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Team-Based Learning in Pharmaceutical Education

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In traditional education, students learn passively and are obliged to retrieve rather than comprehend, question and critically think. In addition, their main source of scientific information is the power point presentation or handouts prepared by the instructors making them mere receivers of knowledge as introduced by the instructors, and maintaining the level of skill, cognition and functioning achieved at the lowest of Bloom's cognitive levels [1].

The evolution in pharmaceutical care delivery from product-centered to patient-centered necessitates a change in pharmacy education that ensures the graduation of a pharmacist who not only knows much about drugs but someone who is equipped with various skills of communication and documentation, critical thinking, problem solving abilities and decision making.

In recent years, innovation in education took several forms like flipped classrooms, problem-based learning (PBL) and team-based learning (TBL). Such methods of teaching/learning require reconstruction of courses, and a significant change in the delivery of content and assessments. Flipped classroom involves prior recording of the lecture so it would be watched by students in preparation for class. This has the disadvantage that students may rely merely on material presented in the recording which limits the scope of discussion and interaction during class.

On the other hand, PBL requires running interactive learning sessions in small groups and the instructor acts as a facilitator. As such large groups of students will require several facilitators to administer a single PBL session.

TBL as has been first pioneered by Michaelsen and coworkers [2] in business school and later in health sciences [3]. This can be run for a large group of students utilizing only one facilitator [4]. In TBL, pre-class preparation is carried out by students on the basis of pre-set objectives that need to be achieved. Students individually answer a set of 10-12 multiple choice questions (individual reassurance test, IRAT), then, they take the same test after they are randomly distributed into groups of five to seven students (group reassurance test, GRAT). During this activity, students within the group discuss questions to finally reach to an answer, which is usually followed by all-group discussions and exchange of information of possible answers. During the application phase, a scenario or a case which resembles real life problems faced every day during practice is presented. Solutions reached at by various teams are compared and discussed, a process that enriches the self-gained knowledge and skill.

We gradually introduced TBL at Sharjah University College of Pharmacy in most of our courses including pharmacology, pharmacy practice, clinical pharmacy, pharmaceutics and medicinal chemistry. Sharjah Pharmacy students enjoyed the sessions and mostly performed better in assessments during TBL sessions than in those taught by traditional lecturing.

However, it is worth noting that adaptability of TBL as an instructional strategy requires first changes in the delivery of the course to accommodate for the time required to run TBL sessions, as a one-two lecture hours /week may not be enough to cover a session. This has been overcome by modifying these segments of the course that are delivered in a TBL fashion to a two to three-hour tutorial allowing for a complete TBL session to be carried out. Second, random student distribution into small teams of 5-7 members is preferred to be carried out early in the course with the same distribution continuing throughout the course if not across all courses. Third, peer evaluations within teams may pose a problem at the beginning particularly when only 1-2 TBL sessions are introduced. At the beginning students of a team tend to support each other in peer evaluation but once the TBL is adapted, students who are not actively contributing to the sessions will be poorly evaluated by their peers. Fourth, scenarios presented at the end of the session as application to the gained knowledge should reflect real-life problems faced in daily practice.

In conclusion, TBL may provide the benefits of interactive guided self-learning of PBL and flipped classes and proves its applicability and effectiveness in pharmaceutical education. Colleges of Pharmacy should encourage faculty to adapt to active learning techniques and make available the time and resources required to facilitate their implementation. Faculty must assess the perception of TBL by students, and address and plan for its limitations and challenges.

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