



Unknown Potential of Flipped Classroom for Blended Learning in Medical Education

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Authors

Sepahvand R. ¹ PhD,
Hozni A.*¹ MSc

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ABSTRACT

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¹Business Management Department, Economics & Administrative Science Faculty, Lorestan University, Khorramabad, Iran

*Correspondence

Address: Business Management Department, Economics & Administrative Science Faculty, Lorestan University, Khorramabad, Iran

Phone: -

Fax: -

aliob1395@gmail.com

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[1] Moving toward heutagogical learning: Illuminating undergraduate nursing students' experiences in a flipped classroom [2] Implementation of a flipped classroom approach to promote active learning in the third-year surgery clerkship [3] The comparison between regular and flipped classrooms for EFL Korean adult learners [4] Effectiveness of flipped classrooms in nursing education: systematic review and meta-analysis [5] First 'Global Flipped Classroom in One Health': From MOOCs to research on real world challenges [6] Online learning versus blended learning of clinical supervisee skills with pre-registration nursing students: a randomised controlled trial [7] Motivation and cognitive load in the flipped classroom: definition, rationale and a call for research

Dear Editor,

The main engine in the health system is educating physicians, nurses, and other medical groups. Rapid changes in the economic, political, social, and technological spheres often complicate health education. For this reason, the duties and responsibilities of medical science instructors have become heavier and more complex than before. It is no longer possible with traditional methods of medical students to move toward advanced development. Quality has been a gold goal throughout the entire history of humankind. One of the issues raised in recent years in medical university is the decline in the quality of medical education. Clinical practice in a dynamic healthcare environment requires more than knowledge [1]. Clinicians must also demonstrate essential critical thinking skills such as comprehension, reasoning, and exploring alternative frames of reference. Clinical education should be problem-based and self-directed and should facilitate critical thinking among learners. In the traditional teaching method, the incumbent tries to learn what the teacher taught at the same time [2]. The learner cannot stop the instructor for further reflection, and may miss the key points of the course when he talks to the speaker in his mind. Nowadays, blended education is a new concept; face-to-face learning and teaching experiences are combined with online tasks and activities. In other words, there is a transition from "education for life" to "lifelong learning", which is understood as continuous and self-motivated search of knowledge for different purposes either professional or personal. Blended learning has 3 primary components:

- 1- In-person classroom activities facilitated by a trained educator.
- 2- Online learning materials, often including pre-recorded lectures given by the same instructor.
- 3- Structured independent study time guided by the material in the lectures and skills developed during the classroom experience [3].

The key element of blended learning is the technology called "flipped classroom", which was developed in 2000 [4]. The idea of this technology is that the main stages of the teaching and learning process such as classroom activities and homework are reversed. That is, theoretical material is studied by students individually by means of watching video lectures recorded by the teacher or downloaded from the websites, while classroom activities are devoted to fulfilling practical tasks and discussing the major issues with the teacher. In this pattern, the role of the outside environment of the school, "home", also changes. In fact, the house turns into a complement to the school rather than the conflict. There are many evidences and studies to support the effectiveness of the flipped classroom for clinical education has been demonstrated among pharmacy, medicine, nursing, and other medical science

students. The value of the reverse teaching method is to convert a passive class into the active workshop, in which learners can comment on educational content, evaluate their learning, and interact with other students through practical and group activities [5]. It actually increases teamwork. During a reverse class session, the teacher acts as an instructor or counselor and encourages students to practice more and group activities. Blended learning and flipped class concepts are beyond online learning because it is a combination of online and face to face methods.

In flipped class, student controls the training session by having pre-recorded educational videos. This method also provides a great help for people with hearing impairments or language proficiency. Assigning class time to discussion about learning and doing assignments gives the teacher the opportunity to correct and identify common mistakes of learners. In addition, team projects reinforce the spirit of participation, allowing students to learn from each other and helping others accomplish their assignments to learn better. The commonly used clinical education system only serves to maintain information and the teacher is considered as a single axis of training. Also the large volume of textbooks has always been challenged by professors and students of medical education. Therefore, attention to the flipped class has transformed this trend. It saves time in class and the effectiveness of training goes up [6]. The reverse teaching method, with all its benefits, can simply be missed. Some of the barriers and challenges include the following items: Capturing educational content requires effort and time. As a result, the reverse teaching way takes more time and energy. Learners need to learn new skills by the teacher. Learners usually disagree to this teaching style initially, and they are dissatisfied with the lack of face-to-face communication. Also, students are not well received from the reciprocal class because they are afraid of asking questions and problems they cannot solve. The necessary facilities and the access to download and watch timely video tutorials are not possible for everyone and everywhere [7].

To sum up, due to the importance of learning and increasing demand for education, increasing effectiveness and reducing costs are one of the challenges of all educational organizations. Undoubtedly, the emergence of new educational technologies and e-learning provide good opportunities for us, but technology alone does not make a profound and effective learning. E-learning, despite all its benefits, has its own limitations such as relatively high initial costs, limited access for all to the exploitation, and access to the computer and its side services. The flipped classroom technology has a huge pedagogical potential for both teachers and students particularly in the clinical field. Practical lessons and theory have a lot of

compaction and complexity and they make a lot of responsibility. Overcoming these challenges needs further research in order to create a new learning environment based on the technology of flipped classroom.

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