Original Research Paper

Volume - 14 | Issue - 08 | August - 2024 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Biochemistry

IMPACT OF SELF-DIRECTED LEARNING (SDL) ON THE LEARNING PROCESS OF PHASE-I M.B.B.S STUDENTS

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ABSTRACT

BACKGROUND: Medical education has experienced a strategic change with introduction of outcomes-based approach Competency Based Medical Education (CBME). This paradigm shift is imperative to cope with the demands of our evolving health care system. The transformed curriculum introduced novel concepts *viz* Early Clinical Exposure (ECE), Self-directed Learning (SDL), Electives and Foundation Course. The new Graduate Medical Education Regulations (GMER) of 2023 recognizes that Indian Medical Graduate (IMG) must function as Researcher and Critical thinker in addition to the five proposed roles: Clinician, Leader and member of health care team and system, Communicator, Lifelong learner and Professional. Malcolm Knowles describes Self-directed Learning as a process in which an individual takes the initiative with or without the help of others in diagnosing the needs, goals identifying resources and evaluating outcomes. SDL serves as intrinsic motivational tool committed towards continuous improvement of skills and knowledge.

AIMS and OBJECTIVES:

1. To assess the preparedness of Phase-I M.B.B.S students to SDL using self-rating scale of SDL (SRS-SDL).
2. To evaluate the effectiveness of SDL on the learning outcome of the students.

METHOD: After obtaining Institutional Ethics Committee (IEC) approval, all Phase-I M.B.B.S students are administered SRS-SDL via Google forms. An SDL module has been designed with pre-test, flipped classroom session, post-test, out-of-class session and reflective practice. The data is analyzed by statistical tools and thematic analysis. **RESULTS:** Data from SRS -SDL showed High (51%), Moderate (46%) and Low (3%) levels of preparedness to students to SDL. There was a significant improvement in the post-test score. The inclusion of an out-of-class session provided a real time opportunity for the students for clinical application and correlation. Thematic analysis of the participants responses to the impact of SDL on learning process gave five themes: Self-awareness, Motivation, Shared learning, Improvement in study skills and Personality traits. Challenges that were faced by the participants were referring and exploring resources, time management and clinical application. **CONCLUSION:** CBME has mandated SDL as one of the learning strategies to the students. SRS-SDL is an effective tool to understand one's own learning needs and helps to identify the strengths and recognize the weaknesses in learning process. Students recognize SDL as motivational tool in promoting independent and active learning sustainable for a longer period. Nevertheless, the role of a teacher in SDL remains unparalleled in steering and directing their students especially in a generation of widely available resources online.

KEYWORDS : Competency Based Medical Education (CBME), Self-directed Learning (SDL), Self-rating scale of SDL (SRS-SDL), Motivation

INTRODUCTION:

In the year 2011, erstwhile Medical Council of India, MCI (now National Medical Commission, NMC) published a policy document-VISION 2015, where Competency Based Medical Education (CBME) and the term Indian Medical Graduate (IMG) for a skilled basic doctor was first proposed. CBME is an outcomes-based approach that primarily focusses on learning the competencies needed in clinical practice and provides standards and framework for measuring performance. The changing demography, socio-economic context, perceptions, values, advancements in medical education and expectations of stakeholders necessitated a relook on the existing regulations on Graduate Medical Education. The outcome is the Graduate Medical Education Regulations, 2019 and the roll out of CBME nationwide the same year. The GMER was revised subsequently in August 2023.

The transformed curriculum introduced novel concepts *viz* Early Clinical Exposure (ECE), Self-directed Learning (SDL), Electives and Foundation Course. One of the defined roles of Indian Medical Graduate (IMG), the GMER envisages is lifelong learning for continuous improvement skills and language. In addition, the latest GMER 2023 proposes the roles of researcher, who generates and interprets evidence and critical thinker, who demonstrates problem solving skills in professional practice. Self-directed learning serves as an intrinsic motivational tool towards lifelong learning. A radical departure from the didactic lectures to auto-didactics introduced in the new curriculum reflects the importance of SDL for the students in medical education.

Malcolm Knowles describes Self-directed Learning as a process in which an individual takes the initiative with or without the help of others in diagnosing the needs, goals identifying resources and evaluating outcomes. To emphasize the need for SDL, MCI has dedicated time for SDL in each subject across the phases. The new curriculum designated SDL hours for each subject in all phases; Biochemistry is allotted 20 SDL hours in 2019 GMER and subsequently reduced to 10 hours as per GMER, 2023. SDL is not synonymous with self-study. SDL adopts various strategies like Assignments, Project work, Problem Based Learning, Concept Mapping, Inquiry based teaching strategy, Flipped classroom session etc. SDL precludes monotonous learning methods. The self-rating scale of SDL (SRS-SDL) measures a student readiness or preparedness to adapt to and adopt SDL as one of the learning strategies and the extent to which the student has the ability, attitude and personal characteristics appropriate for SDL. SRS-SDL tool employed it the present study covers five broad elements of learning process: Awareness, Learning strategies, Learning activities, Evaluation and Interpersonal skills.

AIMS and OBJECTIVES:

The aim of the study is to explore student's perception about SDL as Teaching Learning methods that will intrinsically motivates the learners towards a sustainable learning process.

Objectives Include:

1. To assess the preparedness of Phase-I M.B.B.S students to SDL using SRS-SDL
2. To evaluate the effectiveness of SDL on the learning outcome of the students

MATERIALS AND METHODS:

The present study was conducted in Government Medical College, GMC (former RIMS) Kadapa, Andhra Pradesh, India. The study was done as a mandatory project for Advance Course in Medical Education, ACME under aegis of CMC Vellore-NMC Nodal Center for National Faculty Development, Tamilnadu, India. After obtaining Institutional Ethics Committee (IEC) approval, the study is conducted in the department of Biochemistry.

Study Design: Prospective cohort study

Setting: All Phase-I M.B.B.S students of academic year 2019-2020 were enrolled for the study. The study is both a classroom setting, and out-of-class session based.

Sample Size: The study was explained and 150 students out of 175 batch volunteered for the study

SRS-SDL tool comprising 60 learning behavior statements on 5-point Likert's scale was delivered to the students via Google forms

An SDL module has been designed and conducted as shown below:
a) The competency under study has been informed to the students in advance
b) A Pre-test assessment done via Google forms
c) A flipped classroom session was conducted: the objectives for a problem-based question, the resources and other relevant data shared prior
d) A post-test assessment done via Google forms
e) An out-of-class session was organized in collaboration with department of General Medicine and Microbiology.
f) At the end of the session, reflective writing is carried out and the usefulness of SDL is evaluated using 5 open ended questions scored on a 5 point Likert's scale

Data Collection:
Data from SRS-SDL tool collected via Google forms is analyzed for three levels of SDL skills. The statistical mean and standard deviation are calculated for pre-test and post-test. The responses from the open-ended questions are coded and subjected to thematic analysis.

RESULTS:
A total of 150 students participated in the study, the relative proportion of boys and girls is 53.3% (n=80) and 46.7%(n=70) respectively.

The data from SRS-SDL tool shows that out of 150 participants, 77 have high, 69 have moderate and 4 have low SDL preparedness.

Table 1 Shows The Levels Of SDL Readiness As Classified By SRS-SDL Tool

Level	Score on SRS SDL tool	No of students	Girls	Boys
Low	60-140	4	3	1
Moderate	141-220	69	30	39
High	221-300	77	37	40
	Total	150	70	80

The mean and standard deviation of the pre-test score is 14.5 and 2.9 as compared to 21.8 and 1.6 in the post-test.

Table 2 Shows The Distribution Of Responses For SDL Evaluation

	1	2	3	4	5
The use of SRS-SDL in assessing your SDL skills	0	3 (2%)	9 (6%)	82 (54.7%)	56 (37.3%)
SDL promotes independent learning	0	1 (0.7%)	12 (8%)	59 (39.3%)	78 (52%)
SDL helps identify available resources	0	0	20 (13.3%)	64 (42.7%)	66 (44%)
SDL-intrinsic motivational tool	0	0	14 (9.3%)	68 (45.3%)	68 (45.3%)
Different approaches in SDL	0	3 (2%)	24 (16%)	91 (60.7%)	32 (21.3%)

(1: Not at all, 2: To a small extent, 3: To a moderate extent, 4: To a great extent and 5: To a very great extent)

Table 3 Shows The Participants' Responses To The Open-ended Questions-to Evaluate The Impact Of SDL On Learning Process

Participant's Responses	Themes
Recognize strengths and weaknesses of one's learning process Develop action plan to suit one's own needs	Self-awareness
Elicits interest / enthusiasm Independent learning Sustainable learning abilities	Self-motivation
Better collaboration and interaction with peers and teachers Inter-personal relations	Shared learning
Better retention and recall of the content Responsibility of one's own learning, Decision making Clinical correlation	Study skills
Self-confidence Communication skills Better expression of thought Competitive spirit	Personality traits

Table 4 Shows The Challenges Faced By Students In Adapting To SDL

Sl. No	Response of learners	
1.	Exploring multiple resources / literature	56%
2.	Time management	36%
3.	Correlating theoretical aspects clinically	8%

DISCUSSION:
Competency Based Medical Education has put forth new elements in Graduate Medical Education Regulations, one of which is Self-directed Learning. Though SDL seems to be synonymous with Self-study, the essence of SDL remains in its words, i.e., self (learner-oriented), directed (facilitated and monitored) and learning (applicable to lifelong learning). SDL is an active learning approach with teacher acting as facilitator of learning and the students takes the initiative for their learning process from identifying the learning needs, setting learning goals, resources and selecting appropriate learning strategies. CBME has assigned 20 hours SDL for Biochemistry in Phase-I.

In the present study, the SDL preparedness of the Phase-I M.B.B.S students is initially assessed using SRS-SDL tool. This tool includes five broad categories: Awareness, Learning Strategies, Learning Activities, Evaluation and Interpersonal skills with scores ranging from 60 -300. Majority of students showed moderate to high SDL preparedness and the rest with low SDL readiness need additional strategies and mentoring to enhance their SDL abilities. Flipped Classrooms have the potential to move the students toward self-directed learning and it is one of the strategies to develop self-directed learners.

In the present study, the SDL module was created in a flipped classroom with problem-based learning. This was supported by out-of-class session in collaboration with department of General Medicine and Microbiology. This provided an effective means of applying the theoretical aspects clinically. The SDL module was designed in a simple clear and easily understandable language. The inclusion of problem-solving activities motivated the learners to identify the learning needs, set the goals and explore the available resources under facilitators guidance.

In our study, learners felt that SDL is effective tool not just for knowledge acquisition and independent learning, but also fosters collaboration with peers and teachers, improves communication skills, better expression of thought, self-confidence, better recall and retention of the subject. Along with the facilitating factors, some challenges were reported by the learners like resource management, time investment and difficulty in clinical correlation. These can be overcome by meticulous designing of SDL modules either in silo or in combination with didactic lectures for a better outcome.

CONCLUSION:
CBME has mandated SDL as one of the learning strategies to the students. Assessing the student's readiness to SDL using SRS-SDL serves dual purpose: 1. Learners get an opportunity to identify their learning needs, develop action plan accordingly to improve, implement and evaluate their learning process, 2. Teachers get an insight about the learners' SDL skills and incorporate appropriate ways to empower them. The present study revealed SRS-SDL tool to evaluate the learners SDL skills. Further, it is evident from the present study that implementing SDL can have multifaceted benefits including shared learning, improvement in study skills and enhancing personality traits. Students recognize SDL as motivational tool in promoting independent and active learning, while teachers play a crucial role in directing or guiding the learning process. The study concludes SDL serves as indispensable tool to promote active learning, improved assertiveness and accountability ascribed to a medical student in a generation of constantly evolving medical field.

Conflict Of Interest: NIL

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