

Dividing small groups into problem-based learning tutorials: an experience report

ABSTRACT

This article aims to provide a critical and reflective account of the experience of the pedagogical support service at the Christus University Center - Unichristus, during the implementation of the heterogeneous division of tutorial groups by personality traits, in the active methodology, Problem-Based Learning (PBL). Method: This is a descriptive experience report of a study carried out at a private higher education institution in Fortaleza. The participants were 12 teachers who acted as tutors and 120 students who were new to the PBL methodology. The activity was systematized into three moments: application of the QUATI psychological typology test to the students, classification of the students into extroversion and introversion attitudes, division of the tutorial groups into similar proportions of introverted and extroverted students. The educational action involved training the teachers in group dynamics, revealing the personalities of their respective students and a round table discussion after the end of the semester. Results: the heterogeneous division of groups and teacher training led to an improvement in the management of tutorial groups. Conclusion: the experience showed that the tutors' prior knowledge of the personality traits of the tutorial group members and their heterogeneous formation can contribute to improving the teaching-learning process in PBL, especially with regard to looking at existing personalities individually.

Keywords: problem based learning; psychological typology; tutoring; QUATI; medical education.

1 INTRODUCTION

Numerous medical education institutions have implemented active methodologies in their curricula, such as Problem Based Learning (PBL). This teaching method involves students in a collaborative and constructivist learning process (Ribeiro; Irala, 2020). However, although there are recommendations for the use of active methodologies, undergraduate medical programs vary in terms of the curricular structure adopted. Some follow the traditional approach with subjects and division into cycles (basic and professional), while others opt for more innovative approaches, such as Problem-Based Learning (PBL) (Trullàs *et al.*, 2022; Gao *et al.*, 2020).

Henrique Sousa Costa
Graduating. <https://orcid.org/0009-0000-7324-8179>. henrique.costa8@hotmail.com.

Júlia Mendes do Carmo
Graduating. <https://orcid.org/0009-0009-1592-7830>. juliamendesdocarmo@gmail.com.

Carlos Ademar Dias Arruda Filho
Graduating. <https://orcid.org/0009-0009-4462-9701>. carlosademardez@gmail.com.

Deborah Pedrosa Moreira
Doctor. <https://orcid.org/0000-0003-4313-2479>. deborah.moreira@unichristus.edu.br

Maria Dilene da Silva Rodrigues
Master. <https://orcid.org/0000-0002-5331-7330>. rodrigues.dilene19@gmail.com.

Marcos Kubrusly
Doctor. <https://orcid.org/0000-0002-4414-8109>. mmkubrusly@gmail.com.

Autor correspondente:
Henrique Sousa Costa
E-mail: henrique.costa8@hotmail.com

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When it comes to PBL, a method incorporated into various educational programs, its main characteristic lies in teaching through problem solving (Tibério; Atta; Lichtenstein, 2003; Barrows, 1996). This approach aims to develop knowledge, skills, attitudes and values in students. The learning process is student-centered, promoting the ability to improve the way they study and the integration of basic and clinical science content, as well as interdisciplinary knowledge (Ribeiro; Irala, 2020; Zhao *et al.*, 2020).

The PBL methodology has its roots in the ideas of psychologists Jerome Bruner and John Dewey. Bruner, through his discovery learning approach, sought to involve students in solving problems through group discussions (Dewey *et al.*, 1997).

The effectiveness of tutorial groups in PBL is intrinsically linked to the students' individual cognitive abilities and the interpersonal and collaborative dynamics between group members (Tibério; Atta; Lichtenstein, 2003). The personal characteristics of the participants play a significant role in the development of collaborative competence, influencing not only individual student performance but also group dynamics in PBL (Luh *et al.*, 2007; Dolmans *et al.*, 2006). It is essential to recognize that diverse students should be treated differently, taking into account their specific individual needs, with the aim of ensuring equity in the learning process (Del Prette, Z.; Del Prette, A., 2012). Students' personalities can play an

important role in the development of collaborative competence and have an influence not only on their individual performances, but also on group dynamics (Luh *et al.*, 2007; Searle, 2003).

Although we know that a person's personality is not easily changeable, we believe that tutors' knowledge of students' personalities can adjust the learning environment to adequately meet students' needs and promote collaborative learning. Studies of PBL have focused mainly on aspects related to cognitive skills and little attention has been paid to strategies that encourage tutors to develop collaborative learning skills in groups, including personality traits. There is a lack of preparation on the part of the tutor in conducting small group dynamics and most of them do not feel prepared to properly explore the students' zones of proximal development, leading to a formative assessment (skills and attitudes) that is unfavorable to the introverted students in the tutorial group (Jang; Park, 2016; Durak, 2022). This unpreparedness can be a determining factor in student demotivation, as shown by the results of Ghani's study in which 64% of first-year students were unable to adapt to the PBL system because they were used to conventional learning settings, and that 43% of students were not adequately prepared for the sessions and were therefore minimally involved in the discussion (Ghani, 2021).

There are many definitions of the terms introversion and extroversion. Carl Gustav

Jung, a Swiss psychiatrist and psychotherapist, was the first person to create the terms introvert and extrovert types (Jung, 1923). He described extroverts as oriented towards the outside world and introverts as oriented towards their inner subjective experiences. Susan Cain, the author of the best-selling book *Quiet: The Power of Introverts in a World That Can't Stop Talking*, described an introvert as someone who prefers quiet, minimally stimulating environments and generally has a contemplative spirit and independent temperament. Extroverts, on the other hand, need more stimulating environments to feel better. While extroverts thrive in social situations and like to think out loud, introverts tend to prefer quiet concentration and listening more than talking (Cain, 2013).

Within this context, usually in tutorial sessions, the more introverted students have certain limitations in terms of interaction and the more extroverted students can participate intensely, to the point of taking away the opportunity of others. In addition, most tutors tend to ignore these inherent personality behaviors, affecting the teaching process, and as an aggravating factor, in positive evaluations, they prioritize extroverted students, thus putting introverts at a disadvantage (Prabowo; Rukmini; Hartono, 2021).

Therefore, the teacher-tutor's knowledge of the psychological typology, including introversion and extroversion traits, of tutorial group participants can play a crucial role

in effective group management. This facilitates conflict resolution and class motivation in order to make sessions more productive, promote effective communication and improve performance both inside and outside the tutorial room (Rangkuti, 2022; Doherty, Nugent, 2011).

2 METHODS

This is a descriptive and reflective experience report on the tutor's view of the implications of implementing a heterogeneous division of tutorial groups based on student personality traits. It involved 12 tutors from the medical course at the Christus University Center - Unichristus, a private higher education institution in the city of Fortaleza, Ceará State, who were responsible for the tutorial groups of the classes made up of students in the second semester of the medical course, who were new to the PBL methodology in 2024.1.

Unichristus used the results of the Typological Assessment Questionnaire (QUATI), applied exclusively by psychologists, to medical students who were about to start PBL, i.e. second semester students, to make up the tutoring groups. After the typological identification, 12 groups of 10 students each were formed, mixing students of different typologies (extroverts and introverts), who were kept in their respective tutorials throughout the semester. The Typological Assessment Questionnaire (QUATI) was developed and validated for university students in Brazil

at the Psychology Institute of the University of São Paulo. Its validity was obtained through test-retest and correlation with the Meyers-Briggs Type Indicator MBTI test, which is also based on Jung's theory. This instrument assesses the personality dimensions of introversion and extroversion, Intuition/Sensation and Thought/Sentiment (Zacharias, 2003).

After learning about the students' psychological typology, teachers were trained for around 40 hours on the subject, using a manual on Tutorial Group Management, which provides tutors with excellent guidance on differentiating between shy, introverted and socially phobic students, as well as on how to manage the tutorial group while respecting the characteristics of each participant (Kubrusly *et al.*, 2018; Rodrigues, 2019).

3 RESULTS AND DISCUSSION

The main thrust of this study was to find out about the tutor's view of the implications of implementing the heterogeneous division of tutorial groups based on student personality traits.

Personality differences are important for the heterogeneous construction of a tutoring class. Based on these student characteristics, it is possible to be more dynamic, which is important not only to maintain a social balance within the tutoring room, but also to introduce new ways of dealing with differences.

We heard informally from some tutors in a conversation circle:

We've noticed that there are students who speak very easily, relate very easily, they're very 'outgoing', right? So they don't encounter any barriers, they communicate easily. Others are extremely introverted, right? Others, on the other hand, want to take other people's breath away, right? They're the more aggressive ones (E4).

It was noted that, for tutors, students can be at extremes in their behavior: more introverted students, who have certain limitations when it comes to interaction, and more extroverted students, who can participate intensely, to the point of taking the opportunity away from others. This observation is probably related to personality traits. In this context, most tutors tend to ignore students' personalities, affecting the teaching and learning process by not individualizing the approach in the group dynamics developed (Prabowo; Rukmini; Hartono, 2021). According to Ciorbea and Pasarica, understanding the dimensions of personality (introvert and extrovert) can put students in line for high academic performance and is therefore an important topic in educational psychology (Ciorbea; Pasarica, 2013). The most important differences between extroverts and introverts are in the degree of sociability and impulsiveness. The former, in general, work faster, make more mistakes, often need to stop and change activities, and learn the main points of a task. Introverts, on the other hand, keep their attention on tasks for long periods, work slowly but make fewer mistakes, and find it easier to learn the details of a

task. In small group discussions, extroverts find it easier to counter-argue with each other and are not afraid of conflicting situations, while introverts work collaboratively in search of creative solutions to the problems discussed (Nussbaum, 2002; Jensen, 2015; Eysenck, 1963). Based on this knowledge, the tutor can look for ways to deal with such behaviors, with the aim of training a student with more autonomy and capacity for reflection, constituting a strong indicator in the formative processes of knowledge construction (Pavan; Senger; Marques, 2019). It is also worth noting that other authors have shown no difference in performance in PBL when analyzing the personality characteristics of the students involved (Eräpuro-Piila, 2014).

Sometimes the person is very good, competent, but withdrawn. And you have to know how to work with that type of person. There are others who are very extroverted, and that goes on for the rest of their lives. Maybe they don't realize it now, but in the future, I think they'll be able to socialize better (E6).

According to Kubrusly *et al.*, the tutor needs to have knowledge of the conceptual and attitudinal content involved in teamwork. They need to be aware of how the group members play their roles, identifying those who don't progress in discussions ("withdrawn") and who remain silent, and those who are over-extroverted (dominant). Thus, the tutor needs to have the ability to differentiate between

the types of silence present, i.e. hidden elaboration of learning, politeness (waiting for their turn to speak), shyness, introversion or social anxiety disorder, as well as knowing how to classify dominant students into the categories of "disruptive" and "enthusiastic", i.e. assertive in their point of view but willing to listen to their peers. If this is the case, the tutor will be able to make group coexistence harmonious in order to offer students the opportunity to establish relationships and better share knowledge with their peers (Kubrusly *et al.*, 2018; Rodrigues, 2019). "If everyone had the same profile [...] If I took my most participative student, if everyone had the same profile as him, I think there would be a fight. So I think yes, they complement each other" (E9).

The perception of the difference in profiles, as we have seen, is important for understanding interpersonal needs and for better situating group members. It makes it possible to understand the moments experienced in the groups and therefore to base interventions that contribute to group effectiveness (Melo; Maia Filho; Viana, 2015). According to Pichon-Rivière, the more heterogeneous a group is, the more likely it is to be effective and achieve its goal. The homogeneity and heterogeneity of a group affect its results. Heterogeneous groups have more resources, because the presence of more differences can imply more diversity for exchange than in homogeneous groups. For this reason, we used the personality

profile of our students for heterogeneous group division, as already mentioned. However, heterogeneous groups, due to their diversity, are more difficult to run than homogeneous groups, requiring good tutor training. However, the growth process becomes more effective as a result of interpersonal exchanges (Pichon-Rivière, 1994).

Yes, I think that my vision of knowing the students' personalities, at the beginning I really had doubts about whether some were more shy or if they were, more disinterested, and I think that changed, because it helped me to see the introvert in a different way and not let the more extroverted dominate.

This statement shows the teacher's perception of the importance of knowing how to handle group dynamics with regard to shy/silent students, as already mentioned in this article. "The training gave me greater security, many things fitted in with some things I had already realized, so I was better able to shape the dynamics of the group and I think that helped in general" (E7).

This perceived security is of paramount importance, as it facilitates group management in PBL, since many students, especially beginners, find it difficult to work in groups and, despite recognizing the importance of collaborative work, they report feelings of anguish about joining the tutorial dynamic (Smolka; Gomes; Siqueira-Batista 2014). "If we know the type of student, we can use an active methodology to make interventions that are

more effective. It's a very important tool." (E8).

The teacher's statement highlights his perception that knowing the student's typology contributes to more effective interventions. The effectiveness of the intervention is of great value in the pedagogical process of PBL, since autonomy in learning is a competence that develops, and the teacher can favor it if he or she adequately encourages the student to take a more active stance (Dhale, 2009).

4 FINAL CONSIDERATIONS

The development of this work has made it possible to assume, even through informal listening, the advantages of the heterogeneous formation of the tutorial group based on personality traits in improving the pedagogical process of PBL, as well as teacher training in the management of small groups. Future research into tutors' perceptions of tutorial group management based on knowledge of the tutorial group's personality traits, as well as their repercussions on formative assessments, will be important for consolidating the experience reported.

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