Original Research Article

SELF-DIRECTED LEARNING READINESS AND ASSESSMENT: A CORRELATIONAL STUDY AMONG SECOND YEAR MBBS STUDENTS

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ABSTRACT

Background: In India, the Competency Based Medical Education (CBME) curriculum strongly recommends Self Directed Learning (SDL) as a core component of teaching and learning methodologies, recognizing its importance in developing competent and lifelong learners. This study aims to address the gaps if any in effective implementation of SDL and to develop targeted interventions to enhance SDL skills and ultimately improve medical education. **Objectives:** To assess the Self-Directed Learning Readiness using SDLRS, evaluate the performance in SDL assessment among students with high readiness and correlate SDLRS scores with SDL assessment scores. **Materials and Methods:** This is a cross sectional, Quantitative study carried out among second year MBBS students attending pharmacology department. In the first stage, all students were screened for SDL readiness and those with high readiness for SDL (SDLRS score>150) were later enrolled for SDL session in second stage. They were evaluated using case based questionnaire after 4 weeks. Finally SDLR scores were correlated with SDL assessment scores. **Result:** Out of 144 students screened for SDL readiness, 54 students (15 males and 39 females) were enrolled for second stage. **The Mean ± SD of** Self-Directed Learning Readiness Scale **(SDLRS) scores is** 160.22 ± 8.51. On further analysis, three domains of SDLRS (self-management, desire for learning and self-control) were found to be have a significant difference (p<0.01) between them. The **Mean ± SD of SDL assessment scores was 36.31± 12.67.** Both, SDLRS Scores and SDL Assessment scores were correlated and found to have a weak positive correlation (R² = 0.0156). **Conclusion:** This study among second-year medical students revealed a weak positive correlation between high SDL readiness and actual SDL assessment performance. This underscores the vital need for enhanced training and a supportive learning environment to truly foster effective self-directed learning.

INTRODUCTION

Self-directed learning (SDL) has been identified as an important skill for medical graduates to keep themselves updated to meet the challenges in today's healthcare environment as the field of medical sciences has continuously been changing and evolving rapidly.[1] Self directed learning is a process in which individuals take the initiative with or without the help of others in diagnosing their learning needs, formulating goals, identifying human as well as material resources for learning, choosing and

implementing appropriate strategies and evaluating learning outcomes.[2] Incorporating SDL competencies into medical education curriculum is crucial for achieving learning goals.[3] According to the competency-based medical education (CBME) curriculum, the objective of medical education is to empower Indian medical graduates to be good clinicians, leaders and lifelong learners.[4] Effective implementation of SDL depends upon self-confidence, curiosity, critical thinking, and decision-making abilities of the learners.[5] The degree to which an individual possesses these qualities can be assessed by SDL readiness (SDLR).[6] SDLR will

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reveal students' strengths and weaknesses and will help in developing the most appropriate teaching learning method. Although existing research explores the connection between SDL and general learning outcomes, there remains a need for more focused investigation within the specific context of medical education. Readiness for SDL as a teaching learning method is assessed by Self Directed Learning Readiness Scale (SDLRS).[7] Furthermore, it is important to examine the correlation between SDLRS scores and performance in structured SDL sessions, as this provides a more controlled environment for evaluating SDL skills. This study aims to address this gap by assessing self-rated SDL skills using the SDLRS and correlating these scores with performance in a structured SDL session. By focusing on this critical stage of medical training, when students are transitioning to more independent learning approaches, this research can provide valuable insights for developing targeted interventions to enhance SDL skills and ultimately improve medical education.

Objectives

1. To assess the Self-Directed Learning Readiness using SDLRS among second-year MBBS students.
2. To evaluate the performance in SDL assessment among students with high readiness.
3. To correlate SDLRS scores with SDL assessment scores

MATERIALS AND METHODS

Study Design

This is a cross sectional study at pharmacology department at government medical college, Rajamahendravaram for 2 months from April-May 2025 after obtaining approval from the Institutional Ethics committee vide approval no: IEC/ GMC-RJM / 2025/ 02.

Study Criteria

Inclusion Criteria

1. Study participants who gave consent to participate in the study.

Exclusion Criteria

1. Study participants with incomplete responses in Google forms.
2. Study participants not adhering with study criteria till completion of the study.

Study instrument

A pre-validated SDLRS study instrument designed by Fishers' et al,[7] was used for evaluating students perception of their skills and attitudes that are associated with self-directedness in learning. It has a total of 40 items grouped under three domains: self-management (13 items), desire for learning (12 items) and self-control (15 items). The student's response for each item was recorded in a 5 point Likert scale and their scores calculated as given below.

Responses

1. Almost never true of me; I hardly ever feel this way – 1 point
2. Not often true of me; I feel this way less than half the time – 2 points
3. Sometimes true of me; I feel this way about half the time – 3 points
4. Usually true of me; I feel this way more than half the time – 4 points
5. Almost always true of me; there are very few times when I don't feel this way – 5 points

A total score for SDLRS is 200. Score more than 150 is considered as High readiness for SDL.

The study was conducted in two stages. In the first stage, after explaining about procedure to fill SDLRS Google form, all 144 students were given the same to be submitted within 24 hours. Among them, students with high readiness are enrolled into second stage for structured SDL session and assessment on pharmacotherapy of diabetes mellitus.

The faculty trained in conducting SDL sessions guided the students in planning their SDL session spread over a period of 4 weeks. Subsequently students were evaluated using 2 case-based scenarios having five questions each. Each question carries 10 marks, with a maximum score of 100 marks for ten questions given for assessment. The case-based scenarios, questions and answers were checked for internal consistency and validated by group of 5 senior faculty members. Performance of the students in case-based scenarios after SDL session will be correlated with SDLRS score.

Data Analysis

Demographic data was analysed using percentages. Total SDLRS scores, domain wise scores and SDL assessment scores were expressed as mean ± SD. One way ANOVA was performed to analyse differences between Domain wise SDLRS scores. Pearson's correlation coefficient will be used to examine the relationship between SDLRS scores and performance in the SDL session. All the data collected will be anonymized and kept confidential.

RESULTS

The study was done among second year MBBS students attending pharmacology department. Out of 148 batch students, four students were absent. A total of 144 students [Male: 54 (37.5%), Female: 90 (62.5%)] gave their consent to participate in the study and were administered Google forms with SDLRS questionnaire. Among them 54 students with high SDLRS scores (>150) were assigned SDL topic from CBME curriculum and were evaluated. The demographic details of these 54 students are shown in Table 1.

**Table 1: Demographic Data of study participants enrolled for SDL**

Characteristics	Enrolled for SDL
	N (%)
Total	54
Gender distribution	
Males	**15** (27.7)
Female	39 (72.3)
Allocation based on Merit	
All India Quota	11 (20.4%)
State Quota	43 (79.6%)

The mean SDLRS scores for 54 students showing high readiness is 160.22 ± 8.5 (All values of SDLRS scores are expressed as Mean ± SD). Table 2 presents the SDLRS scores stratified by gender (Males, Female) and admission quota (All India Quota / State Quota). A Mann-Whitney U test was performed between these categories. No statistically significant differences were observed between Male and Female or between students admitted through All India Quota vs. State Quota. ($p > 0.05$ for all comparisons).

Table 2: Category wise distribution of SDLRS scores

SDLRS scores	Mean±SD	P value
Males	157.93 ± 7.33	>0.05
Female	161.10 ± 8.85	
All India Quota	159.27 ± 7.40	>0.05
State Quota	160.47 ± 8.83	
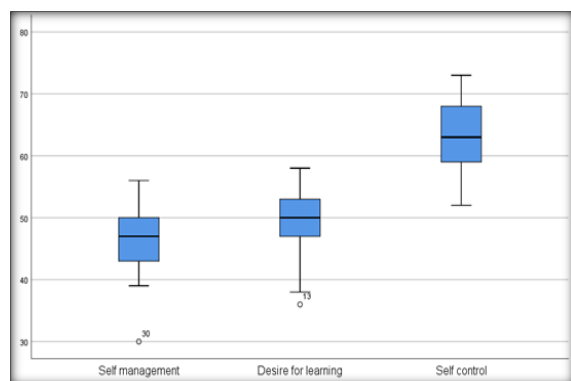
Figure 1: Box plot showing distribution of domain specific scores

The distribution of the domain-specific scores ('Self-management', 'Desire for learning', and 'Self-control') is visually represented as box plot in Figure 1.

Domain Wise scores of SDLRS are summarized as shown in Table 3, the mean score for 'Self-management' was 46.41 ± 4.6, with scores ranging from 30 to 56. 'Desire for learning' exhibited a mean score of 49.63 ± 4.6, with the lowest score at 36 and the highest at 58. 'Self-control' demonstrated the highest mean score at 63.06 ± 5.2, with individual scores varying between 52 and 73. Further statistical analysis was performed using one-way ANOVA for all three domains of SDLRS and was found to be very significant ($p < 0.01$).

Table 3: Domain wise scores of SDLRS

SDLRS Domains	Mean±SD	One way ANOVA
Self management *#	46.41 ± **4.6**	
Desire for learning *$	49.63 ± **4.6**	P<0.01
Self control #$	63.06 ± **5.2**	
Total SDLRS score	160.22 ± **8.5**	

*# P<0.01, *P<0.01, $ P<0.01*

SDL Assessment scores (Mean ± SD)

The mean SDL assessment score was 36.31± 12.67. Only 13 (24%) students of 54 enrolled for SDL session scored more than 50% marks. Table 4 presents the mean SDL assessment scores stratified by gender (Male, Female) and admission quota (All India Quota / State Quota). A Mann-Whitney U test was performed between these two categories. No statistically significant difference ($p > 0.05$) was observed between Males and Females. While a statistically significant difference ($p < 0.05$) was observed between students admitted through All India Quota vs. State Quota.

Table 4: Category wise distribution of SDL assessment

SDL assessment	Mean±SD	P value
Male	31.6 ± 10.04	p>0.05
Female	38.13 ±1 3.22	
All India Quota	46.91 ± 12.73	P<0.05
State Quota	33.61 ± 11.28	

After collating the results of SDLRS scores and SDL Assessment scores amongst the study participants, a scatter plot depicting the Correlation between SDLRS scores and SDL assessment scores was plotted as shown in Figure 2. The relationship between SDLRS Scores and SDL Assessment scores

was performed using Pearson correlation coefficient test and found to be $R^2 = 0.0156$, indicating a weakly positive correlation between the study variables.

Figure 2: Scatter plot depicting the correlation between SDLRS scores and SDL assessment scores

DISCUSSION

A cross-sectional study was conducted to evaluate Self-Directed Learning Readiness Scale (SDLRS) scores, their domain-specific scores, and their correlation with Self-Directed Learning (SDL) assessment outcomes among second-year MBBS students. In the first stage of this study out of 144 participants screened, 62.5% demonstrated low SDL readiness, while 37.5% exhibited high readiness based on the optimal cut-off score. We also observed significant variations across SDLRS domains and a weak positive correlation between overall SDL readiness and assessment scores.

This exploration is particularly relevant given the CBME curriculum, which integrates SDL as an indispensable teaching-learning method. SDL is recognized as foundational for developing "Lifelong Learners," a key objective for Indian medical graduates.[8] However, persistent questions regarding SDL's practical feasibility and utility as a teaching-learning method within this new framework prompted our deeper investigation.

Implications for SDL Implementation

The disparity in SDL readiness among our students is striking. Even with an optimal cut off for high readiness, only 37.5% of the screened students met the inclusion criteria for enrolment in structured SDL sessions. This limited proportion highlights a significant gap in students' inherent readiness for self-directed learning, a finding consistent with data from other studies, such as Al Radini et al.[9] Consequently, these results underscore the urgent need for targeted sensitization and training in SDL for both faculty and students to effectively implement the CBME curriculum's objectives.

In terms of demographic distribution, the enrolled cohort comprised more females (n=39) than males (n=15), a trend consistent with the increasing female admissions in medical colleges. Similarly, admissions from the state quota (43) outnumbered those from the All India Quota (11) in this cohort, primarily due to administrative factors related to counselling and admissions. Furthermore, no statistically significant differences were found in SDLRS scores based on gender or admission criteria. This contradicted an initial assumption that females and All India Quota students, given their generally higher NEET admission ranks, would exhibit superior SDLRS scores compared to their counterparts.

SDLRS and Domain-Specific Scores

The mean SDLRS score of more than 150 (out of 200) is considered optimum for the Fisher scale that we employed in this study.[10-12] This optimum cut-off value likely guided the establishment of rigid inclusion criteria for the study participants to take part in the structured SDL sessions. The mean SDLRS score was 160.47 ± 8.83 in this study. This value was higher than values obtained in similar studies on medical graduates.[13,14] This shift likely reflects the increased emphasis on SDL in contemporary curricula following CBME reforms, which were not as prominent previously. This study provides valuable insights into students' readiness for self-directed learning and various factors contributing to it.

A student's broad tendency toward self-directed learning is shown by their SDLRS score, whereas their specific strong and weak points are revealed by the scores in each domain. Our study found the highest score in Self-Control (SC), while Self-Management (SM) and Desire for Learning (DL) exhibited comparable scores. A similar trend regarding self-management, desire for learning, and self-control was also observed in other studies.[9,13] On further analysis, a statistically significant difference (p<0.01) among the means of Self-Management, Desire for Learning, and Self-Control was observed. This difference may be attributed to the diverse range of subjective factors influencing the individual domains in study participants.

After SDL sessions, only 24% of study participants achieved assessment scores above 50%, a clearly discouraging trend that necessitates feedback and reflection from both mentors and students. As a part of the third and important objective for this study, a correlation was drawn between SDLRS scores and SDL assessment scores. By calculating the Pearson correlation coefficient, a weak positive correlation was found between these parameters. This observation suggests that initially high SDLRS scores may not automatically translate into high SDL assessment scores due to a host of factors. Important among these could be students' practical understanding and implementation of SDL principles, the autonomy given over flexible timelines and resource choices, or potential under-utilization and perceived gaps in mentor support. As Din N et al,[15] emphasize, while SDL readiness is certainly a key factor in its effectiveness, the learning environment—encompassing instructional methods, teacher collaboration, technology, and administrative

support—is equally crucial. To truly understand SDL's utility, all these components require evaluation.

It is important to note that studies on the correlation between SDLRS and assessment scores have shown varied results, with some finding negative correlations (Devi V et al,[14] Kidane HH et al,[16]) while others report highly positive correlations (Cazana AM et al,[17] Askin Tekkol I et al.[18]). This highlights the complex interplay of factors influencing SDL outcomes.

This study distinguished itself from other studies by correlating SDL readiness with SDL assessment on a specific topic through robust construct alignment in its participants, further supported by a structured SDL session and a pre-validated SDL assessment tool. Despite these measures, inherent subjective variations in participant's actual SDL readiness may have influenced the SDL-related learning outcomes. The study yielded significant practical insights that will be crucial for the future planning, implementation, and reflection phases of our SDL sessions, benefiting both students and mentors.

CONCLUSION

This study among second-year medical students revealed a weak positive correlation between high SDL readiness and actual SDL assessment performance. This underscores the vital need for enhanced training and a supportive learning environment to truly foster effective self-directed learning.

Limitations of the study
Results of the study cannot be generalized to all second-year MBBS students or those with low SDL readiness. Moreover, among those with high SDL readiness also, inherent subjectivity and variability in individuals' SDL readiness affect the observed learning and assessment outcomes.

List of abbreviations
SDL - Self-Directed Learning
SDLRS - Self-Directed Learning Readiness Scale
CBME – Curriculum Based Medical Education

REFERENCES

1. Murad MH, Coto-Yglesias F, Varkey P, Prokop LJ, Murad AL. The effectiveness of self-directed learning in health professions education: A systematic review. Vol. 44, Medical Education. Med Educ; 2010. p. 1057–68.
2. Knowles MS. Self-directed learning: A guide for learners and teachers. New York: Cambridge Book Co.; 1975.
3. Tagawa M. Physician self-directed learning and education. Kaohsiung J Med Sci. 2008;24(7):380–5
4. Medical Council of India. Competency based undergraduate curriculum for the Indian medical graduate. New Delhi: Medical Council of India; 2018.
5. Kindy S, Kindy F, Kindy AAI. The advantages and disadvantages of self-directed learning: a survey - study of Saudi medical students. MedEd Publish. 2018;2:11–16
6. Gould J, Dalziel S, Petropolis H, Mann K, Arseneau I. Student use of self-directed learning time in an undergraduate medical curriculum. Dalhousie Med J. 2015;42(1):8–12
7. Fisher M, King J. The self-directed learning readiness scale for nursing education revisited: A confirmatory factor analysis. Nurse Educ Today. 2010; 30:44-8.
8. Available at: https://www.nmc.org.in/wp-content/uploads/2017/10/ GME_REGULATIONS-1.pdf. Last Accessed on: 29 June 2025.
9. Al Radini F, Ahmad N, Ejaz Kahloon L, Javaid A, Al Zamil N. Measuring Readiness for Self Directed Learning in Medical Undergraduates. Advances in Medical Education and Practice. 2022 May; Volume 13:449–55.
10. Balamurugan S, Kumar H. Self-directed learning readiness (SDLR) among medical students: a questionnaire-based study from an Indian medical school. South East Asian J Med Edu. 2015; 99:59–64.
11. Gyawali S, Jauhari AC, Shanker PR, Saha A, Ahmed M. Readiness for self-directed learning among first semester students of a medical school in Nepal. JCDR. 2011; 5:20–23.
12. Abraham RR, Fisher M, Asha K, A T I, Nabila S, Atikah NN. Exploring first-year undergraduate medical students' self-directed learning readiness to physiology. Adv Physiol Educ. 2011; 35:393–395.
13. Madhavi KVP, Madhavi B. Readiness for self-directed learning among undergraduate medical students of Andhra Medical College, Visakhapatnam. Int J Community Med Public Health. 2017;4:2836–2840
14. Devi V, Devan D, Chen Soon P, Han WP. Comparison of self-directed learning readiness among students experiencing hybrid and traditional curriculum. JCDR. 2012;6:1047–1050.
15. Din N, Haron S, Rashid RM. Can self-directed learning environment improve quality of life? Procedia Social Behav Sci. 2016;222:219–227.
16. Kidane HH, Roebertsen H, van der Vleuten CPM. Students' perceptions towards self-directed learning in Ethiopian medical schools with new innovative curriculum: a mixed-method study. BMC Med Educ. 2020;20:1–10.
17. Cazana AM, Schiopca BA. Self-directed learning, personality traits, and academic achievement. Procedia Social Behav Sci. 2014;127:640–644.
18. Askin Tekkol I, Demirel M. An investigation of self-directed learning skills of undergraduate students. Front Psychol. 2018;9:1–14.

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