ASSESSMENT BY MEANS OF TEAM BASED LEARNING IN PERCEPTION OF STUDENTS: A CRITERIA DESIGN FOR ASSESSMENT PROPOSAL

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ABSTRACT

Active learning has been proposing participative attitude, solving problems development and learning construction opportunities projects. Active learning methodologies have basic axis in transforming action-reaction-action and advantages of continuing studying, independency and responsibility, allow biopsicosocial integration and prepare working group. Team Based Learning (TBL) is a variety of learning practices based on one another in order to strength instructional effects and drafted in planned and defined steps. This study aimed to investigate how TBL can be a mean of assessment and how students perceive this activity. Sixty nine students were submitted to assessment by means of Team Based Learning method. Over eighty per cent agreed to be evaluated by that method again. Their comments were analyzed by the Discourse Analysis in fourteen categorized words that showed how students realized the experience. Results show that TBL can be a very interesting evaluation method since it encourages the development of many aspects of daily relation life such as working together and solving problems.

Keywords: Active Learning; Team Based Learning; Assessment.

RESUMO

AVALIAÇÃO POR MEIOS DE APRENDIZAGEM BASEADA EM EQUIPES NA PERCEPÇÃO DOS ALUNOS: UM PROJETO DE CRITÉRIOS PARA PROPOSTA DE AVALIAÇÃO

A aprendizagem ativa tem proposto uma atitude participativa, de solução de problemas e de projetos que deem oportunidades de construção de aprendizagem. As metodologias ativas de aprendizagem têm em seu eixo básico a transformação ação-reação-ação e vantagens da educação contínua, da independência e da responsabilidade, permite a integração biopsicosocial e prepare para o trabalho em equipe. Aprendizagem Baseada em Equipe (ABE) é uma variedade da prática de aprendizagem planejada e definida por etapas que está baseada no “um com o outro” com objetivo de fortalecer os efeitos instrucionais. Este estudo pretendeu investigar como ABE pode ser um meio de avaliação (prova) e como os estudantes envolvidos na proposta perceberam a atividade. Sessenta e nove estudantes foram submetidos a uma prova por meio da ABE sendo que mais de oitenta por cento deles afirmaram que gostariam de ser avaliados novamente por meio do método ABE. Seus comentários foram analisados à luz da teoria da análise de discurso e categorizados em catorze palavras que mostraram como os estudantes perceberam a atividade. Os resultados demonstram que ABE pode ser um interessante método de avaliação uma vez que encoraja o desenvolvimento
de muitos aspectos da vida diária de relação como trabalhar em equipe e resolver problemas.

**Palavras-chave:** Aprendizagem Ativa; Aprendizagem Baseada em Equipes; Avaliação.

1 Active Learning Methodologies

Students profile from higher education must be technically competent, critical, reflective, ethical and humanitarian, able to work in group in a collaborative way with social responsibility (BRASIL, 2002). Graduation Pedagogic Projects in Brazil have enhanced changes in the teaching and learning environment in order to become more interactive, cooperative e meaningful. Students have to be responsible for their own education being able to solve problems using available resources. Societal life requires development of skills to facilitate conviviality and peers and fellows interaction.

Education has the role to develop ability of lifelong learning (ZIMMERMAN, 2002) and higher education stands out its role to develop critical thinking (VEIGA, 2016) and the more strategically and self regulated strategies using in order to attend nowadays needs (JOLY; DIAS, 2012; MARINHO-ARAÚJO; ALMEIDA, 2017). Critical thinking understood as knowledge searching through reasoning abilities, solving problems and decision taking able results efficacy enhancement (RIVAS; SAIZ, 2010), provides subsidies to appropriate decisions taking and continuing learning lifelong. Franco and Almeida (2017, p. 21) argue that critical thinking in higher education “is one the most nuclear mission on this education level”

Active learning has been proposing participative attitude, solving problems development and learning construction opportunities projects. United Nations Educational, Scientific and Cultural Organization (2009) and National Curricular Parameters (1998) propose alternative, collaborative, exploring, investigating and appropriate learning to postindustrial era. The Team Based Learning Method as an active learning merge cooperation, solidarity, socialization, among others collective life features, with learning process and also with performance assessment.

Active learning encompasses new educational requirements, although they are not recent proposal. Tapscott and Williams (2010) affirm that digital era defines new challenges to global knowledge economy, but John Dewey (1859-1952), contemporary philosophical and educational thinking precursor, by his “Hands on” or “Learning by Doing” theory, also considers the student protagonist in the learning process even if he acknowledged Socrates, in the Antiquity was the one who created the Inquiry theory through his Maieutics and Irony theories.

Traditional learning methods turned classroom into industrialism sub products considering everyone learn at the same rhythm following the same production and scale economy service model transferred to knowledge economy. Problematization methodology seeks mediation of historical-critical education conception and pedagogic work is inspired in the historical dialectical materialism underpinned in praxis philosophy and in Paulo Freire’s liberating pedagogy.

Bransford, Brown e Cocking (2000) state to develop skills in investigation area a factual knowledge basis is necessary, comprehend facts and ideas in the context of a conceptual table and organize it in order to facilitate its recovering and application. Active learning requires collaborative attitude, solving problems ability and development projects and opportunities creation of knowledge construction.

Active learning methodologies have basic axis in transforming action-reaction-action and advantages of continuing studying, independency and responsibility, allow biopsicosocial integration and prepare working group. However, diversity of themes and large classes with large number of students might be a disadvantage. Also, abrupt changing from traditional to innovative method might cause insecurity, behavior changing, uncertainty and uneasiness, demanding maturity and contents delimitation and organization. Teachers have a new role and students might be instigated to assume their own learning responsibility.

Some active learning examples are: Problem Based learning (PBL), Team Based Learning (TBL), Pro-
ject Based Learning (PjBL) and many others that emphasize solving problems or significant and contextualized situations of real world in a collaborative way.

2 TEAM BASED LEARNING – TBL

Team Based Learning (TBL) is a variety of learning practices based on one another in order to strengthen instructional effects and drafted in planned and defined steps. Fink (2004) states TBL as the most reliable group interaction means than any other learning method, for few fundamental reasons: first, students will be exposed to contents and its application, second, all class time is used to TBL and third, multiple tasks promote, in addition to learning, development to self management from team learning.

The main goal of TBL, as many other active learning, is to ensure students opportunity to practice using concepts to solve problems. TBL was design to promote conceptual knowledge and, even though a certain period of class is aimed to ensure some concepts domain, most of the class time is dedicated to using them to solve real problems. In other words, real problems such as knowing new concepts in future courses, in future profession or in future life (BOLLELA; SENGAR; TOURINHO, 2014).

Michaelsen and Sweet (2008) describe four essential elements of TBL: Groups, Accountability, Feedback and Assignment Design. Groups must be properly formed and managed; groups must be equally composed by diverse students, which means, each group must have different attribute students, appropriate resources and low cohesion among members, students must be responsible for their own work quality as much as for their group’s; Students must have frequent and timely feedback as soon as possible; and assignment must promote learning and team development.

TBL may be a mean of organizing the course or a discipline, its contents must be distributed in sections and each section must be composed by specific readings previously available to students to be prepared consisting to individual study.

(STEP 1 Preparation – pre-class); First thing in class, students answering individually to test (STEP 2.a – Individual Test) and in the following students answer the same questions in group, answers must be the same to all members of a group (STEP 2.b – Team Test); Discussed answers with students arguments and appealing from teams based on evidences or literature references. (STEP 2.c – Written Appeals- from teams). That is an important moment to fix contents. (STEP 3 – Application Oriented Activities) consisting on class activities or tasks that involve practical application of discussed contents on previous steps. Correct answers must be presented and discussed.

Finally, on STEP 4 – Evaluation, students must evaluate themselves and the other members of their group in each step of activity. According to Krug et al. (2016) is important that each activity have a value added to the final grade.

3 EVALUATION AND ASSESSMENT DETERMINING LEARNING

Evaluation and assessment are words that may have different meaning in different languages. For now the word evaluation means the process of observing and measuring learning for the purpose of judging it and of determining its value by compassing to learning objectives. The word assessment is the process of objectively understanding the state or condition of learning by observation and measurement. Formative assessment is measuring for the purpose of improving and summative assessment is what it is normally called evaluation. Both include self-assessments, documentation of instructional plans and design and most importantly, evidence of students learning outcomes. Learning methodologies changes involve, necessarily, on rethinking students as active member of each step of learning process. Evaluation must be seen at the same perspective.

Evaluation strategies are considered import aspects of a qualified high education structure and challenges to be faced by teachers and faculties. (GARCÍÁ, 2009).

The importance of assessments and evaluations is undeniable and its reasoned purposes are: (i) ver-
ify the objectives proposed reach; (ii) measure learning process efficiency, (iii) detect failure causes in the learning process. However, as grades are what define the future steps to students, they are also what really matter to majority of them (RODRIGUES JÚNIOR, 2009). If students understand evaluation as a tool to define their future progression they will be involved in the learning process. Student’s dedication and commitment will be equivalent to what is required on evaluation. According to Garcí a (2009) expectations related to evaluation determine the way students deal with daily class activities.

Assessments must be understood not on as measuring learned contents, generating data that will promote or select students, but as an important moment of rationality induction in school environment, of students learning and of feedback for teachers (HOFFMANN, 2005; TRONCON, 1996). Many authors (BORBA; FERRI; HOSTINS, 2007; BERBEL; OLIVEIRA; VASCONCELLOS, 2006; SCHWAR; PAIXÃO, 2013) pinpoint summative evaluation or assessment evaluation as the most used evaluation tool to assess learning, mainly in high education. Rodrigues Junior (2009) point out that, even though memorization is an important learning process, what it is seen is the prevalence of memorization rather than others also important intellectual processes in professional education such as critical thinking, solving problems and new knowledge production.

In current context, in the face of the needs of rethinking learning methods and monitoring students, find solutions for embodying new technologies allow broad and significant students empowerment and autonomy as much as critical thinking induction, main objective of higher education (LUCKESI, 2011; FRANCO; ALMEIDA, 2017; SÁNCHEZ, 2017).

4 ACTIVITY DESCRIPTIONS

22/05/2018
STEP 1 – PREPARATION Enabling printed and on digital media support material available on institutional electronic site;

29/05/2018
Explanation of each step of activity proposed in including each question values;

05/06/2018
TBL as assessment method of measuring learning of Scientific Research Methodology Course (SRMC): Scientific Research Methodology Course (SRMC) by means of TBL in 69 students class.

7:30pm
Student’s distribution in previously formed groups was in nine groups with five components and four groups with six components. The groups distribution was data show projected ten minutes before the activity beginning. In each school desk there was a paper sheet with the student and group members written on them (for self evaluation and peers evaluation) in one side and the answering table on the other side. Each group elected one relater to check the answer filling before next question was projected.

Questions were projected on data show for two minutes answering for each one question, both individual and team answers steps.

1) REVISION AND CLARIFICATION OF ACTIVITY STEPS.

8pm
STEP 2 – READINESS ASSURANCE

1) INDIVIDUAL TEST – Five objective and conceptual questions (in these step, student could choose two different answer, if one of it was the right answer its value would half value), subsequently
followed by the same questions answered in group (TEAM TEST). In this step only one consensually answer to each question was allowed. WRITTEN APPEALS students received immediate feedback on the team test and they had the opportunity write evidence-based appeals when they felt they could make valid arguments for their answer to questions, which they got wrong.

2) APPLICATION OF COURSE CONCEPTS: Five objective and contextualized questions of contents application. Questions were projected and printed and groups had 25 minutes to answer them.

3) FEEDBACK;
STEP 3 – EVALUATION

1) SELF EVALUATION AND PEERS EVALUATION.
2) ASSESSMENT BY MEANS OF TBL ACTIVITY PERCEPTION: Answer activity evaluation questionnaire by students.

9:30pm: close of class.

5 RESEARCH: MATERIAL AND METHOD

This paper intended to 1. Analyze the impact of TBL as assessment tool of higher education course in a Brazilian private institution by the students perception of it; 2. Identify the students’ satisfaction degree with TBL as assessment tool in order to identify if TBL can intervene in students learning outcome.

At the end of TBL activity as assessment tool, 69 students answered to the following questions:
1. Would you like to have TBL experience as assessment tool again? Why?
2. What are your comments about the TBL activity you just had today?
Student’s comments analysis were theoretical mediated by the discourse analysis based of Orlandi (2001) and content analysis of Bardin (1977). Fourteen terms categories were created.

METHOD LIMITATIONS – unfamiliarity to the TBL method, anxiety generated by assessment, arbitrariness in determining and distributing students into groups and response time control are factors to be considered and may have any influence in students’ performance.

6 RESULTS ANALYSIS

TBL application as higher education learning assessment for 69 students pointed to 57 (82.6%) students answered YES to the question referred to being evaluated by means of TBL and 12 (17.4%) answered NO to the same question which demonstrates acceptance to the TBL as assessment method among students respondents.

Graph 1: Students interest in being evaluated by means of TBL again
ONE HUNDRED TWENTY FIVE students comments about TBL assessment method were analyzed and categorized in FOURTEEN words as follow (in brackets the number of citations of each word or its similar meaning): LEARNING (27), INTERACTION (24), DYNAMISM (18), COOPERATION (11), ENTERTAINMENT (9), FACILITATOR (7), APPLICABILITY (7), PRODUCTIVITY (6), DISCUSSION (4), PARTICIPATION (3), ARBITRARINESS IN GROUP COMPOSITION (3), QUESTION SHOULD PRINTED INSTEAD OF PROJECTED (2), CREATIVITY (2), LACK OF ANSWER TIME (2).

Graph 2 presents those words above and its respective values related to the number of citations of each one. It is possible to observe that from 125 citations only seven (5.6%) were negative perception. All 118 citations reveal that students had positive perception about TBL as assessment method. As previously been discussed, arbitrariness of groups composition would be a limitation to acceptance to the method, as much as the short period of time estimated to each answer. Sense of vision is an important learning mean, printed questions as well as familiarity to the method would facilitate understanding and engagement with the activity proposed.

On average each student made 1.8 comments and the graph 2 below shows the percentage incidence of each comment by student.

Source: Authors.

It can be observed that within fourteen categorized words eleven (78.6%) reveal positive perception and three (21.4%) reveal negative perception in students comments. Qualitative analysis points to a significant approach to National Curricular Guidelines in order to develop skills such as critical thinking, communication and debate, problem solving and working with others. Also active learning principals such as dynamic and creative activities centered in students.
Finally, in terms of self evaluation and peers evaluation related to readiness, participative and collaborative attitude during the TBL activity, results thus present:
1) Thirteen students didn’t answer the evaluation;
2) Fifty six answered the evaluation;
3) Eight admit that didn’t read the support material, they were not prepared to activity and six of them were constrained to that;
4) Five students received major grade for preparation even after admitting that they were prepared as should have. That situation leads us to believe that some students are lenient to peers.

7 CONCLUSION

Active learning proposes participative attitude, solving problems development and learning construction opportunities projects. Active learning methodologies have basic axis in transforming action-reaction-action and advantages of continuing studying, independency and responsibility, allow biopsicosocial integration and prepare working group. Team Based Learning (TBL) is a variety of learning practices based on one another in order to strength instructional effects and it drafted in planned and defined steps.

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This study aimed to investigate how TBL can be a mean of assessment and how students perceived it. Results show that TBL can be a very interesting evaluation method since it encourages many aspects of daily life such as working together and solving problems.

Further studies must be developed in order to infer different aspects and data that this study has not captured.

REFERENCES


ANNEX A

TEAM BASED LEARNING – TBL in Scientific Research Methodology Course

STEP 2 – INDIVIDUAL AND TEAM TEST

Questions 1 to 7 = 0.5 one answer and 0.25 for two answers if one of them is right
Question 11 to 15 = 1.0

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STEP 3 – STUDENTS EVALUATION

Evaluate from 0 a 0.5 your performance and your peers performance in this activity according to criteria below (Total 1.5)

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Would you like to be evaluated by means of TBL assessment again?

( ) YES  ( ) NO

COMMENTS

Write your comments down about this activity and how assessment by means of TBL had any impact in your learning:

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