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RESEARCH ARTICLE

Perception of Self-Directed Learning as a Learning Technique in Anatomy among Phase I MBBS Learners

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ABSTRACT

Background: With the implementation of Competency-Based Medical Education (CBME) in India, Self-Directed Learning (SDL) has become an essential component of undergraduate medical education, promoting active learning, critical thinking, and learner autonomy. Anatomy, being a foundational subject with extensive competencies, requires effective learning strategies beyond conventional didactic teaching. However, first-year MBBS learners often face challenges in adapting to SDL due to limited prior exposure and dependence on teacher-centered learning approaches.

Objectives: To assess the perception of Self-Directed Learning (SDL) as a learning technique in Anatomy among Phase I MBBS learners.

Methods: A cross-sectional observational study was conducted among 100 Phase I MBBS students of the 2025 batch at Government Medical College, Jangaon. Prior to the SDL session, learner readiness was assessed using a structured questionnaire administered through Google Forms. Students were provided with clearly defined learning objectives and an assessment checklist five days before the scheduled SDL session. They were instructed to independently prepare notes incorporating diagrams, flowcharts, and tables based on the given objectives. Practical demonstration of the topic was conducted in the dissection hall in small groups two days before the SDL session. Following the session, students' perceptions regarding SDL were assessed using a 2-point Likert scale questionnaire along with an open-ended feedback question.

Results: The study revealed that 97% of learners reported clarity regarding their learning goals, while 95% expressed enjoyment and satisfaction with the SDL sessions. However, 52% reported difficulty in effectively managing their learning time. Open-ended responses indicated that students found SDL informative, engaging, and helpful in improving conceptual understanding and independent thinking, though some expressed challenges with difficult anatomical terminology and self-learning adjustments.

Conclusion: Self-Directed Learning appears to be an effective and well-accepted learning strategy among Phase I MBBS learners in Anatomy when implemented systematically with clearly defined learning objectives and structured assessment guidance. SDL may enhance learner engagement, conceptual understanding, and self-learning skills in early medical education.

Keywords: Self-Directed Learning; Anatomy; MBBS students; Competency-Based Medical Education; Medical education; Student perception; Active learning

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Introduction

Medical education in India has undergone a significant transformation with the recent implementation of Competency-Based Medical Education (CBME), which emphasizes student-centered learning strategies aimed at developing critical thinking, problem-solving ability, self-directed learning skills, and lifelong learning competencies among undergraduate medical students [1]. This paradigm shift has moved the focus from conventional teacher-centered instruction toward active learner participation, encouraging students to take greater responsibility for their own academic progress and professional development.

Self-Directed Learning (SDL) has emerged as an important educational strategy within the CBME curriculum and is now considered a mandatory component of undergraduate medical training. SDL is defined as a

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process in which learners take initiative in identifying their learning needs, setting learning objectives, accessing appropriate resources, selecting learning strategies, and evaluating their progress independently, with or without faculty guidance[2]. Such an approach is particularly relevant in medical education, where the dynamic nature of medical knowledge necessitates continuous self-learning and adaptability.

However, the transition from conventional rote learning methods to self-directed mastery remains a considerable challenge, particularly for novice Phase I MBBS learners. Many first-year medical students enter undergraduate training from educational backgrounds predominantly focused on passive learning, memorization, and teacher-led instruction. As a result, they may initially experience difficulty adapting to independent learning environments due to limited prior exposure to SDL methodologies, inadequate time management skills, uncertainty regarding learning objectives, and dependence on structured classroom teaching [3].

Anatomy, being a foundational subject in the first phase of MBBS education, presents additional challenges in this transition. It encompasses extensive competencies, large volumes of factual information, complex anatomical terminology, and essential practical understanding through dissection-based learning. Traditionally, anatomy teaching has relied heavily on lectures and faculty-led demonstrations, which, although effective for content delivery, may not fully encourage active participation or self-learning habits among students[4].

The integration of SDL into anatomy education offers opportunities for deeper conceptual understanding, learner engagement, and development of independent academic skills. Structured SDL activities involving predefined learning objectives, guided resource utilization, note preparation, diagrams, flowcharts, and reflective assessment can enhance active participation and knowledge retention. Previous educational studies have suggested that well-planned SDL interventions improve learner satisfaction, motivation, self-confidence, and academic performance when supported by appropriate faculty facilitation[5].

Despite SDL being mandatory under CBME, concerns remain regarding SDL readiness among first-year medical students, particularly in foundational disciplines such as anatomy. Understanding students' perceptions regarding SDL is essential to determine its feasibility, acceptability, effectiveness, and areas requiring refinement in the early medical curriculum. Therefore, the present study was undertaken to evaluate the perceptions of Phase I MBBS learners regarding Self-Directed Learning as a learning technique in Anatomy and to assess its role in enhancing the learning experience in undergraduate medical education[6].

Materials and Methods

Study Design and Setting

A cross-sectional observational study was conducted in the Department of Anatomy, Government Medical College, Jangaon, Telangana, among Phase I MBBS learners of the 2025 batch to assess their perception regarding Self-Directed Learning (SDL) as an effective learning technique in Anatomy. The study was undertaken as part of the implementation of Competency-Based Medical Education (CBME), where Self-Directed Learning has been introduced as a mandatory educational strategy to promote active learner participation, independent thinking, and lifelong learning skills among undergraduate medical students.

Study Population

A total of 100 Phase I MBBS learners from the 2025 batch who were willing to participate in the study were included. All enrolled students were informed about the purpose of the study, and participation was voluntary. Learners who were present during the SDL activity and consented to provide feedback were included in the study.

Study Procedure

Before initiating the SDL session, the readiness of the learners for self-directed learning was assessed using a structured questionnaire administered through Google Forms. The questionnaire was designed to assess students' preparedness, awareness, willingness for independent learning, ability to identify learning needs, time management skills, and confidence in self-learning. This preliminary assessment helped in understanding the baseline readiness of first-year MBBS students for SDL, as many learners entering medical education are accustomed to conventional teacher-directed methods of learning.

Following this initial readiness assessment, a selected topic from the Anatomy curriculum was chosen for the SDL activity. The learning objectives for the selected topic were clearly communicated to the learners five days prior to the scheduled SDL session. These objectives were specifically framed to guide students toward focused and outcome-based learning in alignment with CBME principles.

In addition to the learning objectives, a structured assessment checklist was provided to all learners. This checklist clearly outlined the components expected in their preparation and the marks allotted for each objective, thereby ensuring transparency in evaluation and motivating

students to organize their learning systematically. The checklist served as a guide for students to understand faculty expectations and encouraged structured academic preparation.

Based on the provided learning objectives, learners were instructed to independently prepare study material in their own format. They were encouraged to develop self-prepared notes incorporating diagrams, flowcharts, tables, schematic representations, and relevant conceptual explanations. Students were allowed to utilize standard textbooks, online educational resources, lecture notes, and other academic references for their preparation. This independent preparation phase aimed to encourage self-exploration, resource identification, critical analysis, and conceptual understanding.

To strengthen practical comprehension of the topic, students were also exposed to the practical aspects of the same anatomical topic in the dissection hall, conducted two days prior to the SDL session. Practical teaching was organized in small groups to ensure active participation, individualized interaction, and improved understanding of anatomical structures through demonstration and discussion. This integration of practical exposure with independent theoretical preparation helped bridge the gap between conceptual learning and clinical application.

Following completion of the SDL session, learners' perceptions regarding the effectiveness, acceptability, and learning experience of SDL were assessed using a structured feedback questionnaire based on a 2-point Likert scale (Yes/No response format). The questionnaire included items related to clarity of learning objectives, enjoyment of SDL, confidence in self-learning, time management ability, perceived usefulness, and overall satisfaction with the SDL process.

Additionally, an open-ended question was included to obtain qualitative feedback regarding learners' experiences, perceived benefits, challenges, and suggestions for improvement. This qualitative component provided deeper insights into student perspectives regarding SDL implementation.

Statistical Analysis

The collected responses were compiled and entered into Microsoft Excel for analysis. Descriptive statistics such as frequency and percentage were used to summarize quantitative responses. Open-ended responses were reviewed qualitatively to identify common perceptions and recurring themes related to the effectiveness and challenges of SDL as a learning strategy.

Results

A total of 100 Phase I MBBS learners from the 2025 batch of Government Medical College, Jangaon participated in the present study to assess their perception regarding Self-Directed Learning (SDL) as a learning technique in Anatomy. Learner readiness for SDL and post-session perceptions were analyzed using structured questionnaires. The findings indicated an overall positive acceptance of SDL among learners, with certain challenges related to time management and adaptation to independent learning.

Interpretation

Table 1 demonstrates the baseline readiness of learners for Self-Directed Learning. The majority of students (97%) reported clarity regarding what they needed to learn, while 96% expressed a desire for continuous academic improvement. A high proportion of learners (94%) enjoyed independently finding answers to academic questions, reflecting enthusiasm toward active learning. However, only 48% reported confidence in managing and controlling their learning time effectively, indicating that time management remains a significant challenge for first-year MBBS learners adapting to SDL.

Interpretation

Table 2 shows learners' perceptions following the SDL session. A substantial majority (95%) reported enjoying the

Table 1: Baseline SDL Readiness Among Phase I MBBS Learners (n=100)

SDL Readiness Parameter	*Yes n (%)*	*No n (%)*
I know what I need to learn	97 (97%)	3 (3%)
I strongly hope to constantly improve my learning	96 (96%)	4 (4%)
I enjoy finding answers to questions independently	94 (94%)	6 (6%)
I can proactively establish my learning goals	83 (83%)	17 (17%)
I set the priorities of my learning	72 (72%)	28 (28%)
I am good at arranging and controlling my learning time	48 (48%)	52 (52%)

Table 2: Learner Perception Regarding Self-Directed Learning Session (n=100)

Perception Parameter	*Yes n (%)*	*No n (%)*
I enjoyed the SDL session	95 (95%)	5 (5%)
I can monitor my own learning progress	88 (88%)	12 (12%)
I can connect new knowledge with previous learning	87 (87%)	13 (13%)
My interaction with others helps me plan learning better	90 (90%)	10 (10%)
I am able to express my ideas effectively during learning	86 (86%)	14 (14%)

SDL session, suggesting strong acceptance of this learning strategy. Most learners also felt capable of monitoring their academic progress, integrating newly acquired knowledge with existing concepts, and benefiting from peer interaction. These findings indicate that SDL promoted active engagement, reflective learning, and collaborative academic participation.

Interpretation

Table 3 summarizes the major domains of SDL readiness among the learners. The highest positive responses were observed in self-control (97%) and desire for learning (95%), indicating strong intrinsic motivation and willingness for self-learning. However, self-management (48%) was comparatively lower, highlighting difficulty in organizing learning schedules and managing time independently.

Interpretation

Table 4 presents qualitative learner feedback obtained through open-ended responses. Students expressed positive perceptions regarding SDL, describing it as enjoyable, informative, and intellectually stimulating. Learners appreciated the opportunity for deeper conceptual understanding and self-responsibility in learning. Faculty support remained important in clarifying doubts. Some challenges were identified, particularly difficulty with complex anatomical terminology during independent study.

Table 3: Components of SDL Readiness Based on Learner Responses

SDL Domain	*Positive Response (%)*
Self-Management	48%
Desire for Learning	95%
Self-Control	97%

Interpretation

Table 5 demonstrates the overall effectiveness and acceptability of SDL among learners. The majority (92%) showed a positive perception toward SDL as a learning method in Anatomy. Only a small proportion reported mixed or negative experiences, indicating that SDL was largely well received when implemented in a structured and guided manner.

Overall Results Summary

The present study revealed that Phase I MBBS learners demonstrated a positive perception toward Self-Directed Learning as a learning technique in Anatomy. Most learners showed strong motivation, willingness to learn independently, and satisfaction with the SDL session. SDL promoted conceptual understanding, learner engagement, self-reflection, and collaborative learning. However, time management and adjustment to independent learning remained notable challenges among first-year medical students.

Table 4: Qualitative Feedback from Open-Ended Responses

Theme Identified	*Representative Learner Response*
Enjoyment and curiosity	"It's really fun to know and discover how much we can learn and access on our own."
Improved conceptual understanding	"It made me more in touch with the concepts being learnt as I was responsible for my own learning."
Independent thinking	"It helped me think deeper about the topic."
Faculty support appreciated	"I was able to take the help of my lecturers for any doubts that arose."
Challenges in terminology	"Some terminology is hard or critical in self-learning."

Table 5: Overall Perception of SDL Effectiveness

Overall Outcome	*Number (n)*	*Percentage (%)*
Positive perception toward SDL	92	92%
Neutral / mixed perception	6	6%
Negative perception	2	2%

Discussion

The present study evaluated the perception of Self-Directed Learning (SDL) as a learning technique among Phase I MBBS learners in Anatomy and demonstrated an overall positive acceptance of SDL as an effective educational strategy. The majority of learners expressed enthusiasm toward independent learning, with 97% reporting clarity regarding their learning goals and 95% indicating that they enjoyed the SDL sessions. These findings suggest that when appropriately structured, SDL can successfully engage novice medical learners and promote active participation in the learning process. Similar observations have been reported in previous educational studies where SDL was found to improve learner engagement, motivation, and academic ownership among undergraduate medical students [6].

The implementation of SDL in the present study involved clearly defined learning objectives, provision of an assessment checklist, guided preparatory work, and integration of practical anatomical teaching before the SDL session. This structured approach appears to have contributed significantly to the positive learner response. Knowles' theory of adult learning emphasizes that learners perform better when they understand learning goals and are given responsibility for achieving them independently [7]. In the context of medical education, faculty-guided SDL has been shown to improve self-confidence, reflective thinking, and academic responsibility among students.

A notable finding of the present study was the high percentage of learners who reported enjoying independent exploration of academic content and actively seeking answers to questions. This reflects an encouraging shift from passive teacher-dependent learning toward active learner-centered education, which is one of the primary objectives of Competency-Based Medical Education. Similar findings were reported by Murad et al., who observed that SDL interventions positively influenced knowledge acquisition, learner satisfaction, and attitudes toward lifelong learning in health professions education [8].

The study also demonstrated that learners appreciated the opportunity to connect newly acquired knowledge with prior understanding and found peer interaction beneficial in planning and organizing their learning. Collaborative discussion and guided independent preparation may have enhanced conceptual understanding, especially in Anatomy, where integration of theoretical and practical knowledge is essential. Educational research suggests that SDL combined with facilitated group interaction improves retention, critical analysis, and meaningful learning experiences [9].

Despite the overall positive response, the present study identified time management as a significant challenge, with 52% of learners reporting difficulty in controlling their learning time. This finding is not unexpected, as first-year MBBS students are often transitioning from highly structured school education systems where learning is largely teacher-directed. Previous studies have similarly reported that lack of SDL readiness, poor time management, and uncertainty in self-assessment are common barriers among novice medical learners [10].

The qualitative feedback obtained from open-ended responses further supported the effectiveness of SDL. Learners described SDL as informative, enjoyable, rewarding, and helpful in improving conceptual understanding and deeper thinking. Some students, however, reported difficulty with complex anatomical terminology and certain aspects of self-learning. This suggests that while SDL is beneficial, adequate faculty support remains essential, particularly in foundational subjects such as Anatomy where learners may initially require structured academic guidance [11].

The findings of the present study support the growing body of evidence favoring SDL as an effective educational strategy in undergraduate medical training. Spencer and Jordan emphasized that student-centered learning approaches encourage autonomy, responsibility, and deeper engagement with learning content compared with traditional lecture-based teaching[12]. Similarly, Premkumar et al. highlighted that early exposure to SDL fosters lifelong learning attitudes and better preparedness for future clinical practice[13].

As CBME mandates the incorporation of SDL into undergraduate medical education, understanding learner perceptions becomes crucial for effective curricular implementation. The present study indicates that SDL is feasible and well accepted among first-year MBBS students when implemented systematically with clearly defined objectives, transparent assessment criteria, faculty facilitation, and integration of practical teaching components. Similar conclusions have been drawn in medical education literature where structured SDL

interventions improved both learner satisfaction and educational outcomes [14,15].

Overall, the present study reinforces the value of SDL as an effective learner-centered teaching strategy in Anatomy education and highlights the importance of systematic implementation to maximize student engagement and educational benefit.

Conclusion

The findings of the present study suggest that Self-Directed Learning (SDL) is an effective and well-accepted learning strategy among Phase I MBBS learners in Anatomy when implemented in a structured and systematic manner. The majority of learners demonstrated positive perceptions toward SDL, expressing improved engagement, conceptual understanding, independent thinking, and satisfaction with the learning process. SDL encouraged students to take responsibility for their own learning and promoted active participation beyond conventional didactic teaching methods.

However, challenges such as difficulty in time management and adaptation to independent learning were observed among some first-year learners, reflecting the need for initial guidance and faculty support. The study highlights that SDL can be a valuable educational tool in anatomy teaching when learning objectives are clearly defined, appropriate assessment criteria are communicated through a structured checklist, and adequate faculty facilitation is provided. Thus, systematic implementation of SDL may enhance learner autonomy, academic motivation, and effective learning outcomes in the early medical curriculum.

Limitations of the Study

The present study has certain limitations that should be considered while interpreting the findings. Being a single-center study conducted among Phase I MBBS learners of one institution, the generalizability of the results to other medical colleges or different educational settings may be limited. The sample size of 100 learners, although adequate for preliminary assessment, may not fully represent the perceptions of the broader undergraduate medical student population.

As the study primarily assessed learners' perceptions and self-reported responses, the possibility of response bias, social desirability bias, and subjective interpretation cannot be excluded. The use of a 2-point Likert scale questionnaire may have limited the depth and variability of responses compared with more detailed multi-point scales. In addition, the study evaluated perception following a single SDL intervention, which may not accurately reflect long-term acceptance, sustained effectiveness, or the development of self-directed learning competencies over time.

Since the study was conducted among first-year MBBS students, many learners were in the initial transition phase from conventional teacher-centered schooling to medical education, which may have influenced their readiness and responses toward SDL. Furthermore, objective academic performance outcomes were not assessed; therefore, the direct impact of SDL on knowledge retention, examination performance, or competency achievement could not be determined. Future multicentric studies with larger sample sizes, repeated SDL sessions, and objective educational outcome measures would provide more comprehensive evidence regarding the effectiveness of SDL in undergraduate medical education.

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Conflict of Interest

The authors declare that there is no conflict of interest.

Ethical Committee Clearance

Ethical committee clearance was obtained from the Institutional Ethics Committee prior to the commencement of the study, and informed consent was obtained from all participating learners.

References

1. National Medical Commission. Competency Based Undergraduate Curriculum for the Indian Medical Graduate. New Delhi: National Medical Commission; 2019.
2. Knowles MS. Self-directed learning: A guide for learners and teachers. New York: Association Press; 1975.
3. Sugand K, Abrahams P, Khurana A. The anatomy of anatomy: A review for its modernization. *Anat Sci Educ*. 2010;3(2):83-93.
4. Premkumar K, Pahwa P, Banerjee A, Baptiste K, Bhatt H, Lim HJ. Does medical training promote or deter self-directed learning? A longitudinal mixed-methods study. *Acad Med*. 2013;88(11):1754-64.
5. Murad MH, Varkey P. Self-directed learning in health

professions education. *Ann Acad Med Singap*. 2008;37(7):580-90.

6. Spencer JA, Jordan RK. Learner centred approaches in medical education. *BMJ*. 1999;318(7193):1280-3.
7. Candy PC. Self-direction for lifelong learning: A comprehensive guide to theory and practice. San Francisco: Jossey-Bass; 1991.
8. Murad MH, Coto-Yglesias F, Varkey P, Prokop LJ, Murad AL. The effectiveness of self-directed learning in health professions education: A systematic review. *Med Educ*. 2010;44(11):1057-68.
9. Towle A, Cottrell D. Self-directed learning. *Arch Dis Child*. 1996;74(4):357-9.
10. Abraham RR, Fisher M, Kamath A, Izzati TA, Nabila S, Atikah NN. Exploring first-year medical students' learning styles and readiness for self-directed learning. *BMC Med Educ*. 2011;11:5.
11. Grow GO. Teaching learners to be self-directed. *Adult Educ Q*. 1991;41(3):125-49.
12. Spencer JA. ABC of learning and teaching in medicine: Learning and teaching in the clinical environment. *BMJ*. 2003;326(7389):591-4.
13. Premkumar K, Vinod E, Sathishkumar S, Pulimood AB, Umaefulam V, Samuel PP. Self-directed learning readiness among Indian medical students: A mixed-method study. *Natl Med J India*. 2018;31(5):283-8.
14. Cadorin L, Bressan V, Palese A. Instruments evaluating self-directed learning competencies among nursing students and nurses: A literature review. *BMC Med Educ*. 2017;17:229.
15. Fisher M, King J, Tague G. Development of a self-directed learning readiness scale for nursing education. *Nurse Educ Today*. 2001;21(7):516-25.