FEEDBACK IN PROBLEM-BASED LEARNING AS A TEACHING-LEARNING INSTRUMENT: EFFECTIVENESS OF THE EVALUATION TOOL

O FEEDBACK NA APRENDIZAGEM BASEADA EM PROBLEMAS COMO INSTRUMENTO DE ENSINO-APRENDIZAGEM: EFICÁCIA DA FERRAMENTA DE AVALIAÇÃO

Lívia Dhayany Alexandre da Costa Lima[1], Esmaella Nahama Lacerda Sabino[1], Carolina Carlsson Delambert[1], Bruno Pires Amorim[2], Raphaella Amanda Maria Leite Fernandes[3]

[1] Medical student of the Faculdade de Medicina de Olinda (FMO), Pernambuco, Brazil. [2] Medical student of the Faculdade Uninassau, Segipe, Brazil; [3] Professor at the Faculdade de Medicina de Olinda, Pernambuco, Brazil.

ABSTRACT

Introduction: The search for qualified professionals motivates the development of innovative teaching methods, such as problem-based learning (PBL). Objective: To analyze the effectiveness of the feedback on the PBL method in the evaluation of medical students. **Methods:** A descriptive study was conducted with 60 medical students, divided into six groups, using interviews to gather feedback on the PBL method. The research ethics committee approved the study, and the qualitative variables were expressed as frequencies. **Results:** Fifty-eight students (98.3%) had their first contact with the PBL in the Faculdade de Medicina de Olinda, and 54 students (90.47%) acknowledged the feedback as an important tool in the learning process. In addition, 12 students (20%) reported a lack of homogeneity in the feedback application. **Conclusion:** Tutorial feedback proved to be an effective evaluation tool in the teaching-learning process of medical students. Higher education institutions should encourage frequent use of tutors.

Keywords: Evaluation; Formative feedback; PBL

RESUMO

Introdução: A importância da formação de profissionais cada vez mais capacitados estimula o desenvolvimento de novos métodos de ensino, onde a Aprendizagem Baseada em problemas (ABP) se insere. **Objetivo:** Analisar a eficácia do feedback da metodologia de ensino ABP no processo de avaliação dos estudantes de Medicina. Métodos: Foi realizado um estudo descritivo, constituído por uma amostra de 60 voluntários, estudantes de Medicina, divididos em seis grupos focais, através de entrevista com perguntas sobre a cerca do feedback realizado nos grupos de ABP. Os resultados das variáveis qualitativas foram descritos por frequências. O trabalho foi aprovado pelo comitê de ética da Instituição. **Resultados:** Foi observado que 58 estudantes (98.3%) tiveram seu primeiro contato com o método ABP após o ingresso na Faculdade de Medicina de Olinda. O feedback no ABP foi destacado por 54 (90,47%) dos entrevistados como um instrumento importante na aquisição do conhecimento. Falta de homogeneidade na aplicação do feedback no grupo tutorial foi referida por 12 estudantes (20%). **Conclusão:** O feedback tutorial apresentou eficácia como um instrumento de avaliação no processo de ensino-aprendizagem do estudante na formação médica. Existem tutores que não o aplicam com frequência, onde as Instituições de Ensino Superior devem estimular os profissionais para esse instrumento.

Palavras-chave: Avaliação; Feedback formativo; ABP

INTRODUCTION

Medical education in Brazil raises concerns about the growing number of new medical schools in recent decades. Focusing on the need for qualified professionals with scientific knowledge and skills, the necessity of developing new teaching methods was observed[1].

Problem-based learning (PBL) is a formative teaching-learning method, not a quantitative instrument with assigned grades, which is often observed in teaching and learning processes that use exams as an evaluation tool[2,3].

As an active method, PBL stimulates students to search for knowledge, playing a main role in their

training, unlike traditional methods that involve passive students who only receive information. A new strategy was necessary to improve medical education, transmitting a holistic view of health problems[4,5].

The student receives a grade related to their performance at the end of a PBL tutorial. Ideally, the tutor should give feedback related to the grade, a crucial tool in the teaching and learning process. In this formative assessment, the tutor and the student score positive points and areas for improvement in the daily performance. Thus, the tutor and student discuss the activities and skills, encouraging reflection and promoting a self-assessment[6].

The feedback regarding difficulties and skills in the learning process helps students outline strategies to overcome failures that influence the knowledge production of the individual and the group[3,6,7,8].

Thus, PBL enables students to actively produce knowledge, develop a critical sense, and engage in study using problems proposed by the tutor. The student becomes aware of the results of their practices, what was missed to improve skills, and outlines strategies to meet these needs[4,5,9]. Last, the feedback work the criticism of the tutor on the performance of the student, which helps develop metacognition - a debated skill among educators[6].

However, studies regarding the perception of medical students of tutorial feedback are scarce. Thus, this study aimed to analyze and reflect on the effectiveness of feedback as a teaching and learning tool for medical students within the tutorial group.

METHODS

This qualitative and cross-sectional study was conducted at the Faculdade de Medicina de Olinda in Pernambuco, Brazil. The convenience sample of 60 medical students was divided into six groups.

Students without experience in PBL and those with cognitive deficits that prevented them from answering adequately to the interview were excluded from the study.

After approval by the research ethics committee, the students were invited to participate in the study. All stages and purposes were explained, and after signing the informed consent form, the interviews were performed (Table 1).

Figure 1. Questions of the established script of the interview:

Introductory question: What was your first contact with the method (PBL)?
( ) In the current course at the FMO
( ) In another course external to FMO
Transition question: Think about your experiences with the PBL method. How would you rate the impressions of the PBL methodological experience? ( ) Good ( ) Bad ( ) Indifferent

Key Questions

1. What is your opinion on the evaluation in the tutorial group? ( ) Effective ( ) Ineffective
2. What do you think about the feedback provided by the tutor at the end of the tutorial group? ( ) Important ( ) Unimportant
3. What do you think about the feedback as a tool in the teaching-learning process? ( ) Essential ( ) Unimportant
4. In your opinion, has the PBL method contributed to your medical training? ( ) Efficient ( ) Inefficient ( ) Indifferent
5. In your opinion, has the feedback contributed to your medical training? Yes ( ) No ( )
6. Did all tutors provide feedback at the end of the tutorial group? ( ) Yes ( ) No
7. Is there uniformity in the performance of the feedback among tutors? ( ) Yes ( ) No

Qualitative variables were expressed as absolute and relative frequencies. FMO: Faculdade de Medicina de Olinda.

RESULTS AND DISCUSSION

Most students (98.3%) had their first contact with the PBL method at FMO, including those from other higher education.

Of the 60 students, 54 (90.47%) highlighted feedback as fundamental instrument for evolving and revisiting their behavior, leading to reflection, modulating learning processes, and improving their medical training. Only six students (9.52%) did not consider feedback as an essential tool in the teaching-learning process (Figure 2).

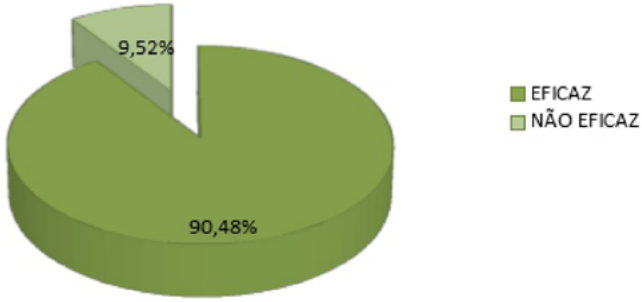


Figure 2. Classification of feedback as an instrument of the teaching-learning process according to the students.

Additionally, 51 (85.71%) students considered the PBL method important for academic training, and 7 (11.90%) did not consider it a fundamental experience for learning and medical training. Moreover, 2 (2.38%) students reported that the method was indifferent to their training (Figure 3).

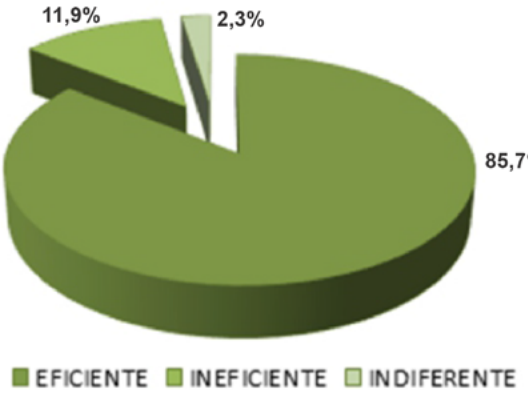


Figure 3. Classification of the efficiency of the PBL method on the perception of students.

The present study observed flaws in the feedback process in the tutorial groups. In this sample, 48 students (80%) received individual and group feedback at the end of PBL sessions. Those who did not receive feedback expressed dissatisfaction, reporting that feedback was applied only in groups, without individual feedback. In addition, students reported that despite training and institutional regulations, tutors did not evaluate their groups uniformly, which impaired comprehension of students. This bias was considered a limitation in this study, which may indicate the need for regulation in the use of this assessment tool.

Students who received individual feedback were more satisfied, even when the score was insufficient, and they had better group and tutoring adaptation, as the feedback guided their performance evolution. Studies have shown that feedback stimulates metacognition, enabling students to revisit the error scenario,device a plan of correction, and improve their skills[6].

Students were satisfied with the feedback and highlighted that the instrument contributed to academic training, as it stimulated group and individual learning, triggering an integration process important to their professional life. In addition, feedback encouraged students to seek reliable and uptade sources of research. Thus, this evaluation tool contributed to the development of skills essential to good doctors, such as knowing how to position themselves and making placements in a group. Additionally, feedback contributed to individual knowledge of their cognitive processes and self-regulating academic development and learning.

Feedback provided by tutors increased, with at least 80% of students receiving feedback in the second period, as in focal group 1 (Table 1).

Among interviewed students, 56 (92.85%) reported that feedback enriched the learning process, allowing them to visualize their academic performance, identify mistakes, receive guidance for correction, and improve their qualities. These data corroborate the study of Souza and Dourado8, who described how feedback reorients the student to the content studied, correcting misunderstandings, enabling a return to the desired learning path, and developing their skills[9].

Moreover, studies confirmed that the competencies development such as decision making, communication, leadership, and management notions are important to meet the needs of professionals in the Unified Health System; thereby overcoming its deficiencies[11].

Thus, feedback is important to activate cognitive and metacognitive processes, promoting conscious control of learning processes. In addition, the student improves their self-esteem and becomes more motivated[8,12]. This was evidenced in the pres-

ent study, as most students were satisfied receiving feedback in the tutorial group.

Table 1. Representativeness of feedback provided by tutors in the first period and in the progress of the second period.

Focus groups	Feedback in the first period	Feedback on the progress of the second period
FG1	40%	80%
FG2	20%	100%
FG3	10%	100%
FG4	50%	100%
FG5	0 %	100%
FG6	10%	100%

CONCLUSION

The tutorial feedback on the PBL method was considered an important evaluation tool in the teaching-learning process, in the perception of students, and was considered an effective instrument to improve medical training.

REFERENCES

1. Oliveira NA, Meireles RMS de, Cury G, Alves A. Mudanças Curriculares no Ensino Médico Brasileiro: Um Debate Crucial no Contexto Promed. Rev Bras Educ Med. 2008; 32 (3): 333–46.
2. Savin-Baden M, Major C. Foundations of Problem-Based Learning. New York: Open University Press; 2004.
3. Leon LB de, Onófrio F de Q. Aprendizagem Baseada em Problemas na Graduação Médica – Uma Revisão da Literatura Atual. Ver Bras Educ Med. 2015; 39 (4): 614-19.
4. Cabral H do SR, Almeida KKVGA. Problem Based Learning: Aprendizagem Baseada Em Problemas. Rev Interfaces: Saud, Hum e Tec. 2014; 2: 5.
5. Barrows H. A t in K, Perera J, Wijesuriva L. Formative feedback to students: the mismatch between faculty perceptions and student expectations. J Med Teacher. 2008; 30 (4): 395-99.
6. Ribeiro MMF, Martins A da F, Fidelis GT de A, Goulart GC, Molinari LC, Tavares EC. Tutoria em escola médica: avaliação por discentes após seu término e ao final do curso. Rev Bras Educ Med. 2013; 37 (4): 509-14.
7. Oliveira VTD, Batista NA. Avaliação formativa em sessão tutorial: concepções e dificuldades. Rev Bras Educ Med. 2012; 36 (3): 374-80.
8. Souza SC, Dourado L. Aprendizagem Baseada Em Problemas (ABP): Um Método de Aprendizagem Inovador para o Ensino Educativo. Rev HOLOS. 2015; 5: 182-200.
9. Mello C de CB, Alves RO, Lemos SMA. Metodologias de ensino e formação na área da saúde: revisão de literatura. Rev CEFAC. 2014; 16(6): 2015-28.
10. Schlemmer E. Projetos de Aprendizagem Baseados em Problemas: uma metodologia interacionista/construtivista para formação de comunidades em Ambientes axonomy of problem-based learning methods. Medical Education. 1996; 20 (6): 481-6.
11. Vargas A, Portilho EML. Metacognição em grupos de Problem-based Learning (PBL). Rev Educ. 2016; 42 (2)412-34.
12. Perera J, Lee N, W. Virtuais de Aprendizagem. Rev Dig da CVA – RICESU. 2001; 1 (1): 4-11.