

Editorial

Self-directed learning in undergraduate medical education

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Self-directed learning (SDL) has attracted a lot of attention in undergraduate medical education. Considering the rapid expansion in medical knowledge and the ever faster incorporation of newer medicines and other treatment modalities it is becoming increasingly important for medical students to develop the skills of life-long learning and the ability to critically appraise scientific information. The term SDL is used interchangeably with other concepts and terminologies including lifelong learning, continuous medical education, active learning etc. A recent article examined the definition and the goals of SDL in the contemporary medical education literature [1]. Among the various characteristics mentioned were 'the preparedness of students to engage in learning activities defined by himself rather than a teacher'[2], and 'an independent pursuit that involves a philosophy of personal autonomy and self-management' [3].

SDL in undergraduate medical education

Undergraduate medical education should develop SDL skills among students and prepare them for lifelong learning. Many accrediting agencies are paying increasing attention to where and how in the medical curriculum SDL skills among students are

developed. Active learning is any instructional method which engages students in the learning process [4]. Students undertake meaningful learning activities and think about what they are doing. In collaborative learning students work together in groups searching for understanding, solving a problem, or creating a product [5]. An article published in 2004 found support for all forms of active learning which they had examined [6]. The author mentions that students will remember more if brief activities are introduced during the lecture. Faculty should structure their courses to create cooperative and collaborative learning environments.

Effectiveness of SDL

A systematic review examined the effectiveness of SDL in health professions education [7]. The authors concluded that moderate quality evidence exists to suggest SDL is associated with moderate improvements in the knowledge domain compared with traditional teaching methods and may be as effective with regard to attitude and skills. The authors put forward suggestions for educators embarking on SDL curricula. They mention that learners should be involved in finding the learning resources

and learning styles which are most appropriate for them, educators should consider SDL as more effective strategy for advanced learners and consider SDL especially for learning objectives in the knowledge domain. An article published in 2006 examined the evidence for the effectiveness of active learning strategies in physiology [8]. The author concluded that there is evidence that student-centered, active learning approaches are effective in physiology and work better than more passive approaches. The author mentions that while there is no single definitive experiment to prove this, the very multiplicity of sources of evidence makes for a compelling argument.

Problem-based learning

Problem-based learning (PBL) is widely used in undergraduate medical education and is grounded in the belief that learning is most effective when students are actively involved and learn in the context in which knowledge is to be used [9]. Clinical problems are widely used to stimulate and anchor medical student learning. There is a wide difference in approaches with some medical schools following a predominantly problem-based curriculum while others have regular PBL sessions but didactic lectures continue to be the predominant teaching-learning method. Learning has been evaluated among students in schools with traditional and problem-based curricula. A study conducted in Saudi Arabia showed that students in a PBL curriculum obtained higher knowledge and skills scores compared to students following a traditional curriculum [10]. Similar results have been shown in other studies though some studies did not show a significant difference between the two curricula.

Effects of PBL

The effect of PBL on the critical thinking skills of undergraduate nursing students was explored at a university in Hong Kong [11]. The authors concluded that significant differences in critical thinking disposition development were found between the two groups (PBL and lecture students). PBL students had significantly higher critical thinking disposition score compared to lecture students on completion of their sessions. They also continued to have higher scores for two years following the sessions. A systematic review examined the effects of PBL during medical school on physician competency [12]. The authors concluded that PBL during medical school has positive effects on physician competencies especially in the social and the knowledge domains. They recommended that future research examine the effects of PBL on other domains of physician competency. SDL is one of the main educational principles behind PBL and it is argued that this principle is strongly reliant on the western ideas of democracy, individualism and egalitarianism [13]. A paper published in 2012 examines the globalization of PBL and cultural influences on SDL [14]. The authors conclude that PBL can be applied in different cultural contexts but uniform processes and outcomes may not be suitable and culturally sensitive alternatives may need to be developed.

PBL in Nepal

PBL is increasingly being used during the first two years of the basic sciences in Nepalese medical schools [15]. At the Patan Academy of Health Sciences (PAHS), PBL is a major learning method. Students' perception regarding PBL during the introductory/foundation six month course at

PAHS was studied [16]. Students showed a positive reaction toward PBL and agreed that it fostered generic skills (communication, group work, critical thinking, reasoning, reflection and SDL). They wanted more sessions in the future and were of the opinion that PBL is fun, provides learning in context and helps in long-term retention of knowledge. Active learning has been examined in a recent article and tips for facilitating active small group learning provided [17]. A substantial percentage of faculty members, however, remain skeptical about active learning, SDL and students' ability to learn on their own [18]. However, one of the most important roles of a teacher is to inspire students and motivate them to learn on their own.

Tips for SDL

SDL should be inculcated in undergraduate medical education during the basic science years. Adequate opportunities for SDL should be provided and student participation in small group sessions should be assessed using structured rubrics. SDL should be strengthened during the clinical years and postgraduate training. Online and electronic resources will play an important role in SDL and the HINARI database ensures free access to the scientific literature for students, faculty, health professionals and researchers in Nepal. Studies show that medical students may have a high degree of readiness for SDL. A study among first semester students in a Nepalese medical school showed most students had a high degree of readiness for SDL [19]. At KIST Medical College, SDL readiness increased significantly after a partially problem-based first year curriculum [20]. Among the tips for effective SDL are to identify the learning needs of students and other stakeholders, translate these needs into

learning objectives, identify resources and organize a practical plan of action. Preparing a learning contract, managing time, use of electronic resources and evaluating the outcomes of the educational process are also recommended. Among the important competencies for SDL are assessment of learning gaps, evaluation of self and others, reflection, information management, critical thinking and critical appraisal [21].

Doctors in Nepal have to practice in a variety of settings, often with limited resources. However, recent developments in communication technology mean that most of them may have access to electronic sources of medicine information. Developing adequate SDL skills among medical graduates is important to ensure these doctors deliver good quality care to the population even under challenging circumstances.

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