

Silence profile in Problem-Based Learning: perception of Medicine students

Perfil de silêncio na Aprendizagem Baseada em Problemas: percepção do estudante de Medicina

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ABSTRACT

Introduction: Silence can be considered a form of participation in the tutorial group and, not necessarily, a failure in the development of communication skills. A student with active speech is not necessarily collaborating with the group, as verbal participation is not synonymous with collaboration. In parallel, silence can be associated with learning itself, reflecting an active listening.

Objective: to understand the meanings attributed by students to silent behavior in the tutorial group from the perspective of collaborative learning.

Methods: A qualitative study was carried out that used the focus group as a strategy for collecting information, carried out at Faculdade Pernambucana de Saúde between September 2022 and August 2023, involving intentionally selected undergraduate medical students. The saturation criterion was verified, with only one focus group being carried out. Bardin's content analysis technique was used in the thematic modality presented by Minayo. The project was approved by the Ethics Committee under CAAE n.: 38005320.5.0000.5569 and Opinion Number: 4.382.850.

Results: Nine medical students participated in the focus group, representing the first to eighth periods. From the analysis of the statements, the following analytical categories were identified: profiles of silence and the interference in the dynamics of the tutorial group. The aspects covered refer to those with the greatest demand in the speeches, which will be presented together with their interpretations and the articulation with the theoretical assumptions of collaborative learning, as well as the researchers' reflections based on the content brought. It was decided to present the results and discussion within each corresponding category.

Conclusion: the students brought various profiles of silence: due to personality/shyness; silence due to the dysfunctional dynamics of the group; silence by choice; due to lack of motivation, establishing a cycle; silence due to lack of study. The students thought that there is more harm to the silent student themselves; however, in an indirect way, which could affect the harmony of the group. The context of the online tutoring environment was considered an important factor, capable of affecting the dynamics of the tutorial groups.

Keywords (MeSH): Problem-Based Learning; Collaborative Learning; Student; Mentoring.

RESUMO

Introdução: O silêncio pode ser considerado uma forma de participação no grupo tutorial (GT) e não uma falha no desenvolvimento da habilidade de comunicação. Um estudante com fala ativa não está necessariamente colaborando com o grupo, pois a participação verbal não é sinônimo de colaboração. Em paralelo, o silêncio pode estar associado ao próprio aprendizado, refletindo uma escuta ativa.

Objetivo: Este estudo teve como objetivo compreender os significados atribuídos pelos estudantes ao comportamento silencioso no GT, na perspectiva da aprendizagem colaborativa.

Método: Trata-se de um estudo qualitativo que utilizou o grupo focal como estratégia para coleta das informações, realizado na Faculdade Pernambucana de Saúde entre setembro de 2022 e agosto de 2023, envolvendo estudantes de graduação em Medicina selecionados de forma intencional. Verificou-se o critério de saturação, e, por isso, realizou-se apenas um grupo focal. Utilizou-se a técnica da análise de conteúdo de Bardin, na modalidade temática apresentada por Minayo. O projeto foi aprovado pelo Comitê de Ética em Pesquisa com o CAAE nº 38005320.5.0000.5569 e Parecer nº 4.382.850.

Resultado: Participaram do grupo focal nove estudantes de Medicina com representação do primeiro ao oitavo período. A partir da análise das falas, foram identificadas as seguintes categorias analíticas: perfis de silêncio e a interferência na dinâmica no GT. Os aspectos contemplados se referem aos de maior demanda nas falas, as quais foram analisadas de acordo com as interpretações e reflexões das pesquisadoras e a sua articulação com os pressupostos teóricos da aprendizagem colaborativa.

Conclusão: Os estudantes trouxeram vários perfis de silêncio: por personalidade/timidez; o silêncio pela dinâmica disfuncional do grupo; silêncio por opção; por falta de motivação estabelecendo-se um ciclo; silêncio por falta de estudo. De acordo com os discentes, há mais prejuízo para o próprio estudante silencioso, porém de maneira indireta, o que pode afetar a harmonia do grupo.

Palavras-chave: Aprendizagem Baseada em Problemas; Aprendizagem Colaborativa; Estudante; Tutoria.

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INTRODUCTION

Problem-Based Learning (PBL) is characterized by presenting a pedagogical proposal focused on the acquisition of knowledge, skills, attitudes and values, working cooperatively and collaboratively¹⁻³.

The functioning of PBL consists in the organization of students in small groups, the tutorial groups, in which students have the central role in the acquisition of knowledge, while tutors act as mediators of the proposed discussions. Therefore, the tutor facilitates and models the reasoning processes, guiding the students by stimulating discussion, thus ensuring that the group achieves the planned learning objectives^{4,5}.

There are four fundamental educational principles that support PBL and that translate into the four types of learning: constructive, self-directed, contextual and collaborative.

Collaborative learning is established when working in small groups, with common goals; shared responsibilities; mutually dependent members and goals achieved through mutual agreement⁶. For the success of this process, student participation stands out, who, using communication, can both discuss complex thoughts and increase their individual capacity to use the acquired knowledge⁷. Thus, by presenting and apprehending arguments and counter-arguments, learning is facilitated⁸. For this to occur, all members of the group must participate in a harmonious way, which, in principle, points to the need for everyone's verbal contribution⁷⁻¹⁰.

However, this idealized version described in the literature cannot always be applied in practical reality. This is because students bring their cultural differences and previous classroom experiences to tutoring, and verbal participation is influenced by factors such as interest, understanding, self-confidence and discussion topics¹¹.

Thus, based on previous experiences in teacher-centered methods, students can remain silent while waiting for guidance from the tutor. Another possibility would be the students familiar with competitive learning spaces that, in addition to overshadowing other members, would see small groups as a competition to speak to the detriment of the quality of the contribution¹¹.

It is known that a student with active speech is not necessarily collaborating with the group, because verbal participation is not synonymous with collaboration. In parallel, silence can be associated with learning itself, reflecting active listening. Moreover, it can also mean the management of knowledge conflicts, the creation of spaces for others to speak, openness to feedback, a means to increase respect and support within the group, thus being related to a collaborative act^{11,12}.

The student's attitude of silence in the interaction within a tutorial group has already been the subject of some studies,

such as the one carried out at the University of Hong Kong in China, published in 2012, involving dentistry students, whose main objective was to identify the meanings and roles that silent behavior can assume. Thus, through the observation of eastern students, it was possible to classify silence into five forms that, even seen separately, have the ability to overlap¹³.

Such forms would be: silence as verbal disengagement, expressing a lack of knowledge on a given subject; silence as a collaborative practice, aiming to wait for feedback from tutorial group members; silence as a productive resource, aiming to remember previous knowledge and apprehend new information, as a way to generate new ideas; silence as a sign of change in power relations, with the purpose of reorganizing the dominance of the discussion, based on the establishment of a spacing between speeches; and silence as a platform to deal with conflicting understandings, being used as a moment to think critically, reviewing information and finding support in evidence¹³.

There is also a study published at the University of Adelaide, Australia, in 2016, involving Australian and Irish dentistry students, which aimed to observe, in tutorial groups, the origin of the specific roles of this learning dynamic and how they affected the tutorial group functioning. The participants referred to silence as a normal behavior of some group members, which sometimes proved to be important for collaborative learning. However, it could be seen as social exclusion and difficulty in participating in the tutorial group¹².

Thus, it is perceived that educational contexts can simplify the meanings of students' silence, making them often seen as an obstacle to learning in tutorial groups, which will not always correspond to reality¹⁴. Thus, the present research aims to contribute to a better understanding of the silent student, considering that it is important to understand the relationship that is established in groups between their members and their characteristics.

It is thus expected to contribute to the development of strategies pertinent to the singularities of each individual aiming to avoid or minimize possible damage to their academic and social performance.

METHODS

The present study is an arm of a first qualitative study, which offered a differentiated space for listening to students, seeking to understand the meanings they attributed to the dominant and silent behavior in the tutorial group, from the perspective of collaborative learning. This first study used the focus group as a strategy for collecting information and analyzed the meanings attributed by the students only to the dominant behavior¹⁶. The current study focused on the

information brought by the students regarding the silence behavior in the tutorial group.

The study was carried out at the Faculdade Pernambucana de Saúde, which, since its foundation in 2005, has been using PBL as a learning methodology, from September 2022 to August 2023, involving undergraduate medical students in the first four years.

The first study involved nine students, who participated in the focus group (FG). There was no need to hold more groups, since the saturation criterion was verified, that is, quality and sufficiency of the material for the analysis and adequate apprehension of the meanings brought by the participants. The participants were selected intentionally, seeking to involve at least one student from each period of the course. The focus group followed the steps recommended for such¹⁵.

The script of aspects that guided the discussion in the groups was prepared based on the development of the tutorial group from the collaborative learning perspective^{15,16}.

However, it should be emphasized the recording of unforeseen topics, which arose during the discussion, and which were relevant for the apprehension and understanding of the meanings brought by the participants in relation to the topic/object of study.

From the full transcription of the contents recorded during the discussion in the FG, these contents were analyzed based on the adopted theoretical framework, that is, the assumptions of Problem-Based Learning and collaborative learning, and Bardin's content analysis technique was used in the thematic modality presented by Minayo. The following steps were developed: pre-analysis: ordering of the material produced through the focus group; immersion in raw data to be impregnated by its content; individual/vertical deepening, identification of concepts from which the materials were examined and referenced based on the study analysis objectives; exploration of the material: the content of the speech was organized by categories, as well as the similar (horizontalization), recurrent aspects, and illustrated by excerpts from transcripts, core of meaning and central topics as subcategories (cross-sectional analysis of the material); treatment of the obtained results and interpretation: the researchers interfered and interpreted the statements based on the theoretical framework in PBL^{16,17}.

The research complied with the ethical criteria of Resolution n. 510/2016. The project was approved by the Ethics Committee of Faculdade Pernambucana de Saúde under CAE number: 38005320.5.0000.5569 and Opinion Number: 4.382.850.

RESULTS

Through the critical analysis of the statements, this article aimed to investigate the meanings attributed by the

students to their experiences regarding the participation of the student with a silence profile in the tutorial group (TG), in the context of PBL.

Nine medical students participated in the focus group, with representatives from the first to the eighth semesters, five females and four males.

Based on the analysis of the participants' statements, the following analytical categories were identified: profiles of silence and interference in the dynamics in the TG.

The encompassed aspects refer to those with the greatest demand in the statements, which will be presented along with their interpretations and the articulation with the theoretical assumptions of collaborative learning, as well as the researchers' reflections based on the contents brought.

Category 1: Silence profiles

Student Tolstoy recognized three different profiles of silence: the student who has silence as a personal characteristic and, even if they have studied, prefer to remain silent; the student who is silenced by the dynamics of the tutorial group, that is, who for some reason is repressed; and the student who is silent because they have not studied for tutoring.

"[...] there are reasons for the student to be silent... Like this.. either it is their personality, that student who studies who knows, has the knowledge but prefers to be silent; there is the student who is silenced, in tutoring they feel repressed to say something, and there are also those whom we perceive it like this... at least I understand the student who is silent because they haven't studied [...]" Tolstoy

In addition, they think that peers and the tutor perceive these profiles and believe that silence is more harmful to the silent student themselves than to the other people in the group. Student Dostoevsky highlighted the voluntary silent student, that is, the student who behaves as a silent student by choice, but when invited to contribute to the discussion can express themselves and collaborate without difficulty, is eloquent and have mastery of the subject, as if they were a dominant student.

"[...] the voluntary silent student, for example, they stay silent, but then it is... Sometimes there is a tutor who demands like this, and realizes that this person is silent and then: so-and-so, do you want to say something? Man... It's hard, you know, speech seems to be, it seems that the person's speech is a well-formed thing... It seems that they are a dominant person, but no... they are a silent person [...]" Dostoyevsky

Category 2: Influence of the silent student on tutorial group dynamics

Tolstoy believed that silence has the greatest harm within the tutorial group for the silent student: *"[...] I think*

it hinders the student themselves, right? Than the people who discuss... Especially if it is a student who did not study for tutoring."

Similarly, Virginia Woolf considered that such profiles, although they did not affect their learning, could bring some harm to the dynamics of the group: "[...] *it doesn't influence me at all [...]*". However, they claim to feel sad and frustrated due to the non-harmonious participation of the tutorial group: "[...] *I feel sad and frustrated because of this, because everyone is not participating in a harmonious way [...]*".

DISCUSSION

Category 1: Silence profiles

Although silence as a personal characteristic can have a direct impact on learning, the uniqueness of each one should be respected and valued, considering that interactions in tutoring, whether for discussion, reasoning or conflict management, have an influence on the dynamics and environment in the tutorial group and are determining factors for learning¹⁷.

Additionally, sociocultural factors are capable of influencing students and are related to both individual and group pressures and play an important role in restricting verbal participation. Questions related to learning preferences, motivation, preparation for the session, and concerns about group dynamics are the main influences on students' behavioral choices. Thus, the choice to remain silent is not necessarily linked to a passive position and difficulty in learning¹⁸.

From another point of view, the student can become silent from an ineffective tutorial dynamic. Thus, the inadequate tutoring functioning does not favor collaborative learning, a fundamental part of PBL. This principle takes into account, aiming at the effectiveness of tutoring, not only practices for discussing the contents covered, but also negotiation, cooperation and mutual engagement¹².

A potential generator of harm to collaborative learning is the dominant student who, in contrast to the student with a silent profile, usually monopolizes the discussions, leaving the other participants in the group without space to speak¹⁹.

In view of this situation, it is known that the erroneous assumption that silence was only the result of personal preference constituted a permissive means to social practices of privileging dominant members¹².

Silent behavior can present itself as an active and collaborative aspect of learning. Thus, silence can function as a learning strategy, so that silent students can analyze the contributions of other participants, compare them with their own understanding, and manage possible conflicts of knowledge¹².

Silence can also be the result of a lack of motivation, establishing a cycle; the lack of study or the need to fulfill the obligation to speak in the group, aiming at the grade. In these

last three cases, it can be understood that the origin of the silent behavior may lie in the students' lack of motivation. This concept is related both to beliefs about the ability to perform activities related to study, and to the importance, interest and usefulness of the respective activities²⁰.

PBL has as a principle, among others, that learning will take place in a collaborative way, which means that, aiming at a deep understanding of the addressed subjects, students are encouraged to work together for a critical understanding of the material and the integration of new concepts into existing ones¹⁰.

Based on this concept, although they do not have active involvement in decision-making or conducting the tutorial group, students with a silence profile can actively place themselves in the construction of the group's knowledge. Moreover, silence can also manifest itself as a form of adaptation to PBL, through observation and reflection, and of changing shifts, creating a space for other members of the group to insert their speech. On the other hand, silence may appear as an imposition resulting from tutorial dynamics, generating frustration and resentment¹².

According to the participants' statements, there was the perception of two forms of silence: "voluntary" and "involuntary". In the voluntary one, the student would have silence as a learning option and personality trait, being able to decide to be silent, while assimilating information that is being discussed by the group, correlating it with their study and, thus, when called by the tutor, contributing to the knowledge of the tutorial group.

Thus, silence is part of the learning process, being an important element for the establishment of meaningful learning, characterized by the interaction between previous knowledge and new knowledge. In this process, new knowledge acquires meaning and previous knowledge can also acquire new meanings or greater cognitive stability^{6,21}.

A longitudinal study, published in 2008, carried out at a university in Australia, had the participation of Asian and Australian students and showed that, for local students, the act of speaking was more valued than listening. Similarly, the tutors did not usually support the ability to listen. Thus, such actions, which do not value the silence behavior, leave aside a form of participation that can be strongly collaborative¹².

Category 2: Influence of the silent student on tutorial group dynamics

The students stated that silence harms the silent student more than the group as a whole; however, indirectly, the silence profile can affect the group harmony, an important element for collaborative learning to be effective. Some students felt frustrated with the unequal participation in the

group, demonstrating that they understood the concept of collaborative learning. Thus, although the silent student does not seem to directly affect the learning of the group members, it has consequences for harmony, a fundamental aspect for adequate discussion in the tutorial group.

Collaboration can be operationally defined as a set of actions that support the collective construction of knowledge from the various contributions made by the members to the tutorial group. In this way, collaborative learning aims to achieve the pre-established learning objectives and develop a shared understanding of information in a more complex way than previously done for the group. Thus, in the construction of collaborative learning, both the acts of listening and speaking are considered of equal importance¹¹.

The difficulty of putting oneself up for discussion in the group, in a first contact with PBL, can be the result of numerous aspects and, among them, it is related to possible stressors and the feeling of insecurity of the adaptation process. The lack of clarity of the learning objectives, the absence of feedback from the tutors and the grade that is given to each meeting, based on the student's participation, are examples of these factors and can influence the behavior of the member in the group^{22,23}. Thus, the student's adaptation to the methodology brings more security to place themselves in the discussion and makes these stressors less relevant aspects.

It is reinforced from what has been stated so far that, although the silence profile may bring some impacts on the dynamics of the group, from the perspective of collaborative learning, it should not be considered as a student stigma, but rather a singularity and personality trait that must be taken into account and welcomed and led by peers and, above all, by the tutor. Hence the importance of knowing more about this profile.

CONCLUSIONS

In general, the students brought, according to their perception, several silence profiles: due to personality/shyness; silence as a consequence of the ineffective dynamics of the group; silence by choice/voluntary; for lack of motivation, establishing a cycle and silence for lack of study.

As for the interference in the dynamics of the tutorial group, the students thought that there is more harm to the silent student themselves; however, indirectly, the silence profile can affect the group harmony.

AUTHORS' CONTRIBUTIONS

Rachel Antunes Loureiro Dubourcq: Participated in all stages from the construction of the project to the final phase of manuscript preparation; Gabriela Ribeiro Teixeira Diniz Marques: Participated in all stages from the construction

of the project to the final phase of manuscript preparation; Thamires Mariane Alves Flor: Participated in all stages from the construction of the project to the final phase of manuscript preparation; Fabricia Michelline Queiroz de Holanda Padilha: Participated in all stages from the construction of the project to the final phase of manuscript preparation; Maria de Fátima Costa Caminha: Participated in the final phase of writing, formatting and review of the manuscript; Ana Rodrigues Falbo: Study advisor. Participated in all stages from the study conception and construction of the project to the final phase of manuscript preparation.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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REFERENCES

1. Pischetola M, Miranda LT de. Metodologias ativas, uma solução simples para um problema complexo. *Educ Cult Contemp*. 2019;16(43):29-56.
2. Souza SC de, Dourado L. Aprendizagem Baseada em Problemas (ABP): um método de aprendizagem inovador para o ensino educativo. *Holos*. 2015;5:182-200.
3. Servant VFC, Schmidt HG. Revisiting "Foundations of problem-based learning: some explanatory notes". *Med Educ*. 2016;50(7):698-701.
4. Lovato FL, Michelotti A, Silva CB da, Loretto EL da S. Metodologias ativas de aprendizagem: uma breve revisão. *Acta Scientiae*. 2018;20(2):154-71.
5. Kubrusly M, Rodrigues MD da S, Moita AMLM, Sanders LLO, Rocha PB de C, Araripe PF, et al.. Manejos em grupo tutorial: Aprendizagem Baseada em Problemas – ABP. Fortaleza: EdUnichristus; 2018.
6. Dolmans DHJM, Schmidt HG. What do we know about cognitive and motivational effects of small group tutorials in problem based learning? *Adv Health Sci Educ Theory Pract*. 2006;11:321-36.
7. Van Blankenstein FM, Dolmans DHJM, van der Vleuten CPM, Schmidt HG. Which cognitive processes support learning during small-group discussion? The role of providing explanation and listening to others. *Instr Sci*. 2011;39 (2):189-204.
8. Birgili B. Creative and critical thinking skills in problem-based learning environments. *Journal of Gifted Education and Creativity*. 2015;2(2):71-80.
9. O'Donnell AM, Dansereau DF, Rocklin TR, Hythecker VI, Lambiotte JG, Larson CO, et al. Effects of elaboration frequency on cooperative learning. *J Educ Psychol*. 1985;77(5):572-80.
10. Visschers-Pleijers AJSF, Dolmans DHJM, Leng BA de, Wolfhagen IHAP, van der Vleuten CPM. Analysis of verbal interactions in tutorial groups: a process study. *Med Educ*. 2006;40:129-37.
11. Remedios L, Clarke D, Hawthorne, L. framing collaborative behaviors: listening and speaking in problem based learning. *Interdiscip J Probl Based Learn*. 2008;9(3):201-16.
12. Skinner VJ, Braunack-Mayer A, Winning TA. Another piece of the "silence in PBL" puzzle: students' explanations of dominance and quietness as complementary group roles. *Interdiscip J Probl Based Learn*. 2016;10(2):1-15.
13. Jin J. Students' silence and identity in small group interactions. *Educ Stud*. 2017;43(3):328-42.
14. Wood DF. ABC of learning and teaching in medicine problem based learning. *BMJ*. 2003;326: 328-30.

15. Dolmans DHJM, De Grave W, Wolfhagen IHAP, van der Vleuten CPM. Problem based learning: future challenges for educational practice and research. *Med Educ*. 2005;39(7):732-41.
16. Rey FG. Pesquisa qualitativa e subjetividade: os processos de construção da informação. São Paulo: Cengage Learning; 2005
17. Azer SA. Interactions between students and tutors in problem-based learning: the significance of deep learning. *Kaohsiung J Med Sci*. 2009;25(5):240-9.
18. Remédios L, Clarke D, Hawthorne L. The silent participant in small group collaborative learning contexts. *Sage Journals*. 2008;9(3):201-16.
19. Coelho WK, Araújo LG, Caminha MFC, Falbo AR. Estudante com perfil de dominância na Aprendizagem Baseada em Problemas: percepção dos docentes e discentes. *Rev Bras Educ Méd*. 2020;48(4):e093
20. Martela F, Ryan RM, Steger MF. Meaningfulness as satisfaction of autonomy, competence, relatedness, and beneficence: comparing the four satisfactions and positive affect as predictors of meaning in life. *J Happiness Stud*. 2017;19:1261–1282 [acesso em 10 jul 2017]. Disponível em: <https://link.springer.com/content/pdf/10.1007/s10902-017-9869-7.pdf>.
21. Moreira MA. O que é afinal aprendizagem significativa? *Revista Cultural La Laguna Espanha*. 2012 [acesso em 25 nov 2022]. Disponível em: <http://moreira.if.ufrgs.br/oqueefinal.pdf>.
22. Ahmad SZ. The flipped classroom model to develop Egyptian EFL students' listening comprehension. *English Language Teaching*. 2016;9(9):166-78.
23. Turner J, Bartlett D, Andiappan M, Cabot L. Students' perceived stress and perception of barriers to effective study: impact on academic performance in examinations. *Br Dent J*. 2015; 219(9): 453-8.



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