ORIGINAL ARTICLE

Readiness for self-directed learning among medical undergraduate students: Opportunities and challenges

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Abstract

Background: Self-directed Learning (SDL) entails self-contemplation by students on their individual learning needs and enable them to contrive their goals for learning, recognize authentic learning resources and self-appraise their learning outcomes. As per the new revised Indian medical undergraduate curricula put forth by the National Medical Commission (NMC), SDL has been deemed to be a prerequisite and assigned a predetermined fixed schedule in the timetable. However, very few studies have explored the SDL abilities of the students prior to implementing it. *Aim and Objectives:* The aim of this study was to measure readiness for SDL of students of the undergraduate medical course and identify SDL needs of the students. *Material and Methods:* Readiness for SDL was measured among first year undergraduate students by using Self-directed Learning Readiness Scale (SDLRS), developed by Fischer *et al.*, 2000 and later modified and validated for medical students by Hendry & Ginns, 2009. The mean total scores on subcategories, 'Critical Self Evaluation (SE), Learning Self Efficacy (SF), Self-Determination (SD) and Effective Organisation for Learning (OL) were calculated. *Results:* The observed mean SDLR score was 139.28 ± 13.74 (range $99 - 175$). Total scores greater than 129 was considered as readiness for SDL. 77.2% scored greater than 129 indicating high readiness. Mean scores were not significantly different among male and female students. The mean scores in the 4 domains of SE, SF, SD and OL were 20.58 ± 2.91, 73.46 ± 7.87, 17.2 ± 2.33 and 28.2 ± 3.19 respectively. *Conclusion:* SDL readiness appeared to be high among medical students. The results indicate a need to identify and incorporate pedagogical techniques to nurture and enhance SDL competency among medical students.

Keywords: Self-Directed Learning, SDLR score, pedagogy, competency-based curriculum

Introduction

Self-directed Learning (SDL) is a crucial scholastic philosophy in medical education advocated as a means to develop a competent medical graduate and inculcate life-long learning skills in them. SDL is characterized as "a process in which students take the initiative to diagnose their learning needs, formulate learning goals, identify resources for learning, select and implement learning strategies, and evaluate the learning outcomes" [1]. It imbibes various qualities like inquisitiveness, contemplation, deliberation and ideation in the learner. This skill enables students to improve their comprehension and memory enabling them to recollect learnt knowledge and apply the concepts to real life situations. It makes them better decision makers and instils a sense of self-confidence as they achieve the desired competencies [2]. It involves a self-initiative course where the learner himself decides to possess the ownership in learning by instigating the process either through self-help or support from his peers or facilitators. He then proceeds to identify his needs, objectives, and

means to achieve them. The student then personalizes and accomplishes the learning strategies that might work for him and further self-assess the learning outcomes achieved [3]. Thus, the student himself controls his own learning. In a dynamic transitional and ever evolving domain of medical education, SDL evolves as a vitally important modality to help medical students in acquisition of critical skills such as autonomous learning, commitment, self-confidence, responsibility and liability, which aim to make him an ideal physician. The main objective of inculcating SDL amongst the learners in medical education is to attain a competent medical graduate who can self-supervises his/her own learning. The self-directed learner armed with an everlasting thirst for knowledge accompanied by critical thinking makes him/her an able decision maker [4]. The non-exponential growth of medical knowledge has necessitated health professionals to be self-motivators in continuously updating themselves with the current trends and enabling them to confidently make sound evidence based clinical decisions. This would indeed help them to improve their self-esteem and make them goal oriented, independent thinkers and competent clinicians [5]. Readiness for SDL refers to the learner's potential to participate adequately and acquire SDL skills [6]. Self-directed Learning Readiness Scale (SDLRS) captures the comprehensiveness of SDL achieved by the student. It displays the requisite ability of the learner to achieve independent mastery by analysing his personal characteristics, beliefs, attitudes and aptitude [7]. SDLR depends on a variety of factors but not limiting to the influence exerted by the facilitator, the process of teaching and learning, the learning environment, the interrelation between the teacher and the student, and the personal degree of willingness of the student to learn, take ownership of learning and accomplish. It mandates the employment of suitable pedagogical tools to motivate the students to actively participate and employ their skills to negotiate their learning paths through SDL [6]. A higher readiness to SDL propels the students towards an improved initiative and improves learning which thus endorses that improving their readiness towards SDL can be beneficial to those with low scores [8]. Personality factors can play a vital role to promote SDLR amongst the students as evidenced by an earlier study [9]. Learners with a high SDLR score are adept at time management and are better intellectual achievers than those with a poor inclination for SDL [10]. Moreover pedagogies centred on SDL coupled with focussed discussions have claimed to improve academic performance of the students [11]. With the introduction of Competency Based Medical Education (CBME) curriculum, SDL being a core competency to be achieved by the students it becomes all the more imperative to measure the SDLR score of the students so that effective capacity building and training of faculty to help the students achieve this competency becomes possible [12]. With this background, the present study was an attempt to measure the inclination of the undergraduate medical students for SDL and identify the SDL needs of the students.

Material and Methods

A cross-sectional descriptive study was implemented by distributing online forms to the first-year undergraduate medical students. A convenience universal sampling method was followed including

all the students who consented to participate in the study. The objectives and implications of participation was described to the students and only those students who complied with informed consent were included in the study. The study was initiated only after obtaining the requisite permissions from the Institutional Ethics Committee. Students were guaranteed complete confidentiality and participation in the study was entirely voluntary. No identifying information or names were gathered.

Instrument

The 42-item SDLRS, created by Fisher *et al*., is a self-assessment tool which can be used to assess the extent to which a student believes that he/she can achieve SDL competency [7]. Self-management, which displays the qualities of being able to manage one's own learning, a desire to learn, and characteristic self-control, or being in control of one's own learning, are the three components that comprise the 42 items in this SDLRS. SDLRS has recently been validated for use with medical students by Hendry and Ginns [13]. As a result, an updated 35-item SDLRS was created. We used the updated Hendry and Ginns scale from 2009 because our MBBS program has a comparable context. Authorization to utilize the scale was obtained from the authors. A 5-point Likert scale—1 being strongly disagree, 2 disagree, 3 undecided, 4 agree, and 5 strongly agree–must be used by the students to answer. They were instructed to circle the number that best reflected how much they agreed with the assertions.

Data analysis

The gathered surveys were personally examined and filtered to eliminate any that were lacking information. Statistical Package for the Social Sciences (SPSS) version 20 was used for statistical analysis (IBM SPSS Inc., Chicago, IL, USA). The results of the investigation were described using percentages, means, frequencies, and standard deviations. The mean SDLRS scores of males and females were compared using the Student's t-test. A value of $P < 0.05$ was deemed statistically significant. Since there were 36 elements in the updated SDLRS rather than 42 in Fischer's SDLRS, a total SDLRS score of >129 rather than >150 was seen as a sign of SDL readiness [14].

Results

The total number of students enrolled in the first year of the MBBS program were 244. Two hundred and forty students (117 Male students and 123 female students) gave consent and participated in the present study giving a response rate of 98.4%. Screening of the responses obtained revealed three incomplete responses and hence were not considered. Two hundred and thirty-seven responses were assessed for readiness towards SDL. The SDL observed mean score was 139.28 ± 13.74 (range 99 – 175). The mean scores were not significantly different among the male and female students (mean score of male students was 138.44 ± 20.4 and female students was 142.95 ± 14.54). 77.2% scored greater than 129 indicating readiness for SDL. The scores obtained in the various domains are as depicted in the table 1.

Table 1: Scores obtained in various domain			
SDLR Domains	**Score**	**Male** **(Mean ± SD)**	**Female** **(Mean ± SD)**
Critical self-evaluation	20.58 ± 2.91	20.3 ± 2.81	20.87 ± 3.00
Learning self-efficacy	73.46 ± 7.87	73.34 ± 7.83	73.58 ± 7.99
Self-determination	17.2 ± 2.33	16.66 ± 2.53	17.73 ± 2.00
Effective organization for learning	28.2 ± 3.19	27.98 ± 3.43	28.41 ± 2.97

Discussion

Acquiring skills of SDL enables a medical graduate to achieve the competency of being a life-long learner. Assessment of readiness of under-graduates to develop SDL skills enables medical educators to implement pedagogical strategies by fine-tuning to the needs of the individual. In this study we strived to identify the existing level of readiness of the students to incorporate SDL in the existing curriculum. The current study indicates a sustainable level of readiness among the first-year medical undergraduates. The mean SDLR score of 237 medical students in this study was 139.28 ± 13.74 and 77.2% of the participants scored >129 and were categorized as 'ready for SDL'.

A previous study by Balamurugan *et al.*, had reported a mean SDLRS score of 144.6 (± 2SD, 34.8) when analyzed in 440 medical students. In this study, 38% of the students scored >150 and were categorized as 'highly ready for SDL'. They reported higher scores among girls compared to boys and when compared against different semester students, the scores were higher among the first and final year students when compared to the other semesters [15]. In a similar study, conducted in a South Indian medical student population by Kar *et al.*, the SDLRS scores reported was 140.4 ± 24.4, with 30% in the high readiness category. This study was limited to fifth semester students. [16]. The findings in our study were comparable to the results published earlier. A median SDLR score of 132.1 was obtained by Devi *et al.* [14] Shankar *et al.*, and Abraham et al., reported comparable but marginally higher results with a score of 152.7 in first-year MBBS students at Nepal and 151.4 among first-year MBBS students at Manipal respectively [17, 18]. Further analysis showed that Western schools had higher scores. For example, Shokar *et al.*, at Texas University showed that third-year medical students' SDLRS scores were much higher than those of general adult learners [19]. According to Deyo et al., first-year pharmacy students at Maryland University scored 148.6 (± 13.8) [20]. In the present study, the mean scores for SDLR were not significantly different among the male and female students and is concordant with previous studies [21]. Self-efficacy had the greatest subscale scores among the three SDL traits, while self-determination had the lowest. In contrast to self-management, prior research by Shankar *et al.*, and Balamurugan *et al.*, revealed high scores for self-control and a willingness to learn [15, 18].

Variations in SDLRS scores between study groups can be explained by variations in curriculum design, teaching/learning style, and student learning behavior and personal characteristics. According to a recent study that contrasted PBL with traditional curricula, PBL pupils exhibited noticeably more self-regulated conduct [14]. Teaching-learning exercises that expose students to real-world scenarios that are pertinent to their future profession include early clinical exposure and bedside teaching. Compared to tutor-designed, paper-based Problem-based Learning (PBL) scenarios, this might pique students' interest in SDL more. According to these findings, current students are well-prepared for SDL and would gain a great deal from the use of SDL modules and instructional activities such as case-based learning, PBL, mentored student projects, and other SDL pedagogies.

Limitation: Self-report bias is a limitation of this study, as it is of other self-administered questionnaire-based studies. The current study is not a direct assessment of students' SDL skills because it was based on a self-report questionnaire that examined their SDL abilities. Furthermore, the study's generalizability is hampered by the tiny sample size.

To conclude, SDL readiness appeared to be acceptable among medical students. The present study mirrors the level of readiness of the students to acquire SDL competency. Further studies on pedagogical innovations which utilize their SDL abilities are warranted so as to nurture life-long learning in students.

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