



TEAM-BASED LEARNING (TBL) IN TRADITIONAL CURRICULUM: ASSESSMENT OF STUDENTS' ACCEPTANCE

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ABSTRACT

Team-Based Learning (TBL) is a teaching/learning strategy that develops communication skills, teamwork, management and decision-making. The aim of this study was to evaluate the students' perception of TBL. Phenomenology was used as the theoretical framework for ideographic analysis and nomothetic research from the students' feedbacks and portfolios. The results of the phenomenological reductions with the subjects' assertions grouped into converging thematic categories were: 1. POSITIVE ASPECTS of TBL: team work, study routine, meaningful learning, commitment, interaction and conceptual maps. 2. SUGGESTIONS TO IMPROVE TBL: TBL in the curriculum, organization, number of classes and assessment of teamwork skills. It is concluded that, according to the students' perception, the application of TBL promotes the development of individual responsibility, teamwork skills, competences (how-to-do) to learn and experience of assessing and being assessed by peers. A thorough planning is suggested.

INTRODUCTION

The teaching and learning process has been a challenge over time. Discovering how the individual learns to learn remains a goal for educators. In this context, active teaching methodologies that are defined as "interactive processes of knowledge, analysis, studies, research and individual or collective decisions, arise with the purpose of finding solutions to a problem" (Bastos, 2006). The application of active methodologies such as problem-solving, case study and Problem-Based Learning (PBL) began in the 1960s with the McMaster schools in Canada and Maastricht in the Netherlands. Its expansion took place in the medical schools of the United States (in Harvard, Albuquerque and Hawaii) in 1985, as well as in Africa, Asia, and Latin America (Lowry, 1993). Brazilian health schools such as nursing, physiotherapy, veterinary medicine and dentistry adopted this method and obtained success (Millan *et al.*, 2012; Miltre *et al.*, 2008).

According to Figueiró-Filho *et al.*, (2015), the application of TBL during the clinical stages of medicine can provide students with the acquisition of skills in decision-making, communication skills and leadership. Comparin *et al.*, (2015), applied the TBL to the students of the medical course associated with the educational tool "Virtual Man" and demonstrated that this methodology helps the students to remain interested and motivated in the learning. Since it is an innovation that allows visualization, illustration and revision of anatomical structures and facilitates the understanding of the path physiology of diseases. Historically the training of health professionals has been guided by the use of conservative (or traditional) methodologies, under the strong influence of mechanism of Newtonian Cartesian inspiration (Capra, 2006). The discussions have shown that the existing medical schools are currently hegemonic in relation to the programmatic contents, determining a study centered on the individual while a biological being. [...] (Silva, 2003).

Thus, this model is responsible for the training of professionals who dominate the most varied types of technologies but who are not very skilled at dealing with the subjective, social and cultural dimensions of people (Brant, 2005; Feuerwerkel and Sena, 1999; Carvalho, 2010). In andragogy, "the art and science of helping adults learn" (Knowles, 2005; Bellan, 2005), learning is shared responsibility between teacher and student - based on "learning by doing", valuing the student's previous experience, independence and self-management learning with practical application in everyday life (Hamze, 2010). In addition, TBL (Team-Based Learning) or Team-Based Learning is a strategy that has created a fertile area for medical education (Parmelee and Michaelsen, 2010). It was described by Larry Michaelsen, a professor at the University of Oklahoma's University of Management. In 1999, Michaelsen and David Ross conducted the TBL application with educators from College of Medicine of Baylor (Haidet, O'Malley and Richards, 2002).

The TBL is a teaching strategy that develops in students the ability to use principles and skills in solving health and illness problems. Due to the development of these skills, this strategy has attracted interest in health sciences since 1999 (Haidet *et al.*, 2012). TBL leads students to learn how to apply the content studied to solve practical problems in the course, based on the application of the 4Ss. It begins with the accomplishment of individual proof, followed by collective, correction and discussion of the clinical case. Each group receives a significant problem (Significant problem); the group that works the same problem (Same problem); the groups make a specific choice of problem responses and finalize these activities with simultaneous reporting (Simultaneous report) (Parmelee and Michaelsen, 2010; Michaelson, 1994; Michaelsen *et al.*, 1982). At the medical school of the Federal University of Mato Grosso do Sul, Brazil, the TBL method was used in a pioneering way in 2012 in the discipline Integral Attention to Women's Health. In practice, the application of the method brought doubts that motivated the researchers to seek answers to the questioning: the use of this strategy could lead to a differentiated education in this formation? In view of this proposal, we have as objectives to understand in the students' perceptions the positive points and the suggestions of improvements in the experience with TBL.

METHODOLOGICAL APPLICATION

In this work the qualitative, descriptive research was used, having as methodological reference the Phenomenology according to the modality of the situated phenomenon. According to Martins and Bicudo, situating the phenomenon means that there is always a subject, in a situation, experiencing the phenomenon (Martins and Bicudo, 1989). The phases proposed by Martins and Bicudo were used in our studies²⁶. The first phase consisted in the reading of the descriptions of the reports, which allowed the understanding of the experiences lived by the students. The second phase consist in the synthesis of the reports resulting from its various readings, aimed to discriminate the units of meaning (US), the ideographic analysis and the hermeneutic circle: understanding, interpretation and a new interpretation of the phenomenon for the analysis (Aranha and Martins, 1993). In the third phase, the phenomenological interpretation, the open categories with the convergences or divergences of the thematization, nomothetic analysis, allow to unveil the singular look of the students in relation to the phenomenon

(Moreira, Simões and Porto, 2005). In this study was selected 56 students from the 4th year of the UFMS medical course enrolled in the discipline "Attention to Women's Health" in the year 2012, who agreed to participate in the study. The data were collected at the end of the course through the application of questionnaires that consisted of the following aspects: 1 - TBL positive points; 2 - Suggestions for improving TBL. As in the reads of the answers of the questionnaires it was observed that there were similar answers leading to repetitions of the convergences of the speeches (saturation). It was defined the analysis of twenty descriptions of the subjects that were numbered from S1 to S20. The readings made it possible to identify the units of meanings which were described in the language of the researcher and grouped into themes. This manuscript is the result of the research project approved by the Ethics Committee on Human Research (Number 11524212.4.0000.0021).

RESULTS AND DISCUSSION

The themes representative of the students' perceptions regarding the experience with the TBL method presented in the descriptions the positive points.

Ability to work in teams

Students identified ability to work in teams in TBL as being activities that led to learning to listen to peers, to discuss collaboratively with each other and with the professor. According to Gaeta and Masseto (Gaeta and Masseto, 2010), students perceive the importance of group activities in building their own knowledge and in knowing the other. Freire in his book states that teaching is not transferring content, just as learning is not memorizing the teacher's vertical speech; learning takes place through interaction, which is the way of construction (Freire, 1994).

Routine of studies

For students, preparing themselves beforehand is a must to participate in and contribute to TBL sessions. The students understood that in the TBL the study routine is one of the phases of the method, because the habit of studying allows the active participation and the contribution in the activities in the classroom. Through the analysis of the descriptions, it was noticed that the students began to have the habit of studying routinely and consequently to take an active posture in front of their learning. Students have an attitude of co-responsibility for TBL sessions to be successful. Nóvoa (1992) argues that one of the pillars of learning is personal, requiring the subject to have an involvement and planning to achieve their learning need in response to their personal or professional growth.

Learning

As verified in the descriptions made by the students, it is realized that they understood that the TBL leads to learning since knowledge of the content is required. The action implies doubts that can be solved in the group discussions and with the final synthesis of the teacher (Mini-lectures). According to Ausubel (Ausubel, 1963), meaningful learning is the human mechanism par excellence for acquiring and storing the vast amount of ideas and information represented in any field of knowledge. Other authors such as Miller proposed an evaluation framework of clinical competence (Miller, 1990).

At the lowest level of the pyramid is knowledge, followed by competence (knowing how), performance (show how) and action (doing). In the class discussions, the TBL induces the student to reach the second level of the Miller pyramid, since it leads him to know how to use the knowledge accumulated during the course. Norcini states that the development of these qualities of being functionally adequate, or having sufficient knowledge, for judgment, favors the ability to develop activities (Norcini, 2005).

The commitment to study

The students understood that for the realization of the TBL it is necessary the participation of all those who are committed to study the content previously, as well as the presence in the class and the contributions with the group discussions. According to the authors Gaeta and Masseto (Gaeta and Masseto, 2010), the commitment occurs when students are engaged, motivated by the feeling of ownership of their contributions reflected in the group's learning.

Interaction

According to the descriptions of the students, the TBL favors a coexistence that brought the opportunity to get to know each other better, insofar as the space of speech and listening is favored for all. All students bring to the classroom a personal story with particular experiences lived in the family and society [...], each student has different expectations regarding their life project (Grillo, 2004). According to Freschi and Freschi (2013), dialogue and interaction between the class should happen and need to be done with respect and cooperation, especially among students so that no one is embarrassed or embarrassed to speak out. Dialogue and interaction should be the rule in the classroom. In the development of group work every student should have the opportunity to participate in the discussions and decisions so that they learn to respect the opinions of colleagues, sharing tasks, discussing methods and results. This process helps the student construct their points of view, thus becoming subject to their learning (Freschi and Freschi, 2013).

The conceptual maps (CM)

The descriptions showed that the use of conceptual maps added a gain in the construction of students' knowledge, as well as an instrument for the teacher to evaluate students' learning about the subject contents. Conceptual maps (MC) are graphical schemas that represent the basic structure of parts of the systematized knowledge represented by the network of relevant concepts and propositions of that knowledge (Faria, 1995). It is a tool that organizes knowledge with ease of representation for yourself or for other people (Azevedo *et al.*, 2003). According to Moreira *et al.*, (2005) in the evaluation through MC, the central idea is to verify what the student knows in conceptual terms about a particular unit of study, topic and discipline, especially in the curricula that use active teaching/learning methodologies, as well as in traditional teaching curricula (West *et al.*, 2001). The suggestions obtained from the student descriptions to improve the TBL are listed as follows:

TBL in the curriculum of other disciplines

There is a suggestion that this methodology be applied to the content of the discipline "Integral Attention to Women's

Health", in the School of Medicine of UFMS/Brazil, and to other disciplines of the course. For students, peer evaluation is a felt difficulty that has been translated as something negative, unfair and difficult to achieve. The active methodologies, specifically the TBL, lead the learner to a formation different from the traditional model, which Farias *et al.*, (2015) argue by mentioning "being the solution to develop the autonomy of the learner and to train a creative, reflexive and independent professional" (p.149).

Organization

According to the descriptions of the students, the planning of classes should be judicious. Sessions at reduced TBL intervals may bring content accumulation to students because of the need for prior study. This can lead to unwanted performance in activities and bring about physical and mental fatigue. According to Masseto (2001), the classroom is space and time in which teachers and students meet for a process of learning through actions such as reading, studying, discussing, debating, listening to the teacher, asking questions, solving doubts, and finally interacting. In fact, the teaching practice aims at student learning and the activities must be organized and worked out to be apprehended by the students (Libâneo, 2014). For its accomplishment the TBL demands the fulfillment of its principles and stages. According to Bollela *et al.* (2014), the formation of heterogeneous groups (five to seven members) maintained throughout the course, the student's responsibility for individual and team work facilitates their learning due to frequent feedbacks.

Number of classes

The number of classes for the accomplishment of the contents of the discipline is the teacher's task and is carried out in the planning of the course. In the students' perception, some content must be dismembered in a greater number of classes for a greater use in the learning, and the classes should be reduced. In the traditional method the classes are 50 minutes and the student participates passively. Through the TBL methodology, the class lasts around 2 to 4 hours per session, requiring prior preparation for the active participation of the student. According to Deus *et al.*, (2014), there is a certain constraint on the students to excel in TBL activities due to the fear of exposure; they prefer teacher-centered classes because the class time is shorter.

Evaluation

Students understand that assessment is a task of the teacher and that in TBL, it should not be performed by peers, as they do not feel prepared or mature for such activity. They manifest difficulties, discomfort, grief, anguish, responsibility in evaluating the other, fear of rejection and/or acceptance of peers, physical and emotional effort, in the amount of weekly sessions and contents. The relationships of friendship have changed in the face of the emotional demands arising from the conflict of being evaluated and evaluated by the peers. One discomfort caused by exposure of the notes to the group was noted. According to Libâneo (1994), evaluation is a complex task that is not limited to taking tests and assigning grades. Peer evaluation is a process both external and internal to the subject (Santos, 2002). There is no way to fill this stage in the training process, and what can be agreed upon is a qualitative analysis of the weights of the proposed activities (Bollela and Senger, 2014).

FINAL CONSIDERATIONS

The challenge for 21st century medical education is to create a curriculum that addresses the modern view of health and embraces biological, psychological, social, environmental, lifestyle, and lifestyle factors. Thus, the student should have a critical and transformative vision of health care processes. The application of TBL is a significant innovation in medical teaching practice. It makes it possible to initiate transformations in the curriculum because it is a dynamic method that educates more creative, reflexive, critical and autonomous professionals in line with the National Curricular Guidelines of the Medicine Undergraduate course.

In the students' perception of this study, TBL reveals positive points specifically in the following aspects:

- Group work gains a new meaning for the student and implies a new way of learning and teaching.
- The study routine helps the student in the development of the study habit, enables active participation and contribution in classroom activities. Prior knowledge of the subject raises doubts, which can be resolved in the group discussions or in the final synthesis of the teacher (mini-lectures).
- Conceptual maps, in addition to helping students organize the construction of their knowledge, and allow the teacher to evaluate the content learned.
- In the students' perceptions, the suggestions to improve the TBL have appeared in the following aspects:
- In the curriculum, the applied experience in the subject of the discipline of Integral Health Care of Women of the Faculty of Medicine of a public university can also be applied in other disciplines of the course.
- Interval between sessions should be reduced to increase student study time, increase the level of resolution of clinical cases and concept maps.
- The contents should be dismembered to allow prior study and consequent better use of learning.
- Evaluation is a teacher's task and in ABE / TBL should not be done by peers.

Conclusion

The use of TBL configures something challenging that when incorporated into curricular activities are substantial tools for health students, as it is a significant tool for strengthening the teaching-learning process. It is interesting to note that this active methodology can be applied in each module, causing the student to awaken to reflexive analysis, critical thinking and the approximation of professional reality. The performances discussed in this study and its results contribute to the professional formation of students and teachers, since they trigger the development of a pedagogical practice aimed at a look at the integrality of the student. From the students' experience, it is observed that the active methodology does not cease with traditional and expositive classes, but it enhances the student's abilities and competences, making them assimilate the content in a relevant way. Thinking and 'knowing how' are much more evident than memorizing content. Emphasis is placed on the content required for decision making, which will lead to critical and analytical reasoning competence and the ability to analyze and evaluate data.

In fact, the TBL promotes the development of skills and abilities of group work, individual and team responsibility, frequent and immediate feedback. However there is the discomfort of changing roles, especially in the peer review emerged in the students' comments.

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