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Commentary

Self-Directed Learning and Undergraduate Medical Curriculum

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ABSTRACT

With the introduction of the Competency-Based Medical Education (CBME) curriculum in India, many new concepts like the Foundation course, Self-Directed Learning (SDL), Early Clinical Exposure, Family Adoption, etc., were included in the curriculum. In SDL, a learner has to plan, develop, adapt, and change in a digital, interactive, and global society. For that purpose, the faculty has to be trained, and learners' readiness is to be ensured before the start of the SDL sessions. This write-up aims not to find all the literature related to SDL but to emphasize the basic knowledge of SDL required for medical educators.

Keywords: CBME, Elements of SDL, SSDL model, Triple Cs of SDL

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Introduction

The undergraduate medical program in India aims to create an "Indian Medical Graduate" (IMG) with the necessary knowledge, skills, attitudes, values, and responsiveness so that they can function effectively and efficiently as a first-time public health consultant. To do that, IMG must work effectively, ethically, and efficiently as a clinician, leader, member of the health care team and system, communicator, lifelong learner, and professional (1). Being a lifelong learner is one of the Indian Medical Graduate roles; accomplishing it is an expected skill of an Indian Medical Graduate. Traditional medical education relied on teacher-led teaching methods, which did little to help students develop lifelong learning skills. Competency-Based Medical Education (CBME) requires the students to work in a group, focus on practical learning, express themselves, and develop self-directed reading skills (1, 2). The ability to learn for a lifetime is one of the skills necessary for doctors. A lifelong learning requirement is an ability to learn directly and independently, called self-directed learning (3, 4). The SDL (self-directed learning) helps physicians cope with ongoing medical science changes. The SDL can support and produce lifelong learning skills (5). Lifelong learning is required to cope with the rapid changes in the medical field and enables a health professional to continue learning throughout life (6-8). Worldwide, medical institutions emphasize SDL as part of the curriculum (9, 10).

The National Medical Commission (NMC) mandates 250 hours of self-directed learning throughout the MBBS course, of which 40 hours are dedicated to Phase 1

MBBS (1). It has been shown that readiness for SDL declines with age (11). SDL is a flexible, self-motivated learning method that aims to achieve a high-quality learning level in medical education. The SDL is warmly welcomed worldwide as students acquire skills and can use them confidently in the medical field. Skills are developed through motivation and creativity; they become independent and efficient. As self-directed study skills are a requirement of health professionals, we must ensure that those entering the medical field are encouraged and assisted in developing these skills right from the beginning.

What is SDL?

Different authors describe the SDL in different ways. Motivation, integrity, diligence, and patience are genuine attributes of a self-directed grooming learner (11). The general idea of SDL is that learners take responsibility for learning. Malcolm Knowles (1975) described self-directed learning as a "process in which individuals take the initiative, with or without the help of others, in diagnosing their own learning needs, formulating goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes" (3). Gibbons (2002) stated that "SDL is any increase in knowledge, skill, accomplishment, or personal development that an individual selects and brings change using any method, in any circumstances, at any time" (12).

Why SDL?

In SDL, the role of the facilitator shifts from being a 'sage on the stage' to the 'guide on the side.' Learning should empower the student to be relaxed, mature, and honest. According to Knowles (1990), learning does not occur in isolation but through interaction with teachers, tutors, and peers (13). Therefore, learning can be placed on a continuum, from teacher guidance on the one hand to self-directed on the other end. SDL involves self-management (content management, including social placement, resources, and practice) through self-monitoring (a process in which students monitor, evaluate, and manage their learning strategies with understanding) (14). SDL can be seen as a process by which people set goals, access resources, select a path, and monitor progress with in-depth reflection (15). Thus, SDL is an effective and efficient learning tool for medical students. It empowers the learners to acquire independent learning skills, increased responsibility, confidence, and accountability, which are the essential features of a medical professional.

Elements/dimensions of SDL

Self-directed learning is not just taking control of learning strategies but also controlling the learning situation, ability, and willingness to reflect on and critically evaluate it and be prepared for the alternatives. Many SDL elements have been discussed: learner control, self-regulating learning strategies, reflection, and interaction with the social and physical environment (16). The crucial elements of SDL are depicted in Figure 1. In addition to these essential elements of SDL, some ubiquitous elements include permanency, accessibility, immediacy, and adaptability (17).

Models of SDL?

SDL is a process in which learners take the initiative, with or without the help of others (e.g., teachers and peers), determine their learning needs, set learning goals, identify learning resources, identify resources for learning, and ultimately assess learning outcomes (18-20). There are several SDL opportunities within the curriculum, including integrated learning programs (21), early clinical exposure (22), clerkship programs, laboratory practicals, chart discussions, tutorials, student seminars, e-learning projects, research projects (11) problem-based learning, and group-based learning (20). Various SDL methods used are participating in student projects (23) doughnut rounds in gross anatomy and clinical anatomy (24, 25), providing resources in radiological anatomy (26) and holding peer-assisted

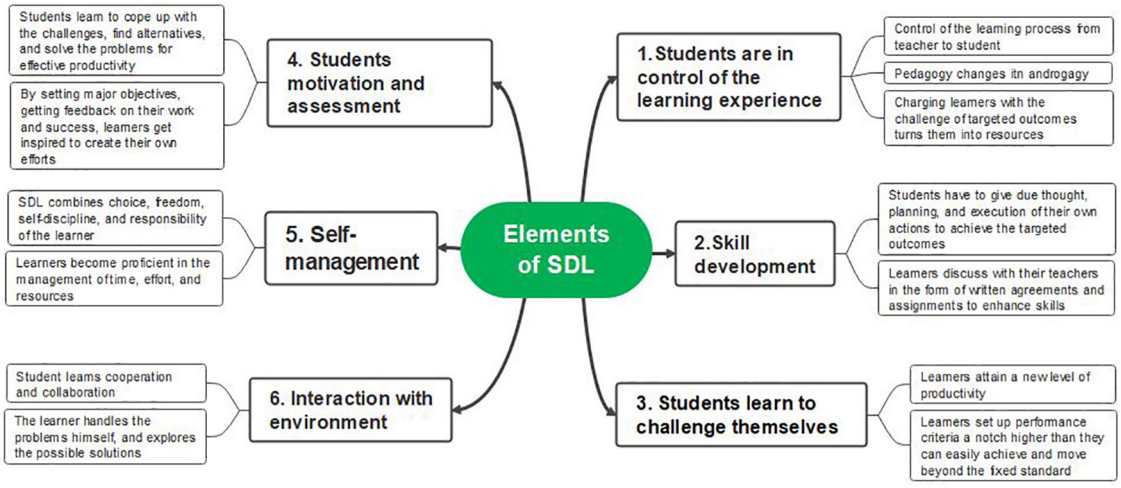

Figure 1: Mind map diagram showing elements of SDL

tutorials (15). SDL has to be differentiated from self-study. Self-study is just directing the students to read the topics at home without any supervision by the facilitator (27). Two commonly used models for SDL are:

1. Garrison's model: Garrison (1997) proposed a comprehensive model for SDL. According to this model, motivation (entry into work), self-monitoring (responsibility), and self-management (control) are key to SDL (14). Depending on the SDL indicators, such as required knowledge and skills, applying optimal learning designs, and assessing learning outcomes, five tasks are essential in completing the SDL (14, 20), as shown in Figure 2.

2. The Staged Self-Directed Learning (SSDL) model (28).

According to Grow's Staged Self-Directed Learning (SSDL) model, SDL has four distinct stages of learning and the corresponding teaching styles. The teaching methods need to be aligned with the student's learning phase. The four stages are dependent, interested, involved, and self-directed. The SSDL model defines "how teachers can encourage students to be more self-directed in their learning." He describes four stages of SDL and 'teachers' roles for each (Table 1).

How to Implement SDL?

For the implementation of SDL, there has to be an optimum learning environment

Figure 2: Steps of SDL implementation as per Garrison's SDL model

for facilitators and learners. The facilitators must be trained and aware of the situations in which students require suitable guidance. Students must monitor their learning progress, identify their learning gaps, and dedicate themselves to filling their lacunae. For SDL implementation, there has to be formulating objectives and goals, assessing readiness to learn, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes (16). Badyal et al. (2021) described the Triple Cs of SDL, representing Concept, Curriculum placement, and Conduct of SDL (29).

a) Concept: The idea of SDL is based on

Table 1: The Staged Self-Directed Learning (SSDL) Model

Stage	Student	Teacher	Examples	Learning/instruction
Stage 1	Dependent	Authority, Couch	Coaching with immediate feedback. Drill. Informative lecture. Overcoming deficiencies and resistance.	Teacher-centered, teacher as expert. Learner expects explicit directions on what to do, how to do it and when. Teaching methods: formal lectures, highlight specific assignments.
Stage 2	Interested	Motivator, Guide	Inspiring lecture plus guided discussion. Goal-setting and learning strategies.	Instructor provides direction and help. Encourage students to build their confidence and skills, recognize their learning styles and personal learning goals, Explain assignments, demo practices, supervise projects and provide feedback.
Stage 3	Involved	Facilitator	Discussion facilitated by teacher who participates as equal. Seminar, Group projects.	Teacher participates in the learning experience,Guide on the side- goal to empower learners. Students learn more about how they learn. assign open ended, carefully designed projects. Explicit criteria, checklists help learners monitor their own progress.
Stage 4	Self-directed	Consultant, Delegator	Internship, dissertation, individual work or self-directed study-group. Creativity. Mentorship.	Learner centered, teacher as consultant. Students able and willing to take responsibility for their learning. Exercise skills in time management, project management, goal setting, self-evaluation, peer critique, information gathering and use of educational resources.

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experiential learning, for which teachers have to be trained, topics to be placed in the curriculum, students be sensitized for SDL, necessary resources be arranged for SDL, online groups of faculty and students be formed, students be provided with pre-reading material, and finally the SDL sessions be held.

b) Curriculum placement: In the CBME, based on the competencies, there is an emphasis on using multiple teaching-learning and assessment methods in the curriculum. In the curriculum, there are pre-determined topics to be taught by the SDL method. SDL sessions are to be arranged suitably in the teaching schedule so that these topics conform with other topics being covered with other teaching-learning methods.

c) Conduct: SDL is conducted in three phases: (i) First contact session, (ii) Intersession phase, and (iii) Second contact session.

i. First contact session: The students are divided into small groups in a class which lasts about an hour. The topic is introduced as a trigger question or a case. It has to be organized to present one manageable piece of the course (topic) to achieve the learning objectives at the end.

ii. Intersession phase: In this period (maybe one week or so), the students search, explore, and comprehend the resource materials as suggested by the facilitator (YouTube videos, e-journals, e-books, and other information technology-related gadgets), who is always available to guide the learners to be engaged and intercommunicate.

iii. Second contact session: This is for about one hour, during which the learner comprehends and debriefs the knowledge

gained from the previous sessions. The facilitator helps the learner assimilate and retain the knowledge gained. This session is also used to assess the learner regarding the SDL session. Based on the overall performance of the student, feedback will be provided.

Assessment of SDL

Assessment of SDL is challenging as there is a lack of objectivity in the assessment tools because the domains assessed in SDL are affective (problem-solving, collaboration, communication, self-awareness, innovation, and professionalism). Self-reported measures are the dominant methods for evaluating the 'individuals' self-direction. Sometimes, a standardized tool is used, such as the Self-Directed Learning Readiness Scale or the Oddi Continuing Learning Inventory (30). These scales are more helpful in assessing the readiness for self-direction rather than measuring the learning outcome. Teachers commonly use performance tasks, portfolios, behavioral checklists, anecdotal records, and self or peer assessments for classroom assessment (30). A learning management system can be valuable for assessing SDL sessions online (29). The assessment ensures the learning outcomes are met and the learners successfully attain the targets.

Conclusion

SDL teaches the learner how to learn rather than what to learn. The system will help the learners augment their abilities to manage overall learning activities, monitor their performance, and enable collaboration, interaction, feedback, proactive planning and evaluation to achieve lifelong learning outcomes. Encouraging lifelong learning skills through SDL leads to metacognition, self-monitoring, and reflection. By fulfilling the role of a lifelong learner, a medical graduate can always be abreast with current knowledge and skills and, as a result, deliver optimum medical care.

Conflict of Interest: None declared.

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