

## EXPERIENCE REPORTS FROM STUDENTS OF THE PHYSIOTHERAPY COURSE WHO USES THE PROBLEM BASED LEARNING (PBL): A QUALITATIVE STUDY

Juliany Silveira Braglia César Vieira  
*Faculdade Pernambucana de Saúde-FPS- Recife-Brasil*

Julianna de Azevedo Guendler  
*Faculdade Pernambucana de Saúde-FPS- Recife-Brasil*

Lauro César Vieira Filho  
*Universidade de Aveiro- UA-Aveiro- Portugal*

Ana Paula Guimarães de Araújo  
*Faculdade Pernambucana de Saúde-FPS- Recife-Brasil*

Ainoã Hapuque Nunes da Silva  
*Universidade Federal de Pernambuco-UFPE- Recife-Brasil*

**Abstract:** Introduction: The current society requires from the professionals in training skills regarding the complex solving-problem, for that matter, the PBL method (Problem based learning) seeks to create important improvements in the scenario of higher Education. PBL represents a significant change in the educational practices of the higher education, based in four basic principles of the learning process; being constructive, collaborative, contextual, self directed. Method: The current study has the qualitative aspect using the focus group to analyse the students perception. A convenience sample composed of students of the physiotherapy course, of both sexes with at least six months of adaptation to the method was used for the presente research. The sample was composed of 21 students divide in three focus group. Each group, it was carried only a session, with a duration time of approximately 45 minutes. New sessions were not necessarily due to content saturation. The recording were transcripts in full text, and sent to two specialists in qualitative analyses to be verified through the content analysis topics by Bardin. This research was carried out according to the vigente norms contained in the Resolution 466/12 of the National board of Health, the project was approved by the Faculdade Pernambucana de Saúde (FPS) Ethics Committee and research. The participants were informed about the investigation and invited voluntarily to sign up the TCLE. Results: From the transcript analyses of the focus group the main topics were organized in the following way: method potentiality, tutorial dynamic and method fragility, following by a categorization. The categories observed were: the method provides independence/autonomy to the students of the study; Communication improvement; learn how to learn; habit of continuous learning; early insertion in the practice; seven steps as study guide: activation of prior knowledge; communication development through the functions performed by tutorial group ; working in small groups, usage of forum as a learning tool; density of content versus available time and difficulty to adapt. Conclusion: The experience with use of PBL method in the physiotherapy course from FPS has shown to a positive experience with the use of the PBL methodology and the potentiality that overlap the fragilities. Furthermore, it points to the possibility of the use from the method as useful tool in learning and efficient in health professional training.

## **Introduction**

The current society requires from the professionals in training skills regarding the complex solving-problem, for that matter, the PBL method (Problem based learning) seeks to create important improvements in the scenario of higher Education. The research results show that the positive effect of PBL in the students skills to solve complex problems are conclusive. (Gijbels et al., 2005).

PBL represents a significant change in the educational practices of the higher education, based in four basic principles of the learning process; being constructive, collaborative, contextual, self directed (Dolmans et al., 2005). It is known that the goals of the methods are centered acquisition of the knowledge in clinical contexts, in the development of the clinical reasoning and of self directed learning, in addition to providing an increasing motivation for the students for learning (Barrows, 1986). A recent systematic review points for the benefits of the PBL method in the acquisition of the communication abilities from the students and nursing professional (Li et al., 2019)

Studies have pointed out that the PBL use stimulates the activation of the previous knowledge in the discussion of case studies in the small groups and it allows the knowledge construction, in addition of activating the memory a long term. The cases contextualized also awake the interest of the students that feel motivated to learn (Schmidt et al., 2011).

A current review in the analysis of the previous research suggests that the PBL can be described as an efficient learning method mainly when it assesses the long term knowledge retention and its application. (Yew & Goh, 2016)

The method was introduced at the University McMaster, Canada in 1969 with the intent of helping and encouraging the students to self direct the learning of professionals skills. Others institutions around the world adopted this methodology in the medical school curriculum. (Neville, 2009). In Brazil, the pioneer institution to implement the method was Faculdade de Medicina de Marília afterwards Universidade Estadual de Londrina (UEL), the following year (Vighnochi et al. 2009; Tibério et al., 2003)

In the Brazilian Northeast, the Faculdade Pernambucana de Saúde (FPS)) included in all of its courses of health areas the PBL method, since 2006 when it started the medical and nursing course and afterwards other the courses such as physiotherapy, psychology, pharmacy, and nutrition. Thus, the goal of this work is to report the perception of the students of the FPS

Physiotherapy course about the experience from the use of PBL, highlighting the potentiality and fragility

## **Method**

The current study has the qualitative aspect using the focus group to analyse the student's perception. It took place in FPS higher education institute based in the city of Recife (Brazil). The entire duration of the study was 8 months.

In the present research, a convenience sample composed of students of the physiotherapy course, of both sexes with at least six months of adaptation to the method. The participants were invited to be part of a focus group while they were in the mentoring moment, being clarified of the research goal, of how it would have been carried out the data collection, the confidentiality and voluntary participation. It was scheduled a day and time that suited everybody best. It was developed a guideline by the researchers with guiding question, to help the orientation in the focus group.

The sample was composed of 21 students divide in three focus group. Each group, it was carried only a session, with a duration time of approximately 45 minutes. New sessions were not necessarily due to content saturation

The focus groups took place in a tutorial classroom in FPS, being guided by a moderator and an observer, that was responsible for recording and write down the main point of the speeches during the discussions. After the TCLE have been signed, with the participants authorizations, the discussions were recorded.

The discussions started with a self introduction from a moderator and with a brief explanation about the research. After that, the participants introduce themselves. The recording were transcripts in full text, and sent to two specialists in qualitative analyses to be verified through the content analysis topics by Bardin. After the investigation, it was established relevant points, identified topics and categories.

The content analysis covers three stages: The first was the transcript moment of the focus group, full text. The points written down by an observer in the discussion made the transcription process easier. The student identities were kept secret, coding the students by numbers and not by names. The second stage it was carried out by two independent analysts, that took the same material and orientation regarding the reading of the transcript, and search for the more relevant content, soon after choosing the topics and categories. In the third stage

it was carried out a review with analysts, to debate the results of the decision of the topics and categories.

This research was carried out according to the vigente norms contained in the Resolution 466/12 of the National board of Health, the project was approved by the FPS Ethics Committee and research. The participants were informed about the investigation and invited voluntarily to sign up the TCLE.

## Results

From the Transcript analyses of the focus group, the main topics were organized in the following way, method potentiality, tutorial dynamic and method fragility, following by a categorization (Table 1)

Table 1. Topics and categories that que emerged from the focus group with the students

TOPICS	CATEGORIES
1.Method potentiality	1.1. The method provides independence/autonomy to the students of the study; 1.2. Communication improvement; 1.3. Learn how to learn; 1.4. Habit of continuous learning; 1.5 early insertion in the practice;
2. Tutorial Dynamic	2.1. Seven steps as study guide; 2.2. Activation of prior knowledge; 2.3. Communication development through the functions performed by tutorial group; 2.4. working in small groups 2.5. Usage of forum as a learning tool;
3. Method fragility	3.1. Density of content VS available time; 3.2. Difficulty to Adapt.

It was carried out a questioning about the students experience with the PBL methodology, about the adaptation and influence of the method in the learning process. The stimulation to the student independence, improvement of the communication skill, encouragement of continuous learning, learn how to learn and the importance of early insertion in the practice were categories regarding to the potentiality of the method.

With respect to the analyses of the speeches could be observed a homogeneity of feeling and perception regarding the living experience in the PBL methodology.

To keep secret the participants identities, the transcripts were coding, being G a codification corresponding to Focus group and E for the students. The literal quotes regarding to each themes and categories are set out below. As needed, it were added terms in brackets to provide meaning to the talk.

➤ **Category: Independence/autonomy for the student in the study**

*“Making us to seek for ourselves, being independent, being more responsible, because everything depends on us, right? It teaches us to learn by ourselves, what is more important is that, what we take for the rest of our lives” G1 E1*

*“The method gives independence to the student, it teaches the students to have independence to study what he knows that he needs”. G2 E1*

*“I believe that when the talk is PBL for me nowadays I give lots of thoughts, we seek, being more active. Not being passive”. G1 E3*

➤ **Category Communication improvement:**

*“Learning how to listen too. Sometimes you study ‘I studied, and it is the right thing’, [...] but here you learn how to respect more others. Listen the people too. It is not only you that is right,” G2 E6*

*“Now we come to ICU and know how to behave, know how to deal with people, know how to talk, we know how to ask something directly to patient, without anyone's help. You can have a relation with the patient.” G1 E4*

*“Dealing with different people, brings you the opportunity to learn how to communicate.” G2 E2*

➤ **Category Learn how to Learn**

*“I learned to know about myself, to know a way I learn easily” G2 E2*

*“You learn here how to study and now it gets easier too how to learn any other subject” G2 E3*

*“I learned how I used to study, you know? I learned how I could go behind things, how I can really research” G1 E1*

➤ **Category: Habit of continuous learning**

Conference Proceedings

*“I loved (the experience) because forced me to study, to be always updated [...]. It was a way to be always studying, always searching” G1 E1*

*“Here we have to search. It gives that cozy feeling, isn't? We seek that knowledge, from there you go... but you want to know more. So, it is... I believe that the application of the method encourages you to study.” G3 E7*

➤ Category: early insertion in the practice

*“We entered in the College, we see the practice. Even in the beginning be only humanization, it is of extreme importance because it is a preparation for us to get into the hospital, and we learn how to deal there, what we are going to find there” G2 E1*

*“I believe that is a matter of how to deal with the patient, We grow a lot, because we have a practice in the first term [...] in spite of we don't have a relation with as Physiotherapist, we already have a relation among people. Thus, how treat, Because I believe that it is important not only learn the patient's problem. We need to see the patient as a whole”. G1 E3*

➤ Category: Seven steps as study guide:

*“I believe that... [seven steps dynamic] first off, shed some light, because from the beginning we were a bit lost, and when we put into practice the seven steps, we create a guideline [...].” G2 E5*

*“If it were not the seven steps, we would be lost.” G3 E6*

*“It is a guideline, isn't? It is the guideline that makes the method work. It is that make the tutorial works [...] If not, does not happen. It is a big mess up” G2 E1*

➤ Category: Activation of prior knowledge

*“you go from the prior and get that confirmation, because until then, the more you have the conviction of your prior, sometimes you have a doubt and sometimes your own tutor let you in doubt.” G1E3*

➤ Communication development through the functions performed by tutorial group;

*“it kind a prepares us to what we are going to live, isn't it? For our professional life. If we need to make a report, we need to write down some article, it is very important the secretary function” G2 E5*

*“but i believe it is very important (the function) because, we are going to face with this in our lives, we have to perform more than one function at the same time, being able to lead a team [...] it is very important this work.” G2 E1*

➤ Category: working in small group

**Conference Proceedings**

*“A reduce number of students in the classroom, so the tutor can give more attention for each one [...] I, at least feel at ease.” G2 E3*

*“I felt welcome by the tutors and by coordinator as well. I didn't feel as a number, that happened in a classroom with seventy people [...]” G1 E2*

*“It works a lot this matter to know how to work with other people, working in group. What in the traditional you don't see a lot” G2 E8*

➤ **Category: Usage of forum as a learning tool**

*“It helped (the forum) in searching the articles that always required, also to redirect the studies, sometimes we would go beyond what it was [...]. There was something in our forum that we didn't post, so the tutor is online now in a given time, it helps a lot, for us to take all doubt to get to know sort of where we are getting.” G2 E8*

➤ **Category: Density of content VS available time**

*“I believe[...] that there are many cases that is a lot, too much questions” G2 E6*

*“Sometimes it is not much time to study.” G2 E7*

➤ **Category: Difficulty to Adapt**

*“I believe that a negative point is the initial contact. I found difficult. It is because the method it is a hate or love [...] that initial contact that is the more difficult.” G3 E4*

*“In the beginning it was very difficult. My first term. I was used to the traditional, with a teacher teaching.” G1 E2*

On the whole, the students reported that the operation of the tutorial group and the dynamic of the seven steps works as an important study guide. One realizes that activation of prior knowledge with the usage of the problems, and it also has something to say on communication development and leadership through the functions performed in the tutorial groups and the possibility of the work in the small groups as positive point. Moreover, correlates the online forum as one more tool of learning.

As the method fragility was signaled that in some module the content density is disproportionate to the available time to resolution of the cases and still points that beginning of the course there is a difficulty to adapt.

## **Discussion**

The analysis result of the focus group speeches made it possible the acquisition of the topics method potentiality, tutorial dynamic and Method fragility.

For the research subjects, a strong point of the methodology refers to the possibility of learn how to learn. Corroborating with the present Gomes et al (2009) in a qualitative study with egresses about the professional training rooted in the PBL method, report in its results the promotion of learn how to learn as benefits related to the methodology, being emergents in the participants speech learning how to learn in the clinical context in the whole training. Toledo Júnior et al (2008) besides emphasize the content to be studied, the PBL method, is concerned to the way as the learning takes places, enhancing the idea that the learner must have the active role in the process, allowing that he learns how to learn.

Another strong point found in the research was about at the category stimulus to the autonomy and independence of the student, making them protagonist of their own learning. Similar results were found in the research of Cardoso et al (2010) with scholars from the Universidade Federal de Minas Gerais, from the occupational therapy that the inquisition of autonomy and independency in searching their own knowledges were evident in the finding, as the fragilities and potentialities of the active methodologies, report that by students' perspective, in participate of the situation that get them closer to the reality, they feel stimulated to the constant study, acquire more independence and responsibility.

The communication improvement also was in the strong point of current research Marin et al (2010) states that the work in group in this methodology promote a better interpersonal relation, making the exchange of information easier, and empasize the respect and appreciation of the information. In the current research emerged from the students talk the activation of the prior knowledges as potentiality of the method. Gomes et al and Marin et al (2009) talks in his work about the importance of the activation of the prior knowledge among the students. According to the researchers, this activation stimulates the students to build actively the learning, in seeking the problem solving presented in the tutorial group, aiming the critical reasoning, acquisition of communication skills and understanding the need to learn lifelong.

Even it was highlighted in current research, that the students developed the communication skills and leadership through the functions performed in the tutorial groups. According to Trevizan et al (1991), the ability to communicate that is find at the heart of

leadership. According to the researchers, the communication is a fundamental part for the coordination of activities in group, resulting in establishing of the leadership process.

The work in small groups also was emphasized in the subjects speeches of the current research. According to the participants, the experience with the PBL methodology make the interaction between the mates and tutor easier during the tutorial. Borges et al (2014) comment on the study about the evaluation of the work in small groups, that these make the acquisition of knowledge process easier and contributes significantly to the development of other attributes in the student training, such as communication skill, team work, problem solving and critical posture development. Macambira (2012) reinforces that the small groups are enabling environment to create the favourable condition to the learning process, cooperation, mutual learning, and for the elaboration and knowledge building.

Regarding to the fragilities of the methodology, it was highlighted in the research the disharmony between the proposed content and the available time for the individual study. The student reported the short time, and that, as in the methodology the learner is active in the search of learning, the time for acquisition of the knowledge becomes longer. Cardoso et al quotes in his study that the students struggled, the lack of time for the personal study. Reinforce this point of view, Ribeiro (2008) emphasizes the biggest disadvantage for the students is the increasing of dedication time to the study. According the Author, The PBL more than requiring the students more time, it makes it constantly, during the semester or module.

The speeches analysis shows at certain degree the struggles of the students regarding the adaptation to the method. They refer some resistance to the initial contact, for coming from a traditional teaching distinct to PBL Method. Christofolletti et al (2014) talks that the participants of his study reported struggled to the methodology adaptation. According to the author, this fragility reflect the rigidity of traditional form of teaching, which the students historically is accustomed to receive passively the programmatic content, without reflecting or pleading. It is believed that the implementation of strategies adopted by the higher education institutions analysed as a student preparation for the insertion in the method to minimize the pointing fragility.

The experience with use of PBL method in the Physiotherapy course from FPS has shown the rich and new opportunity for the learning process. The results presented here emphasized that the students realize that the methodology promote the process of meaningful learning, making them protagonists of the knowledge. The students state that they are

responsible for their own learning. From Analyses of the students, it can be noticed that a group dynamic promotes the learning, through working in small group, and by being self directed. The students refer that the methodology promotes the acquisition of the communication skill and the seeking for knowledge that can be used beyond the academic life. On the other hand, it was explicit as fragility of the method the difficult to adapt in the initial contact of some students and the limited study time regarding the proposed content.

This way the participant talk points to a positive experience with the use of the PBL methodology and the potentiality that overlap the fragilities. Furthermore, it points to the possibility of the use from the method as useful tool in learning and efficient in health professional training.

## References

- Barrows HS (1986) A taxonomy of problem-based learning methods. *Med Educ*, 20 (6), 481–486.
- Borges MC, Chachá SGF, Quintana SM, Freitas LCC, Rodrigues MLV (2014) Aprendizagem Baseado em Problemas. *Revista da Faculdade de Medicina de Ribeirão Preto*, 47 (3), 301-307.
- Cardoso AM, Ruggio CB, Magalhães LC (2010) Aprendizagem baseada no problema: Relato de experiência em uma disciplina do curso de graduação em Terapia Ocupacional da Universidade Federal de Minas Gerais (UFMG). *Cadernos de Terapia Ocupacional da UFSCar*, 18 (3), 287-293.
- Christofolletti G, Fernandes JM, Martins AS, Júnior SÃO, Carregaro RL, Toledo AM (2014) Grau de satisfação discente frente à utilização de métodos ativos de aprendizagem em uma disciplina de Ética em Saúde. *Revista Eletrônica de Educação*, 8 (2), 188-197.
- Dolmans DHJM, De Grave W, Wolfhagen IHAP, Van Der Vleuten COM (2005) Problem-based learning: future challenges for educational practice and research. *Medical Education*, 39, 732–741.
- Gijbels D, Dochy F, Van den Bossche P, Segers M (2005) Effects of Problem-Based Learning: A Meta-Analysis From the Angle of Assessment. *Review of Educational Research Spring*, 75 (1), 27-61.
- Gomes R, Francisco AM, Tonhom SFR, Costa MCG, Hamamoto CG, Pinheiro OL, Moreira HM, Hafner MLMB (2009) A formação médica ancorada na aprendizagem baseada em problema: uma avaliação qualitativa. *Comunicação Saúde Educação*, 13 (28), 71-83.
- Gomes R, Brino RF, Aquilante AG, Avó LRS (2009) Aprendizagem Baseada em Problemas na formação médica e o currículo tradicional de Medicina: uma revisão bibliográfica. *Revista Brasileira de Educação Médica*, 33(3), 444-451.
- Li Y, Wang X, Zhu X, Zhu Y, Sun J (2019). Effectiveness of problem-based learning on the professional communication competencies of nursing students and nurses: A systematic review. *Nurse Education in Practice*, 37,45-55.
- Macambira PMF (2012) Aprendizagem Baseada em Problemas (ABP): Uma aplicação na disciplina “gestão empresarial” do curso de Engenharia Civil. *COBENGE – Congresso Brasileiro de Educação em Engenharia*.
- Marin MJS, Lima EFG, Paviotti AN, Matsuyama DT, Silva LCD, Gonzalez C, Druzian S, Ilias M (2010) Aspectos das fortalezas e fragilidades no uso das metodologias ativas de aprendizagem. *Revista Brasileira de Educação Médica*, 34 (1), 13-20.
- Ribeiro LRC (2008) Aprendizagem Baseada em Problemas (ABP) na educação em engenharia. *Revista de Ensino de Engenharia*, 27 (2), 23-32.
- Toledo-Júnior ACC, Ibiapina CC, Lopes SCF, Rodrigues ACP, Soares SMS (2008) Aprendizagem baseada em problemas: uma nova referência para a construção do currículo médico. *Revista Médica. Minas Gerais*, 18, 123-31
- Trevizan MA, Mendes IAC, Hayashida M, Galvão CM (1991) Liderança do enfermeiro no contexto hospitalar-Expectativas do pessoal auxiliar. *Revista Brasileira de Enfermagem*, 44 (1), 55-59.

**Conference Proceedings**

Yew EHJ, Goh K (2016) Problem-Based Learning: An Overview of its Process and Impact on Learning. Health Professions Education, 2(2),75–77.