

Team-Based Learning: Successful Experience in a Public Health Graduate Program

Aprendizagem Baseada em Equipes: Relato de Experiência em um Programa de Pós-Graduação em Saúde Coletiva

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ABSTRACT

Background: In the review of curriculum matrices, the elaboration of learning strategies that combine theory and practice is extremely important, allowing the building of new concepts and learning methods by the students. Team-based learning (TBL) is growing in academic centers and refers to the pedagogic strategy grounded in constructivism. The aim of this research was to describe the application of TBL in a Public Health graduate program. **Methods:** TBL was applied in a class with 22 students in the discipline "Quantitative Research in Health" of the Public Health graduate program (Master degree) at the University of Fortaleza, Brazil, in 2016. The discipline was structured in 8 lessons, approaching the thematic of quantitative research. Before each class the students were required to study the contents at home, a test was done for each subject in the beginning of each class (individually and then in teams of 5 or 6 students) and then a brief review was performed by the professor, where the students could ask questions and solve any doubt. At the end of the semester an evaluation questionnaire was applied with objective questions and a qualitative survey. **Results:** The application of TBL was done in a class with 22 students of the Public health Master Program, aged 22 to 36 years, and 83.3% were female. The method was well received by the students. All the evaluations and discussions went on without any problem. There were some complaints about the requirement to study at home prior to the classes. Students' evaluation of the discipline and the TBL method was satisfactory with answers' average score of 4.7 (scale 0-5). The lowest score was achieved by the question number 11 (4.3) about the students motivation for their study at home. The comparison with the evaluation of the previous semester (where a traditional method was applied) evidenced higher scores for the TBL method. **Conclusions:** The application of TBL was satisfactory and the main difficulty presented by students was the requirement for previous study at home. TBL was better evaluated than the traditional method.

KEYWORDS

- Teaching.
- Learning.
- Methodology.
- Higher Education.
- Health Education.

PALAVRAS-CHAVE

- Ensino.
- Aprendizagem.
- Metodologia.
- Educação Superior.
- Educação em Saúde.

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INTRODUCTION

The globalization and dissemination of technology in all the sectors of modern society brought changes in the professional profile requested by the job market. Currently, those with emotional control and ability to work in teams are best rated by the employers. In this context, it is highly necessary to improve the learning process. The new methodologies needs to include a teaching practice with ethics, criticism and able to change realities, providing to the students an opportunity to become efficient leaders¹.

In the review of curriculum matrices, the elaboration of learning strategies that combine theory and practice is extremely important, allowing the building of new concepts and learning methods by the students^{2,3}. However, despite the clear necessity for implementing methodological changes, some studies point that new learning methods face resistance by teachers and students⁴.

Team-based learning (TBL) is gaining space in academic centers and consists in a pedagogic strategy based on constructivism, which values individual students' responsibility in work groups and stimulates application of acquired knowledge in the solution of problems in the context of professional-practice⁵. TBL is also characterized by a method centered in the student and based on consecutive activities that includes

RESUMO

Introdução: Na revisão das matrizes curriculares, a elaboração de estratégias que combinem teoria e prática é extremamente importante, permitindo que os estudantes construam novos conceitos e métodos de aprendizagem. O objetivo deste estudo foi descrever a aplicação do método Aprendizagem Baseada em Equipes (ABE) num programa de pós-graduação em Saúde Coletiva. **Metodologia:** O método foi aplicado numa turma de 22 alunos da disciplina "Investigação Quantitativa em Saúde" do Programa de Pós-Graduação em Saúde Coletiva (mestrado) da Universidade de Fortaleza em 2016. A amostra foi constituída por 36 pós-graduandos. A disciplina foi estruturada em oito aulas sobre temas de pesquisa quantitativa. Antes de cada aula, os alunos eram solicitados a estudar os conteúdos em casa, sendo feito um teste para cada assunto no início de cada aula (individualmente e em seguida em equipes de cinco a seis alunos); então, o professor fazia uma revisão breve sobre o assunto, quando os estudantes poderiam fazer perguntas e tirar dúvidas. Após as aulas, no final do semestre, foi aplicado um questionário de avaliação das atividades desenvolvidas, com questões objetivas e um item qualitativo. **Resultados:** A aplicação da ABE foi feita numa turma de 22 alunos do mestrado em Saúde Coletiva, com idades entre 22 e 36 anos, sendo 83,3% do sexo feminino. O método foi bem recebido pelos estudantes. Todas as avaliações e discussões ocorreram sem problemas. Houve reclamações sobre a necessidade de estudar em casa antes das aulas. Na avaliação realizada pelos alunos, o valor médio das respostas foi de 4,7 (escala 0-5). A questão sobre as motivações para estudar em casa foi de menor valor: 4,3 (escala de 0-5). **Considerações finais:** A implementação da metodologia ABE foi muito satisfatória, e a maior dificuldade apresentada foi a solicitação de estudo prévio do conteúdo da aula.

individual work, team work and immediate feedback⁶. This is a dynamic teaching and learning resource, creating a motivating environment in which team work is emphasized⁷.

The aim of this work is to describe a successful experience of TBL in a Public Health graduate program.

METHODS

Team based learning (TBL) was applied in a class with 22 students in the discipline "Quantitative Research in Health" of the Public Health graduate program (Master degree) at the University of Fortaleza, Brazil, in 2016. The discipline was structured in 8 classes, covering themes of quantitative research. The aim of the discipline was to provide students a general view of quantitative research in health, enable students to have a critical view of different study design using quantitative methods and to plan quantitative studies using good research practices. The classes were divided in: individual study (the student were required to study the contents at home to discuss in the next class), individual evaluation (in which the student answered objective questions regarding the contents of the class), team evaluation (in which the students discussed these question in teams of 5 or 6 students), discussion (a feedback about the questions was given by the teacher and a dialogued class was done to solve any query that still

remained about the contents). After these “steps”, an activity was done to apply acquired knowledge: a problem in the field of Public Health was given, and the groups were asked to plan a research, based on a specific study design using quantitative methods to investigate and solve that problem. At the end of the semester an evaluation questionnaire was applied with objective questions and a qualitative survey. The protocol of this study was reviewed and approved by the Ethics Committee of the University of Fortaleza.

RESULTS AND DISCUSSION

The application of TBL was done in a class with 22 students of the Public health Master Program, aged 22 to 36 years, and 83.3% were female. They were all health professionals (Physicians, Nurses, Physiotherapists, and Psychologists). The method was well received by the students. All the evaluations and discussions went on without any problem. There were some complaints about the requirement to study at home prior to the classes. However, the implementation of this method enables the students to acquire and apply knowledge through an activity itinerary that include individual study before the classes⁵. Hence, compliment of all “steps” of this method is very important to achieve satisfactory results.

In a recent review it was observed that despite presenting better performance in knowledge acquisition, students subject to TBL did not manifest preference for this method, which can be related to higher demands and workload over the students⁶.

In the present study, the discussions in teams provided higher interactions between the students through knowledge exchange. According to Borges & Alencar⁷, the use of active methodologies can contribute to student’s autonomy, rising curiosity and stimulating decision making, individually and in groups.

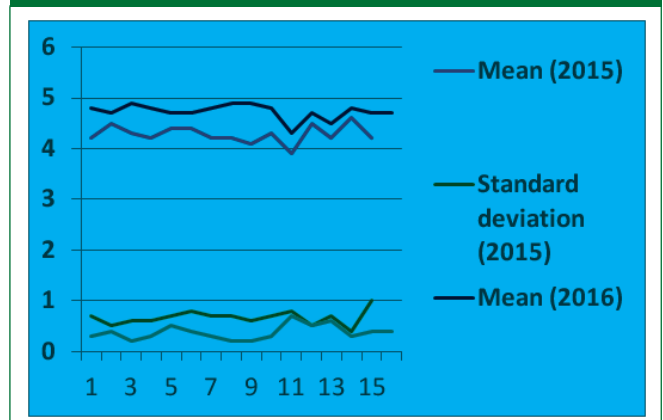
During the feedback and dialogued classes there was a higher participation of the students, due to the fact that they have already studied the contents and discussed in groups, associated to the curiosity about the themes during the previous activities. In a study conducted in Malaysia, application of TBL made students more active and improved performance in write tests, suggesting that this technique improves teaching quality and optimizes learning results⁸.

Practical activities, about research planning based on Public Health problems, were also very productive, providing students the opportunity to plan investigations of real problems in the regional context, which can also contribute to their Master’s dissertation and their professional practice. This is one of the few studies to describe active methodologies in the

scenario of graduate classes (Master course). The selection of contents should be compatible to the reality that the student will face in the “real world” because during all TBL process the students use their previous experience and knowledge to search and acquire new information, assuming a critical attitude when facing and discussing real problems⁹.

The evaluation of the discipline was very satisfactory, with a global score of 4.7 (in a scale from 0 to 5), as illustrated in Figure 1. Comparing to the evaluation of the same discipline in the previous semester (where a traditional method, based on expositive lectures and seminars), it was observed higher scores in the discipline using TBL. The mean score of the previous semester was 4.3 ± 0.13 , significantly lower than the evaluation of the present semester, which had a mean of 4.7 ± 0.4 ($p=0.0002$).

FIGURE 1
Scores (mean and standard deviation) according to the students evaluation of the discipline “Quantitative Investigation in Health” of the Public Health graduate program at the University of Fortaleza, Brazil, in 2015 (traditional methodology) and 2016 (TBL)



The question with the lowest score (4.3) was the number 11, which refers to student’s motivation to study at home, but even being the question with the lowest score, it was also higher than the achieved in the previous semester (3.9), but without statistical significance ($p=0.06$). The questions with higher scores (4.9) were the number 3, 8 and 9, which refers to the presentation of the discipline’s objectives, applied methodology (TBL) and student’s motivation to participate in classes.

The qualitative evaluation was also positive, according to the discourses below:

Good methodology. Accessible professor. Good interaction with the students.

The teacher is a fundamental key in the process of building knowledge, becoming a learning facilitator⁷. It is important to highlight that active methodologies require changes for its implementation, including teachers training, once higher teachers involvement is necessary⁴. Other students points out:

I considered the classes very relevant because it allowed me to expand my knowledge, without the need to present a seminar of a subject that I am not sure about.

In a study conducted in an undergraduate Fonoaudiology course, Guedes-Granzottiet al.⁹ concluded that the use of active teaching methodologies aims to capacitate professionals to be resolute and able to continuously improve their knowledge and practice their activities according to standard Public Health guidelines. Other discourses about the method used in our course were:

The discipline was great and the teaching process too. It was easy to understand the contents and the classes spent fast. It was good to participate.

I praise the applied methodology because it stimulates reading and criticism.

The method allowed a better learning of the contents.

I consider the applied method excellent because do not overload students, in comparison to seminars and other activities used in other disciplines.

Rodrigues et al.⁴ points that expositive classes and seminars reinforces a more conservative tendency of knowledge transfer, which is not adequate to the current students' profile, characterized by early immersion in technology universe, with unlimited access to information and intense participation in social networks³. In this regard, the students suggest application of active methods in other disciplines:

I suggest adopting this method by other teachers.

Similar to the results of the present study, Burgess et al.¹⁰ found that in great part of the studies using TBL the students considered this as a good experience. Early application of TBL can bring benefits that will long for the rest of the course, and also enables students to become the professional with the profile required by current job's market (a professional that can easily work in teams, that can search for solutions and share experience with colleagues).

CONCLUSION

Traditional learning and teaching methods do not comply with current requirements of modern society. In the past, employers seek for people with high scientific knowledge. Nowadays they seek for "open-minded" professionals, flexible to changes, with good ability to work in groups. Active methodologies give students the opportunity to develop and improve these abilities because stimulates them to think and reflects about different problems related to their reality and to share experience with colleagues.

Based on the evaluation conducted with the students, we can conclude that TBL was very satisfactory in the graduate course and that the main difficulty presented by the students were related to the requirement to study at home, which is understood by the fact that they have multiple activities besides the graduation course, including practical professional activities outside the university.

It is very relevant to apply new teaching methodologies, including in the graduation courses, always keeping in mind that constant changes occurs in our society. This study also evidences the importance of teachers to be alert of the students' needs, which can change over time, and "reinvent" teaching methods aiming to dinamize classes and optimize knowledge exchange between students and teachers.

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CONTRIBUIÇÕES

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CONFLITO DE INTERESSES

Não existe conflito de interesses.

POSTAL ADDRESS

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