ANALYSIS OF EFFICIENCY OF TEAM BASED LEARNING (TBL) TECHNOLOGY

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Abstract

Team based learning is one of the effective technologies used in teaching in preclinical and clinical disciplines in Semey State Medical University. TBL consists of the following stages: individual testing, group testing, clinical case, practical skills, individual testing. During team based learning vertical and horizontal integration is used. Integration is implanted between theoretical disciplines, theoretical and clinical disciplines and between clinical subjects. 100 students and 50 teachers were surveyed about efficiency of TBL. Teachers and students marked that team based learning technology helps to develop competencies, associated with knowledge, practical skills and attitude: Team based learning improves "knowledge and understanding in study area"; "practical skills", "clinical thinking"; "communication skills", "skills of scientific research", "team work skills". Students put the overage mark of TBL technology – 3,33, teachers – 3,67. Feed back of students and teachers allows to correct content of TBL. Team based learning increases motivation of students, individual and group responsibility, improves communication skills, clinical thinking, reveals leadership. .

Keywords: Team based learning, clinical and preclinical disciplines, vertical and horizontal integration

Introduction:

Innovative technologies in medical education increase quality of educational process. In Kazakhstan these technologies are actively implemented. Team based learning is one of the effective technologies used in teaching in preclinical and clinical departments of Semey State Medical University. Generally effective learning includes knowledge, practical skills and attitude. And team based learning promotes many competencies, associated with three domains of learning: communication skills, clinical thinking, leadership, team work skills, responsibility and others. Team based learning in Semey University is implemented in educational process for the 5 years. Learning process in team based learning consists of the following stages: individual testing, group testing, clinical cases, practical skills, individual testing. Students answer on tests individually, then together, in group. The next stage is group's discussion of clinical cases. Clinical case includes information about patient and

questions. Students should give answers on this questions in group's work. These questions cover all aspect of studied subject. These aspects depend on discipline. Preclinical subjects study theoretical questions. In clinical disciplines students study etiology, pathogenesis, diagnosis, differential diagnosis, laboratory diagnosis, treatment, prevention etc. In clinical cases different questions can be used. They deepen and expand studied topic.   After clinical case students acquire practical skills. Then teacher delivery material in a view of video, slides, answers to all questions. Finally students answer on individual tests. They may be the same or other and more advanced. Every stage of team based learning is estimated. Percentage of every stage depends on subject. For example, on theoretical disciplines ascent is made on practical skills, on clinical disciplines a big percentage is clinical case. Last two years teachers of Semey State Medical University actively use vertical and horizontal integration during TBL. Integration of disciplines allows to connect all knowledge, activate previous knowledge and develop metacognition. Integration is conducted between theoretical disciplines, clinical disciplines and theoretical and clinical. For example, horizontal integration is carried out between subjects, which are studied during the academic year (propedeutic of internal disease, pathological anatomy, pathological physiology, pharmacology, visual diagnosis etc.). Vertical integration connects subjects that student studied before and current subjects (pathological anatomy and infectious diseases, epidemiology and infectious diseases, evidence based medicine and internal diseases, anatomy and traumatology). Integration of preclinical disciplines help students to learn medical sciences completely and deeply, integration of preclinical and clinical subjects introduces the student to the clinical environment, connects theory with clinic. In horizontal integration of clinical subjects students study differential aspects of clinical diagnosis. Team based learning, vertical and horizontal integration are actively implemented during lectures and practical lessons, which are delivered by two and more teachers. Methodical material is made by all teachers. This technology makes real conditions of doctor work. This study is about analysis of efficiency of team based learning technology.

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We analyzed a feed back of students and teachers about team based learning. 100 students and 50 teachers were surveyed. Survey of teachers contained the next questions: 1. What is the stage of innovative technology have you done?; 2. What is the stage of preparation has caused you difficulty and why?; 3. Indicate which competencies of students above technology helps to develop; 4. Do you like the conduct of practical classes on this technique?; 5. If no, what is the reason; 6. Evaluate the effectiveness of new educational technology; 7. Recommendations, comments, suggestions. Survey of students consists of the following questions: 1. What is the innovative technology have used during lesson?; 2. Indicate which your competencies above technology helps to develop; 3. What is the stage of the work has caused difficulties?; 4. Do you like the conduct of practical classes on this technique?; 5. If no, what is the reason; 6. Evaluate the effectiveness of new educational technology; 7. Recommendations, comments, suggestions. Reply of teachers on the first question revealed, that for team based learning they prepared multiple choice questions (MCQ) in 100%, clinical cases in 100%, demonstration of practical skills on video in 26%. On the second question teachers answered, that they had difficulty in preparing of tests (70%), clinical cases (20%), demonstration of practical skills on video (84%). Answers of teacher on third question were following: team based learning improves "knowledge and understanding in study area" in 92%; "practical skills" - 90%; "clinical thinking" - 88%; "communication skills" - 94%; "skills of scientific research" - 60%; "team work skills" - 96%, 6% of respondents answered "nothing competencies", 10% - "difficult to answer". Teachers liked team based technology in 94%. The reasons of dislike of this technology were: "it takes much time for preparing of tests, clinical cases and video", "students may not prepare to lessons".

Teachers put the overage mark of TBL technology 3,67 by 4 ball rating score. Recommendation, comments, suggestions of teachers were next: "Students can acquire material, if they are not ready to lesson", "Team based learning is objective assessment of knowledge", "In clinical subjects thematical patient can be absent, in this case TBL (clinical case) helps to make real condition of doctor work", "Team based learning promotes acquirement of practical skills", "During TBL students use their prior knowledge and apply them for current", "Team based learning helps to develop clinical thinking", "Students improve communication skills, team work skills, leadership". Analysis of students answers revealed, that the also mark development of competencies as "knowledge and understanding in study area" in 85%; "practical skills" - 90%; "clinical thinking" - 80%; "communication skills" - 90%; "skills of scientific research" - 40%; "team work skills" - 95%, "nothing competencies" - 5%, "difficult to answer" - 10%. On the question "What stage of team based learning did you like the most?" 16% of students answered that they liked individual testing, 24% of students pleased group testing, 37% of students preferred group discussing of clinical case, 13% of students liked practical skill, 10% - final individual testing. The question "What stage of team based learning was difficult?" revealed next answers. Individual testing was difficult for 19%, group testing - for 13%, group discussion of clinical case – for 30%, practical skills – for 29%, final individual testing - for 9% of students. On question "Did you like practical lesson conducted by team based learning technology" 8% of students had difficulty in answering, 38% of students didn't like, and 54% pleased this practical lesson. The reasons of dislike were the next: ''I want only individual grade, don't want to share with other students'', "I don't want to answer for students, who didn't prepare lessons".

Recommendations, suggestions, remarks of students were the next: "I wasn't ready to lesson, but after TBL lesson I acquired material", "Perfect students can not defend their opinions", "Perfect students don't mean leaders", "I don't like TBL, because I don't want to be responsible for others", "I like TBL lessons because they are interesting", "The mark in this technology is objective" etc. Students put the overage mark of TBL technology - 3,33. Feed back of students and teachers helps to correct and improve content of TBL.

Conclusion:

This study suggests that technology team based learning increases motivation of students, individual and group responsibility, improves communication skills, reveals leadership, makes for acquirement competency. Feed back allows improving of technology.

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