

Having defined the roles for the teacher and the student, only the third fundamental element of PBL is missing: The problem. According to Hung (2006), the problem is the

predominant factor of problem-based learning, being responsible for the progress of the process, as well as, if not well designed, being an obstacle to achieving the method's objectives.

Following, Frezatti et al (2018) points that one of the main resources of the teacher is to have tools, that allow for evaluation of the proposed problems, allowing for them to be modified, organized or developed in such a way to be adequate for the PBL exercise. A well written and designed problem should evolve, motivate and challenge its students (Hansen, 2006).

In the educational process, assessment is an extremely important element, as it allows the institution, the student as well as the teacher to have standards for their positioning and future actions, as well as enabling the institution to assess and even reposition itself. (Frezatti, Borinelli, Martins, & Espejo, 2016).

Nos ambientes de aprendizagem cooperativa, os alunos são encorajados a desenvolver competências transversais - capacidade de análise e síntese, independência de julgamento, curiosidade, trabalho em equipe e capacidade de comunicação – enquanto aplicam e reforçam as competências técnicas, exigindo que, portanto, os métodos e critérios de avaliação para avaliar o desempenho devam considerar não apenas o conhecimento e o conteúdo, mas também as competências transversais

In a cooperative learning environment, students are encouraged to develop cross-cutting skills - analysis and synthesis, independence of judgment, curiosity, teamwork and communication – while also applying and reinforcing technical skills, thus, it becomes necessary that assessment and evaluation methods should be able to consider not only knowledge and content, but also transversal skills. (Lima, Mesquita, Fernandes, Araújo, & Rabelo, 2015).

From the perspective of competency assessment, Frezatti et al. (2016) distributed the competences that could be evaluated into three axes: knowledge, skills and attitudes, or simply, “CHA”. The knowledge axis is composed by the domain of the bibliography that regards the problem, professional knowledge and scientific methodology. Skills, on the other hand are identified by teamwork, creativity and innovation, systemic vision, communication, planning, integration with the company, integration with other disciplines, project development, critical analysis, problem solving, self-assessment, independent study and self-regulated work. Finally, the axis of attitudes is defined by commitment, ethics, proactivity, empathy, flexibility, interest, curiosity, professional experience, respect for the opinions of others, collaboration and cooperation, as well as leadership (Frezatti et al., 2016).

Following this logic, students are responsible for part of their own assessment and the assessment of other members of their team. Mansur and Alves (2018) claim that the formative method of peer assessment and self-assessment provides the possibility of constant feedback and promotes a more adaptive and effective learning process to meet the needs of students, considering collaborative learning environments.

On Table 1, some of the latest empirical studies developed about problem-based learning has been compiled, both within the national sphere as well as the international/

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Table 1

Prior studies about PBL

Authors	Objectives	Main results
Hansen (2010)	The study aims to describe PBL and the process of writing a PBL problem by using an example.	PBL can encourage students to think critically and solve complex problems, find and use learning resources, work in teams, use effective communication skills, and become continuous learners.
Stanley and Marsden (2012)	The study aims to analyze the results obtained from a case study of implementation and development of PBL in accounting classes, highlighting the importance of questioning for the method.	With the results obtained over seven semesters, it was found that students consider the method effective, especially in the development of critical skills, questioning, teamwork and problem solving.
Martins et al. (2015)	This research aimed to report the operationalization of the PBL method in a Management Accounting discipline in Accounting course at a Brazilian Higher Education Institution.	The results show that the integration between academics and companies from the use of practical and real problems brought by students in the workplace provides gains.
Barut, Soares, Araujo e Kanet (2016)	This research aims to verify the effectiveness of the PBL method in accounting programs at higher education institutions.	The statistical results found showed that, when accounting students adhere to the method, they gain knowledge in the area, while also acquiring problem solving skills, improve their communication skills and become more self-confident.
Gerstein et al. (2016)	The article reviews the literature on the use of PBL in commercial and non-commercial areas and discusses how these research findings can be used to adapt PBL pedagogy to successfully inculcate ethics in the mindset of accounting students.	Many of the skills imparted by the PBL process, such as flexible thinking, problem solving, self-directed learning, collaboration and intrinsic motivation, were found to be crucial to the acquisition of ethical values.
Frezatti et al. (2016)	The research aims to give meaning to the final concept obtained by the student in a discipline taught from the perspective of PBL, considering the complexity of the synergistic perspective of the CHA.	The findings demonstrate that the combination of the CHA cannot be simply a sum of elements, but rather, synergistically, a set that provides conditions to understand if the student, at the end of the course, had planned learning
Silva et al. (2018)	The study aims to analyze the perception of Master's students in Accounting at the Federal University of Rio Grande do Norte about the applicability, developed competences and teaching posture in Problem-Based Learning (PBL) applied to the teaching of Accounting.	The results show that the method can be applicable to several subjects of the Accounting, enabling the acquisition of interdisciplinary knowledge and the practice of market.

Source: *Research data.*

Based on the analyzed studies, it can be seen, in general, that there is a tendency towards the preference of problem-based learning over traditional teaching methodologies. However, it appears that there is still much to be addressed about this methodology, especially in relation to the challenges that still need to be faced and the reasons that prevent its adoption.

Previous studies deal with the skills developed from the adoption of PBL (Barut et al., 2016; Gerstein et al., 2016; Hansen, 2010; Martins et al., 2015), the perception of students about the use of the method (Silva et al., 2018; Stanley & Marsden, 2012) and on the planning and development of the methodology (Frezatti et al., 2016). Thus, it remains open to investigate the perception that accounting course professors have in relation to the method.

3 Methodological Procedures

3.1 Strategy and Research Method

In order to meet the research objective, a qualitative approach was adopted. The study is classified as descriptive in terms of the objectives and the procedures adopted, aimed at obtaining more in-depth information about the analyzed units of analysis (Yin, 2010).

3.2 Population or Sample

The population is composed by Higher Education Institution located in the state of Rio Grande do Norte, while the sample is composed by three of the Higher Education Institutions, one located on the city of Natal, while the other two are located in the city of Mossoró.

3.3 Database Definition

Semi-structured interviews were conducted with a unit of analysis composed of nine professors from the areas of Introductory Accounting, Management Accounting, Financial Accounting, Accounting Expertise and Research Methodology of the undergraduate course in Accounting Sciences of three public institutions of higher education located in the state of Rio Grande do Norte. The selection of participants for the study was made by accessibility.

Prior to the data collection, a pilot interview was conducted aiming to help in the final structure of the interview protocol, leading to the inclusion of more specific questions that could answer the proposed objective.

After completing the pilot case and making all the necessary adjustments, the final script of the interview was reached in order to obtain the necessary data to analyze the perception of teachers regarding the feasibility of using the PBL method for accounting teaching, as well as the skills and difficulties identified in the pedagogical intervention, as specified in Table 2.

Table 2*Research construct*

Category	Question	References
Applicability of the method in Accounting	Do you believe that PBL is a method that can be used in teaching Accounting?	Gerstein et al. (2016); Silva et al. (2018).
	Is it possible to reflect the accounting professional's practice through a problem situation?	Stanley and Marsden (2012); Silva et al. (2018).
Skills development using the approach	With the use of PBL, is it possible to develop the knowledge, skills and attitudes necessary for the formation of the accounting professional?	Stanley and Marsden (2012); Gerstein et al. (2016); Frezatti et al. (2016); Silva et al. (2018).
PBL teacher characteristics	What is the role of the teacher in developing the approach?	Silva et al. (2018).; Martins, Falbo Neto e Silva (2018).
Limitations and difficulties identified for the implementation of the method	What is your perception regarding the limitations and difficulties in applying the method for teaching Accounting?	Stanley and Marsden (2012); Martins, Falbo Neto and Silva (2018).

Source: *Research data.*

Individual interviews were conducted, in person and by electronic means (Skype), with open questions, carried out from August to October 2019. According to the interview protocol, additional questions were asked so that it was possible to respond to the proposed objective.

3.4 Data Analysis Techniques

The information obtained through interviews were transcribed so that, later, the technique of content analysis was used, as recommended by Bardin (2011), corresponds to communication analysis techniques, using systematic procedures and objective description of the content of messages.

For this purpose, the primary cycle coding or open coding was carried out, which, according to Tracy (2013), it is a circular reflective process that marks the analysis of qualitative data, representing descriptive analysis that shows the basic activities and processes in the data. Then, the secondary or axial cycle coding was performed, which aims to critically analyze the codes identified in the primary cycle (Tracy, 2013).

The coding process, carried out with the help of the ATLAS.ti® software, made it possible to identify the units of meaning contained in the interviewees' discourse in relation to the constructs of the applicability of the method in accounting teaching, development of skills using the approach, characteristics of the teacher in the application of PBL and the limitations and difficulties identified.

To ensure data triangulation, an analysis of the course plans of the subjects taught by the interviewees was carried out in order to identify the methodology used in the classes and, more specifically, the use of the PBL method.

Considering ethical aspects and aiming to preserve the image of the participants, the names of the professors and other elements that favored identification were hidden. Additionally, all interviews were recorded using an audio recording device, with authorization

granted through the Term of Authorization for Voice Recording, after all participants signed the Informed Consent Form (ICF).

Finally, as an additional way to guarantee the quality criteria of the qualitative research, the respondents were confirmed, which consists of sending the interview transcripts to the interviewees so that they confirm the veracity and suitability of the statements. (Flick, 2009).

4 Results and Analysis

Conducting the interviews allowed, as expected, to identify the teachers' opinions and beliefs regarding the adoption of the problem-based learning methodology, based on prior knowledge as well as their professional experiences. The difficulties encountered in implementing the method were highlighted, the opinion of the professors in relation to its application, the position that the professor needs to adopt to use a method like this and which skills are expected to be developed when deciding to adopt PBL, as shown in the following section.

4.1 Limitations and difficulties identified for the implementation of the method

Considering that in the adoption of problem-based learning, difficulties may arise, despite the benefits brought by the literature and discussed by the interviewees, some limiting factors were listed. As shown in Figure 1, for those who have already applied PBL or tried it, one of the main difficulties to be faced is the acceptance of the student to participate in a methodology that differs from those commonly used.

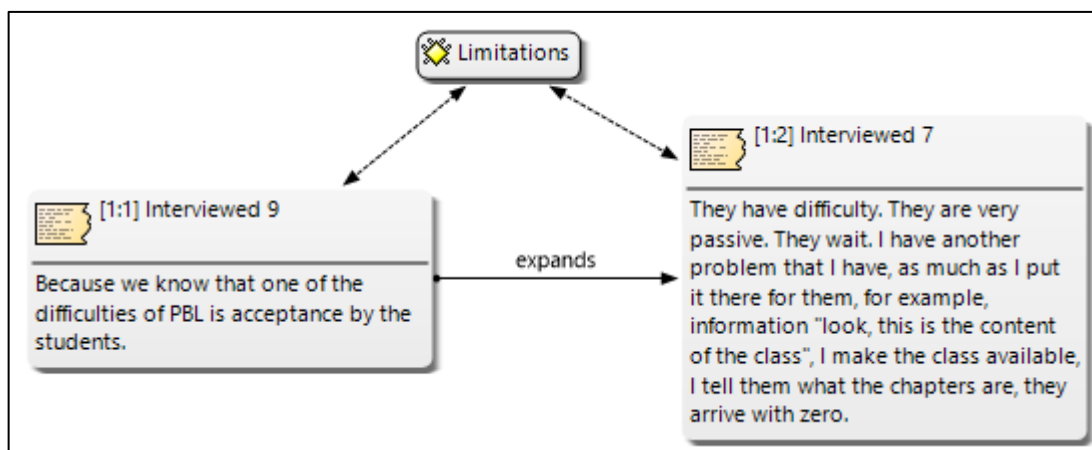


Figure 1 *Limitations and difficulties*

Source: Research data.

For the interviewees, students are conditioned to assume a passive posture during classes. Even when the subject and material of the classes is made available in advance, they do not use it. This is a feature that directly impacts the execution of PBL, given that, in all stages that make it up, self-regulated work by the student is required.

Failure to comply with this aspect can compromise learning not only for the individual, but also for the entire team, considering that the method is part of a collaborative approach. Taking it consideration what has been done by Gerstein et al. (2016), students need to pool their skills to define learning objectives and build knowledge.

An alternative pointed out by the literature to captivate students is to promote intrinsic motivation, generating interest in the subject and allowing the achievement of job satisfaction (Gerstein et al., 2016). In addition, the motivation factor must be observed as one of the characteristics of the problem, with the objective that it may arouse the interest of students.

Also, among the perceived difficulties when asked why not apply the methodology, as shown in Figure 2, the interviewees pointed to the lack of in-depth knowledge of the guidelines to be followed to use PBL focused on accounting. Additionally, they list the complexity of the method, in terms of planning, as they the need to master the steps to be followed and the lack of training for this purpose.

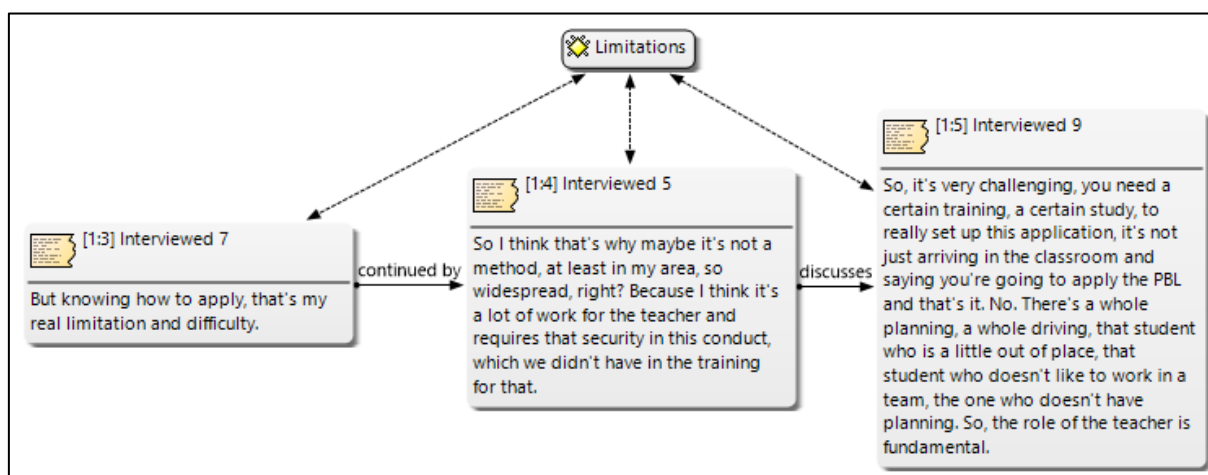


Figure 2 *Limitations and difficulties*

Source: Research data.

Furthermore, there is a perception that it is a challenge and training is needed so that problem-based learning is implemented correctly, encompassing all the characteristic elements: problem construction, brainstorming sessions, problem decomposition, determination of learning objectives and guiding questions, individual and group study, development of solutions and evaluation of the results obtained.

In general, in the interviews, it is clear that there is this lack of knowledge about the required points that differ PBL from other active methodologies. In some situations, the method was even confused with a case study, inverted class and problem solving.

Resistance to innovation in the classroom was also identified as a factor preventing the adoption of problem-based learning. According to Figure 3, there are cases – including interviewees – in which the teacher is not interested in knowing the methodology properly, given that the teaching references that he had, until then, were following the traditional methods, thus leading him to end up replicating the same model. For the sake of convenience, the same, standard, method is chosen.

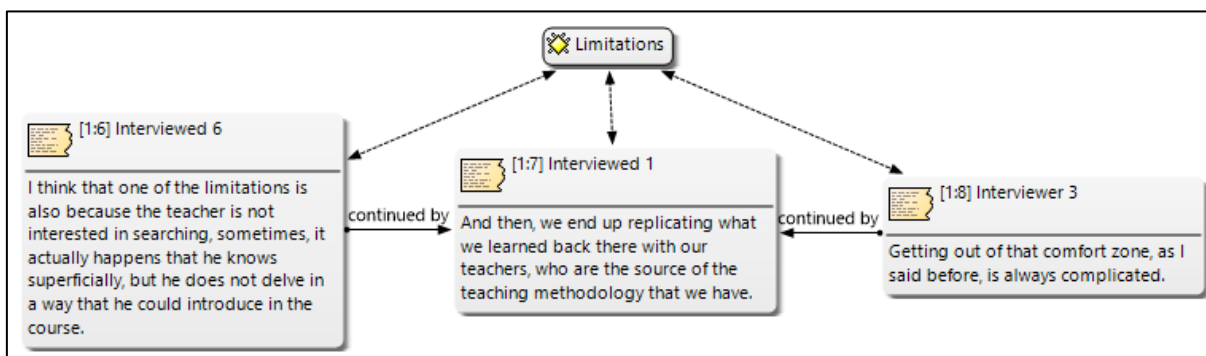


Figure 3 *Limitations and difficulties*

Source: Research data.

About the “comfort zone” issue, Medeiros et al. (2017) point out that the limiting factor for the adoption of active methodologies is the habit of using traditional methodologies and the lack of incentive for change. In this sense, in Figure 4, institutional aspects indicated as limiting the use of problem-based learning are presented.

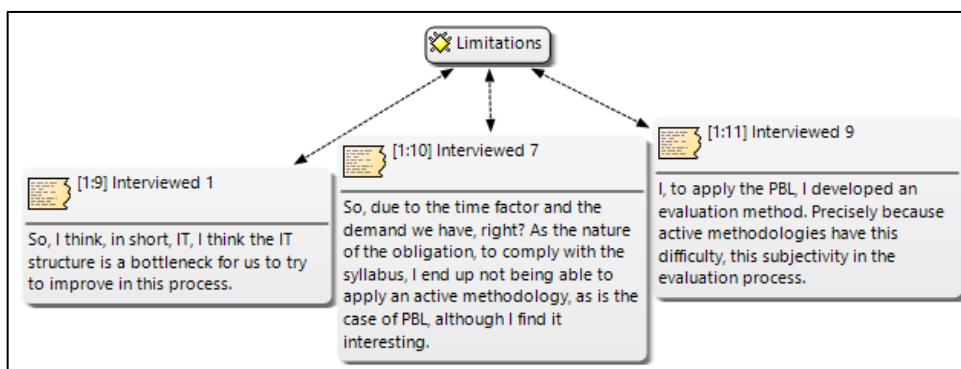


Figure 4 *Limitations and difficulties*

Source: Research data.

Respondents point to the lack of structure in the institutions as of the main difficulties in applying a methodology such as PBL. There is a lack of computers and quality internet access for all students. Additionally, the volume of content defined in the menu for an insufficient workload also makes it difficult to adopt a methodology like this, according to the interviewees, in view of the obligation to comply with the syllabus content.

Another relevant aspect is the evaluation process. Traditional summative assessment systems cannot capture all the skills developed in problem-based learning, as it is an active methodology. Thus, it is necessary to adopt changes that reduce subjectivity in the evaluation process. Mansur and Alves (2018) propose that the formative method of peer assessment and self-assessment provides the possibility of constant feedback, promotes learning and can contribute to capturing the development of knowledge, skills and attitudes.

Finally, as shown in Figure 5, after the experience with PBL application, although associated with other methodologies, there is a perception that the skills arising from the method overcome difficulties and limitations.

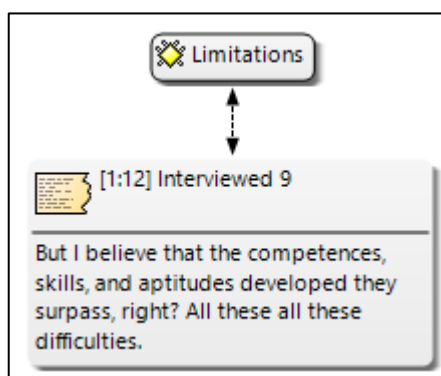


Figure 5 *Limitations and difficulties*

Source: Research data.

Teaching methodologies may have limitations inherent to their application, and PBL is no different. Relying on well-designed planning, and considering the learning objective, problem-based learning, according to Milne and McConnell, (2001) can be stimulating, gratifying and, above all else, meaningful.

4.2 Applicability of the method in Accounting

Regarding the possibility of conceiving the problem-based learning method as a applicable methodology to accounting teaching, the responses were unanimous in judging it as suitable for all subjects in the program, with the exception, according to the interviewees, of subjects that demand more practical situations, whose greater relevance is observed in the teaching and learning process, as shown in Figure 6.

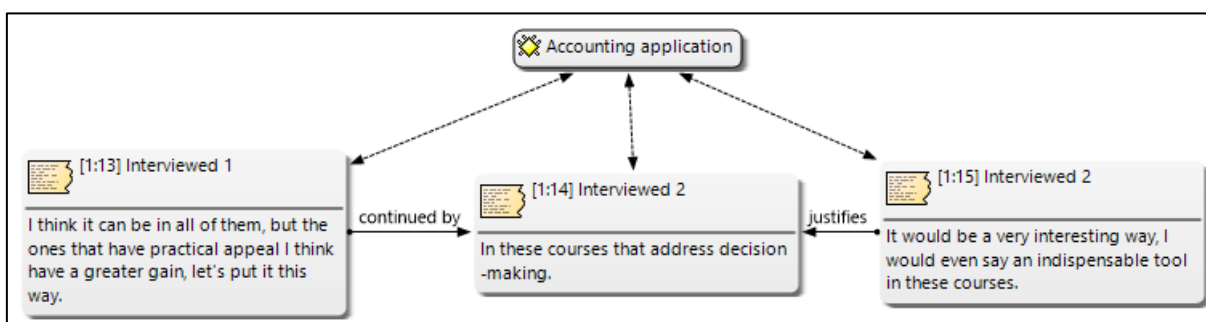


Figure 6 *Accounting application*

Source: Research data.

The primary justification for using PBL in accounting education, according to the excerpts shown in Figure 7, comes from the issue that it is effective in providing the student with a living experience of the concepts learned in the course, bringing theory and practice closer together. The presentation of a problem situation motivates and enables students to learn how to learn and where to look for solutions.

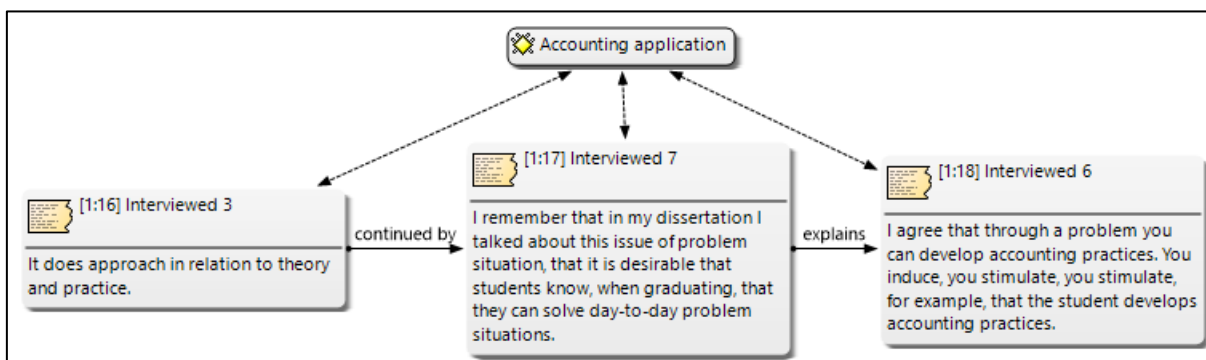


Figure 7 Accounting application

Source: Research data.

Thus, this teaching method can be considered an effective tool in bringing students closer to the professional reality, by associating scientific theories and research with the practice of the labor market (Stanley & Marsden, 2012; Gerstein et al. 2016; Frezatti et al., 2018). In addition, the solutions to problems related to social practice promote integration between school and academia (Frezatti & Silva, 2014).

However, the analysis of the syllabuses of the courses taught by the interviewed professors shows that, even in face of the recognition of the benefits arising from the method, it is still a technique of incipient use. The methodologies and the detailed assessment process are, predominantly, traditional. Amongst the interviewees, only two frequently apply PBL.

4.3 Teacher characteristics in the application of PBL

Another relevant aspect when discussing PBL is the role that teachers must assume in this process. According to Figure 8, it is shown that the interviewees consider the figure of the teacher as fundamental in the elaboration, execution and conclusion of the application of problem-based learning. In addition, it is noted that he is seen as a tutor or advisor of the student's active participation.

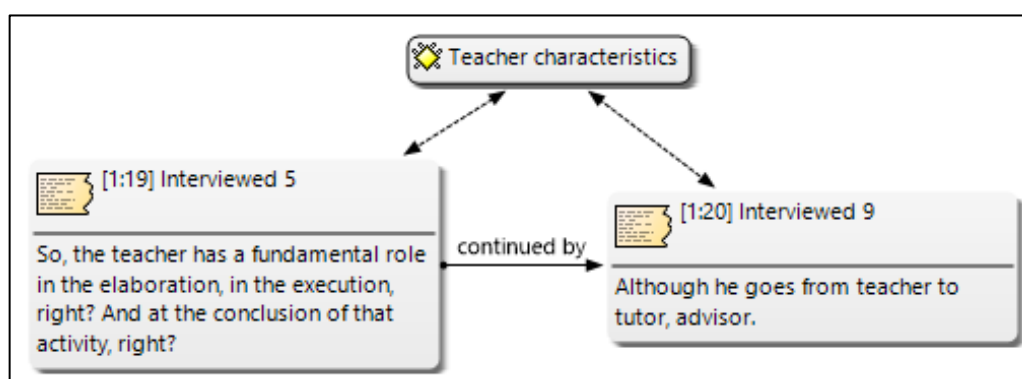


Figure 8 Teacher characteristics

Source: Research data.

Still from this perspective, in Figure 9, the interviewees understand that the teacher is also responsible for contributing to the transformation of the passive student into an active subject of their learning, stimulating and attributing other variables so that the students reflect the impacts of the decisions taken.

Another point raised by the interviewees is the need for the teacher to develop or give rise to the design of a problem that is compatible with the reality of the labor market and effectively allows the achievement of the desired learning objectives through the use of this teaching methodology.

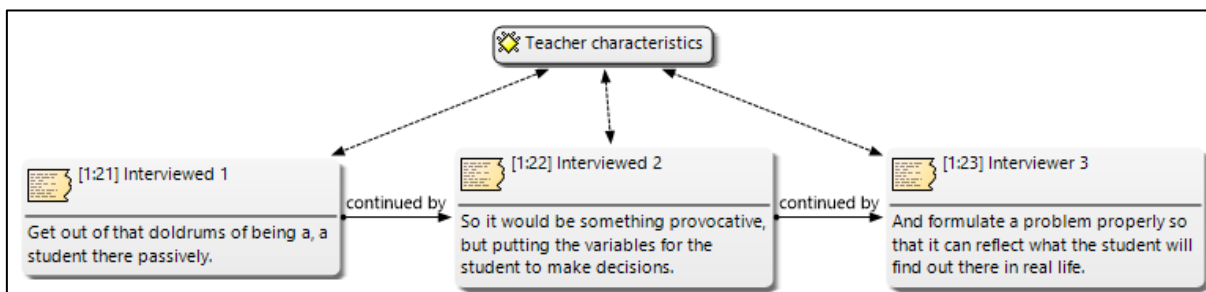


Figure 9 *Teacher characteristics*

Source: Research data.

The teacher is considered one of the components of the PBL tripod - together with the problem and the student - not being, in this situation, the holder and transmitter of knowledge, but a facilitator who plays the role of collaborator in the autonomous learning of the student (Ribeiro, 2008). In this way, the teacher is responsible for effectively directing the student, encouraging collaboration and providing feedback on their progress (Gerstein et al., 2016).

Regarding the formulation of the problem, this is the central aspect for the development of the methodology and requires special attention, considering that it may be responsible for the success of the methodology or an obstacle (Hung, 2006). It is necessary that the teacher is equipped with a well-developed plan and has tools to assess it (Frezatti et al., 2018).

4.4 Skills development using the methodology

In this section, the competences developed when using the problem-based learning method are presented. In this aspect, from the perspective of teachers, the application of this methodology can provide the optimization of skills such as communication skills, teamwork, problem solving, critical analysis and decision making, as shown in Figure 10.

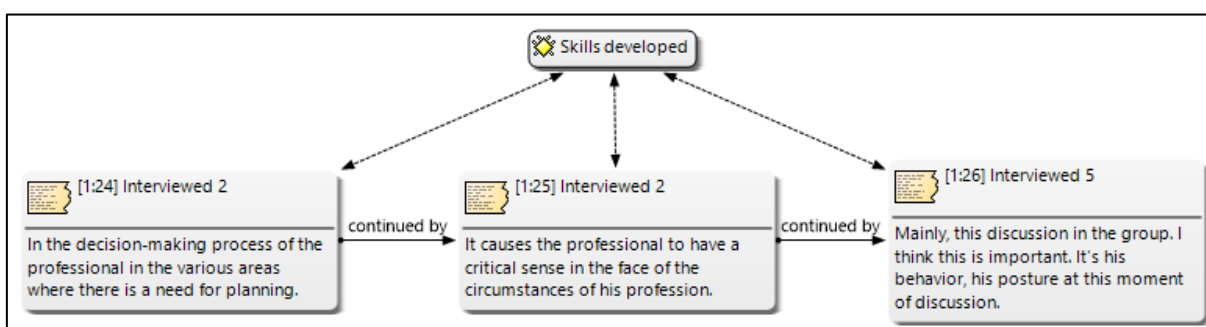


Figure 10 *Skills developed*

Source: Research data.

From this perspective, in addition to bringing students closer to business practice, it appears that the skills developed are in line with the main soft skills required of students in

accounting, such as communication, critical analysis, teamwork and problem solving, as evidenced by Kavanagh and Drennan (2008).

Additionally, the interviewees, as shown in Figure 11, identify interdisciplinarity, the acquisition and consolidation of knowledge and self-directed work (autonomy) as relevant characteristics of the method. Therefore, it is considered that these skills are increasingly important for accounting professionals due to the competitive environment and new technologies.

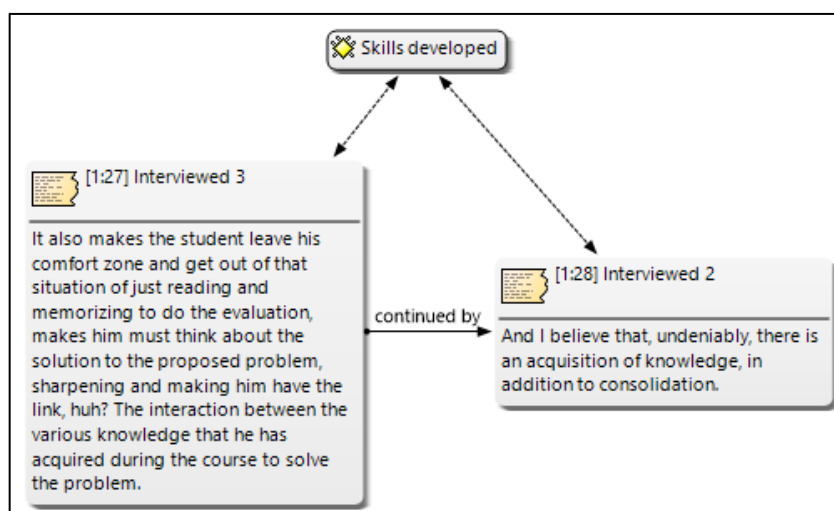


Figure 11 *Skills developed*

Source: Research data.

In this sense, the method, by providing the connection of different areas of knowledge, promotes interdisciplinarity, as it can create an opportunity to shape managerial skills, considering the situations to which the student is exposed, requiring the application of concepts in an adaptable way, according to the necessity.

The PBL provides the student with the ability to simultaneously build the development of knowledge necessary for technical training, interpersonal skills and attitudes through the proposed problem (Borochovcicus, & Tortella, 2014). In this sense, as shown in Figure 12, respondents also pointed out that it is possible to achieve competencies required by regulatory bodies.

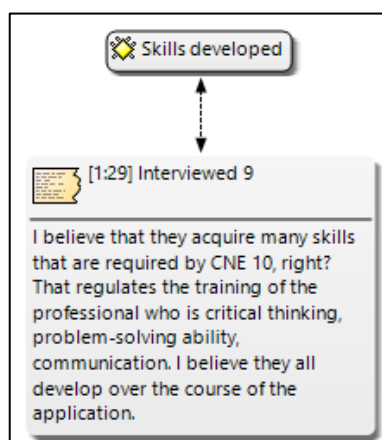


Figure 12 *Skills developed*

Source: Research data.

Thus, the problem-based learning method enables the development of professional skills - systemic and interdisciplinary vision, leadership, critical-analytical skills, among others - meeting the requirements presented in the National Curriculum Guidelines for the undergraduate course in Accounting, by through CNE/CES Resolution No. 10/2004.

5 Final Considerations

Considering that problem-based learning can effectively contribute to bringing theory and accounting practice closer together, as well as reducing the gap between the skills demanded by the labor market and those developed in the academic sphere, this study aimed to analyze the perception of Accounting Science professors regarding the use of the PBL method for teaching accounting.

To achieve the proposed objective, semi-structured interviews were carried out with nine professors of the undergraduate course in Accounting Sciences from three public institutions of higher education in the period between August and October 2019. The interviews were recorded and, later, their data were transcribed, coded with the help of the ATLAS.ti® software and analyzed using the content analysis technique.

From the results, it was concluded that, with regard to the applicability of PBL in teaching accounting, the interviewees as a whole consider it possible, especially in the subjects considered to be more practical. However, the analysis of the course plans of the subjects taught by them showed that traditional teaching methods are predominant.

Regarding the skills that can be developed with the method, the professors believe that PBL provides the practice of communication skills, teamwork, problem solving, critical analysis and decision-making. In addition to these skills, interdisciplinarity was identified through the acquisition and consolidation of knowledge.

The interviews showed that the teacher's role is essential for the successful use of the methodology, considering that the main obstacle to its use comes from the teachers who reported a lack of knowledge about PBL, thus preventing the effective use of the method. Another reported impediment was the lack of motivation of students, but if teachers do not have the necessary knowledge to apply the methodology and do not actually apply it, they were unable to say that students have a lack of interest in something they have not experienced in the academic environment.

Based on the evidence, it is considered that this study contributes to the literature by enabling a reflection on a teaching methodology that enables the development of skills required for the accounting professional, while also showing the reality of using the problem-based learning. The accounting teaching environment reveals teachers who do not have knowledge about an important active methodology that aims to provide the student with the ability to build conceptual, procedural and attitudinal learning through the proposed problems that will put them in motivating situations and prepare them for the work market.

With regard to contributions to the professional training of students, there is a discussion about the use of problem-based learning as a means of bridging the gap between theory and practice, while developing, in addition to hard skills, soft skills. skills required by the labor market.

In this sense, it is important to highlight that despite the difficulties encountered in using PBL, the benefits are significant. Challenges can be resolved through teacher training, and the practice of this methodology can bring benefits such as developing flexible knowledge,

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problem-solving skills, critical thinking skills and collaboration skills, as well as cultivating intrinsic motivation through learning self-directed. Therefore, the implementation of PBL in accounting education still has a long way to go.

As suggestions for future research, it is recommended that further studies be carried out seeking to collect the perceptions of professors also from private institutions in order to identify whether there is a divergent or complementary perception in relation to the findings of this research. Additionally, the study may cover active methodologies in general, and not restricted to problem-based learning.

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