PREPARING STUDENTS TO BE LIFELONG LEARNERS THROUGH PERSONAL DEVELOPMENT PLANS, SELF-DIRECTED LEARNING, AND CONTINUOUS PROFESSIONAL DEVELOPMENT: A QUALITATIVE STUDY IN PAKISTAN

Muhammad Mohsin Khan[1], Brekhna Jamil[1], Nowshad Asim[1]

ABSTRACT

Objective: To explore students' perceptions of how they utilize their self-directed learning skills to identify their own learning deficiencies.

Methodology: This exploratory qualitative study, conducted from September 2022 to May 2023 used Kolb's Experiential Learning as a theoretical framework. Ten individual interviews of dental students were conducted at Baqai Dental College. The interviews were recorded using Audacity and transcribed, and the data were then explored using Braun and Clarke's Thematic Analysis.

Results: This study reveals four themes about the perceptions of dental students on utilizing their self-directed learning skills. The four themes include learning by discovery, motivation and accountability, perceived challenges and benefits, and integration of knowledge, suggesting how students apply their self-directed learning to address their learning gaps and how facilitators can redirect students' potential to lifelong learning.

Conclusion: This study has provided an understanding of how students use their self-directed learning abilities to identify their learning deficiencies. Integrating structured self-directed learning, personal development plans, and CPD opportunities into curricula, along with faculty development and technological support, can enhance student autonomy and skill development. Future studies should compare educational settings to identify best practices for optimizing learning outcomes.

Keywords: Self-directed learning, Personal Development Plan, Lifelong Learning, Continuous Professional Development, Dental Students.

INTRODUCTION

Graduates must possess a comprehensive skill set and develop into lifelong learners to navigate the complexities of medical and dental practice and effectively utilize evidence-based research [1]. Professional organizations across Europe, Canada, and the United States have long advocated for medical and dental schools to prioritize lifelong learning, recognizing it as a core competency for healthcare professionals[2–4].

---
[1] Institute of Health Professions Education and Research (IHPER), Khyber Medical University, Peshawar

……………………………………………..

Address for Correspondence
Dr. Nowshad Asim
Assistant Professor of Medical Education
Institute of Health Professions Education and Research (IHPER), Khyber Medical University, Peshawar
drnowshadasim@kmu.edu.pk
+92 300 5898407
ORCID ID: 0000-0002-8483-7531

This emphasis is also reflected in Southeast Asia[5] and Pakistan, where educational bodies and the Pakistan Medical and Dental Council acknowledge the importance of lifelong learning in curriculum guidelines[6].

Lifelong learning, described as a "continuously supportive process that invigorates and empowers individuals to acquire the knowledge, attitudes, and skills necessary for navigating life's challenges, equips students to apply their knowledge with confidence, creativity, and enjoyment. Integrating robust lifelong learning strategies into medical and dental curricula is crucial for producing adaptable and competent healthcare professionals[7].

Key components in fostering lifelong learning include Personal Development Plans (PDPs), Continuing Professional Development (CPD), and Self-Directed Learning (SDL). A PDP helps learners identify their learning needs, establish goals, and track progress [8,9]. CPD involves activities that enhance clinical performance and translate knowledge into improved professional practice [10,11]. SDL empowers learners to take ownership of their education by identifying needs, setting objectives, utilizing resources,

implementing learning strategies, and evaluating outcomes[12].

Lifelong learning involves identifying learning gaps using a PDP, engaging in CPD activities to address those gaps, and employing SDL abilities[13]. PDPs provide a framework for self-assessment, goal setting, and action planning[9]. CPD keeps professionals updated and promotes career advancement[11]. SDL enables learners to identify their needs, set goals, and choose learning strategies, fostering self-motivation and critical thinking[14].

Studies indicate a positive correlation between SDL abilities and lifelong learning orientation [15]. However, students may possess SDL skills without fully recognizing their SDL behavior and its impact on lifelong learning [16]. This gap highlights the need for guidance to help students recognize and leverage their SDL abilities. Integrating PDPs and encouraging CPD can support students in understanding and utilizing their SDL skills to become lifelong learners.

This study explored perceptions of how they utilize their self-directed learning skills to identify their learning deficiencies. This investigation will help devise a strategy for using PDP as a tool and CPD as activities to enhance SDL skills for lifelong learning.

MATERIALS AND METHODS

This exploratory qualitative study, conducted from September 2022 to May 2023 after approval by the Khyber Medical University Advanced Studies and Research Board (KMU-AS&RB) in its 123rd meeting held on August 31, 2022. (No: DIR/KMU-AS&RB/PS/001801). Ethical approval was taken from the KMU-IHPER Ethical Board (Ref No:1-10/IHPER/MHPE/KMU/23-06 Dated: April 04, 2023). The study was conducted at Baqai Dental College in Baqai Medical University, Karachi. With the benefit of purposive sampling, ten dental students were selected from the second, third, and final professional Year BDS. It was decided to exclude dental students from the first professional year as the data was collected at the program's start, and students were unaware of the self-directed learning taught in their curriculum. The data collection procedure was followed using the guidelines set by Creswell[17], and the quality of research was maintained following Guba's Model of Trustworthiness criteria[18]. The individual interview protocol was established with informed consent taken in writing. For an ideal face-to-face interview recording, a lapel mic was used for the interviewee to ensure it was acceptable, according to the sound quality of the interview room.

Kolb's Experiential learning theory was the theoretical framework used to analyze students' perspectives by engaging in self-directed learning abilities in identifying their learning deficiencies.[20] The theory recognizes that learning is not solely a mental process but involves active engagement and experimentation. The interview guide consisted of eight closed-ended questions, which were expert-validated and reviewed with the help of a pilot study and data triangulation. The interview time was amended to forty-five minutes, whereas the predetermined time was thirty minutes. To ensure reflexivity in the study, the research team consisted of two health professions educationists, experts in qualitative research. Pilot testing was completed after the questions were submitted to experts for their professional perspectives. The interview was conducted in the office of the medical education department, with special attention given to the room's acoustics, and interviews were recorded using recording software. Data collected as transcripts and audio files were stored carefully on the cloud Microsoft One Drive[19]. After collecting the data, participants were called separately to examine the preliminary analysis for judgment and credibility. The research team members practiced bracketing and avoided sharing personal information with participants beyond their academic qualifications and the stated purpose of the study. After collecting the data, it was analyzed using Braun and Clarke's thematic analysis. Once the transcription was complete from audio recordings, the data were securely stored. The principal investigator, and two medical educationists from the health professions education reviewed the transcripts after each session, each transcript was returned to respective participant for comments and corrections if required. The analysis of the text coding and thematic analysis was performed manually to identify key themes and subthemes. The codes and themes were again shared with the expert health professions educationists to sort out any possible differences and subsequently, agree upon by consensus. Any point which needed clarity was used as a guide for the next session. Themes emerged from this process, which were then reviewed by the co-authors till a consensus was reached on themes. Participant's quotations were presented to illustrate themes. The emerged themes were ensured for their clarity. Both data collection and data analysis were done simultaneously.

RESULTS

The study participants were 10 dental students (three male and seven female): five from the final professional BDS, three from the third professional BDS, and two from the second professional BDS. Final-year and third-year students have clinical teaching incorporated in their training. In contrast, second-year students are taught an educational component that focuses hands-on training and skill development before interacting with patients. The thematic analysis process revealed four overarching themes that emerged from the data. The four themes identified in our study were aligned with the four stages of Kolb's cycle (Figure 1), offering a comprehensive view of how students apply their self-directed learning to address their learning gaps. A total of four themes with eight subthemes emerged after the data analysis are shown in Table 1 with representative quotes.
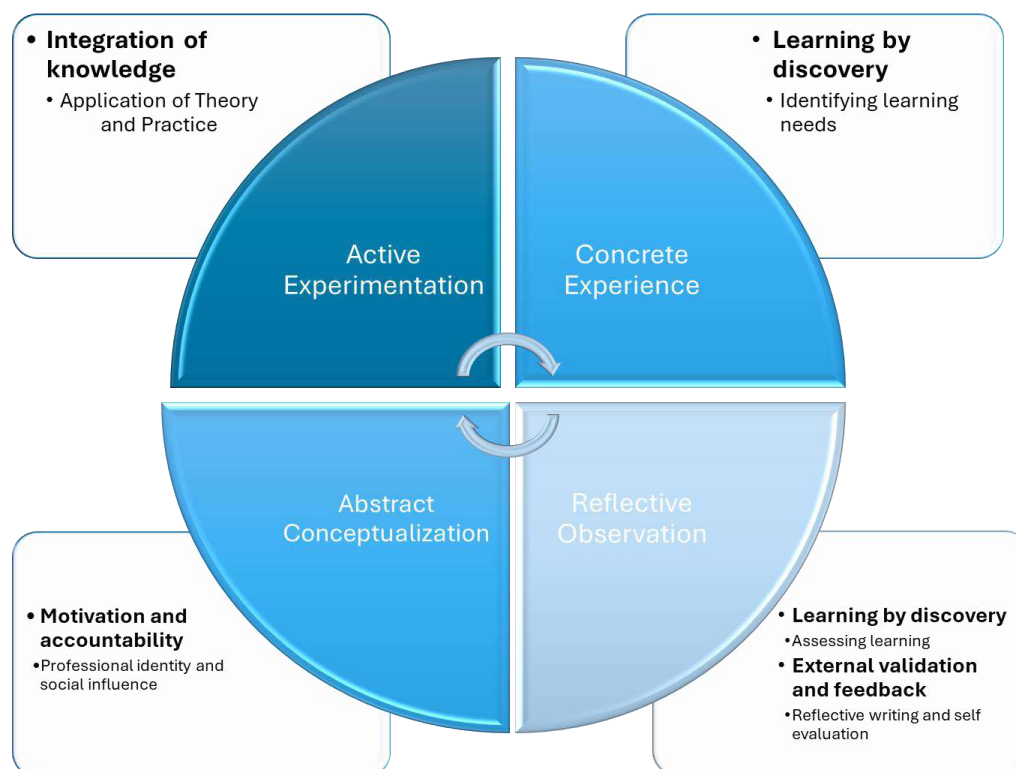
- **Integration of knowledge**
  - Application of Theory and Practice

- **Learning by discovery**
  - Identifying learning needs

Active Experimentation

Concrete Experience

Abstract Conceptualization

Reflective Observation

- **Motivation and accountability**
  - Professional identity and social influence

- **Learning by discovery**
  - Assessing learning
- **External validation and feedback**
  - Reflective writing and self evaluation

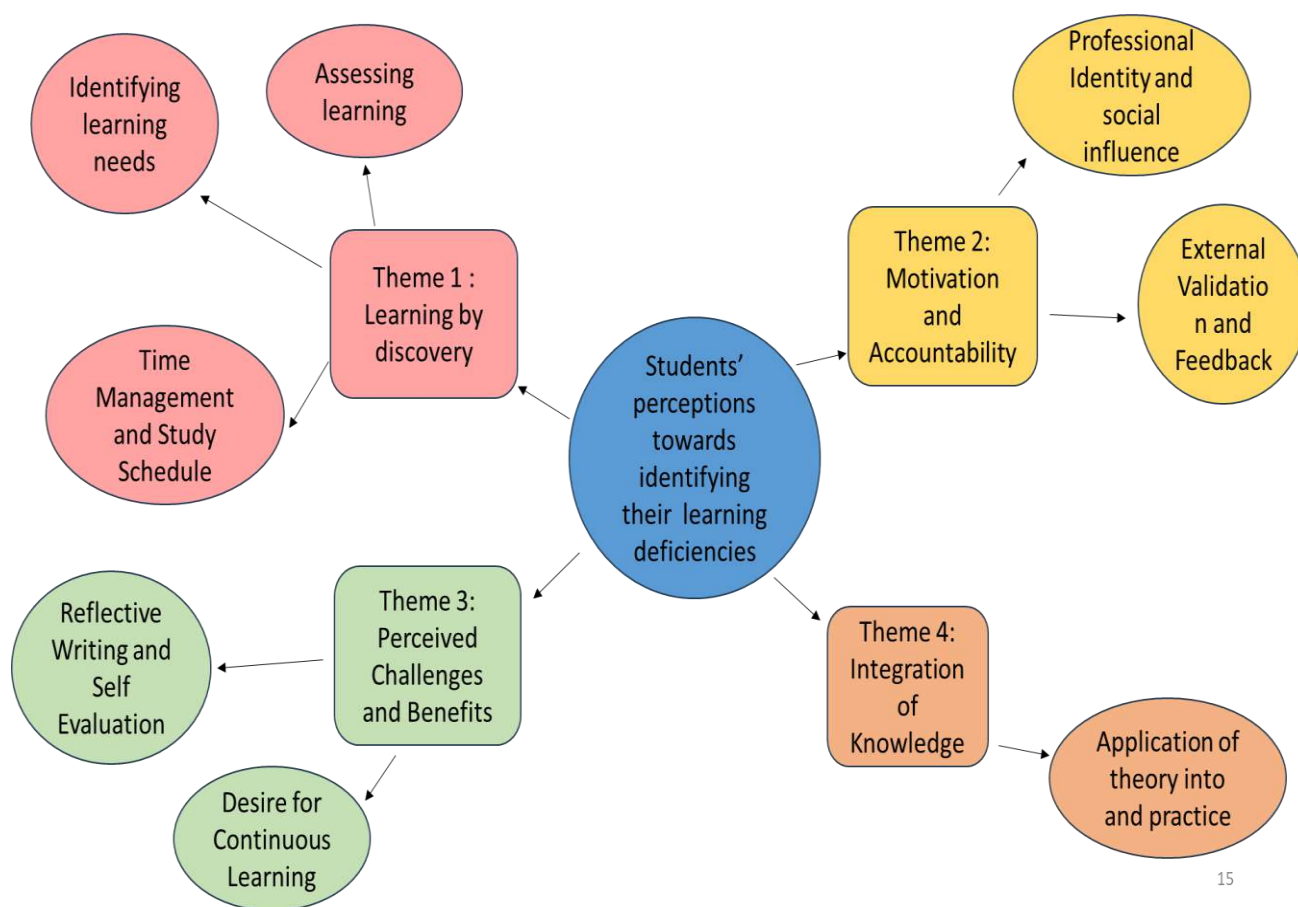Figure 1 **Findings of the study in relation to Kolb's Experiential Learning Cycle**

Figure 2: Themes and subthemes generated after coding students' perspectives

Table 1: Perspectives of dental students on how they utilize their self-directed learning skills to identify their own learning deficiencies.

#	Theme	Subtheme	Representative quotes
1	Learning by discovery	Identifying learning needs	*"...I find concept-based items which is usually related to the topic and then identify what I need to learn..."* *"...I do I take help from study guides to identify what I need to cover..."* *"…study guides help me study, but I think we are limited to little of knowledge, so I identify my own learning …"* *"…I need to know what I am supposed to study; study guides facilitate me out…"* *"…. I don't read from a book, I learn from a person or video, when I confidently understand the concept when once has taught me or after watching I make sure my learning need has met."*
		Assessing learning	*"I take online assessments and quizzes available free on websites to assessment the topic I have studied. It helps me know whether I'm on the right track or not"*

			"I teach my colleagues, give them brief points. I also take quizzes relevant to my topic online. Module results also help me assess myself…" *"Me and my colleagues with whom I room sharing we make our group study and when I learn something I teach other and vice versa, when I answer every question, I self-assess myself."* *"…discussion with colleagues and go through note and teaching others help me revise and assess my learning needs..."*
		Time management and study schedule	*"…usually during my finals, I make a learning schedule to cover topics in the prescribed days"* *"…. I plan my own study by making schedule and list of main topics…"* *"I set goals to complete studying at one time…"* *"…I keep a timer with myself, but it sometimes makes me anxious when I'm not able to keep it time bound..."*
2.	Motivation and accountability	Professional identity and social influence.	*" I feel like I am a professional when I'm in the OPD observing patient and interacting with patients" "this gives me a feeling I have entered the realm of health professional"* *"…I deal with patients in my rotations. in oral medicine I recently counselled a patient having chewing tobacco…this made me identify my responsibility as a dentist, its time I get serious! …"* *'…I am afraid that the patient I'm treating should be satisfied. I make sure to patients needs are met..."* *"My family and friends often approach me about their dental issues I make sure I communicate well and advise them well. I usually go through my study material before advising them"* *) it's a work in progress I keep up with the trends in the field of dentistry and people around me expect me to act like a health care professional, especially my family and I make sure I pass the right information.* *"...yes, my family inquire me how good of a doctor I am! ..."*
		External validation and feedback	*"…being reflective helps me retain information I have learned and cover content which I wasn't able to cover in class…"* *"…reflective writing can help me figure out where I lie in the learning process…."* *"…reflective writing is critical analysis of how much I have learned…"*
3.	Integration of knowledge for learning.	Application of theory and practice	*"…CBLs help me, and whatever I learn and observe I try to retain it..."*

			"Communicating with patients taking CBLs, reading relevant articles and performing clinical procedures, information available online"
			"…when we follow the protocols of, HE in OPD remind me as well as observation, when we work with patients…"
4.	Perceived challenges and benefits	Reflective writing and self-evaluation	*"…we are taught to write reflections after clinical cases, it helps me figure out a lot of things I experienced during a case. I learn from it …"*
		Desire for continuous learning	*" My braces treatment helps me understand the related discipline and I explore it further online and by talking to my mentor, who is also my orthodontist ". He advises me to attend to webinars and seminars."*
			"…in order to be successful in my field, I need to continue learning being look at other means besides books…"
			"… I think whatever we study we should stay updated about its innovations…."
			"I like to attend conferences and workshops which take part in the university and outside the premises. I like to see where I stand"
			"Me and my friends took part in a video competition at a dental conference. we learned a lot about ethical practice in a fun way!"

DISCUSSION

Learning by discovery

Students must accurately identify their learning needs and preferences to employ a learning-by-discovery approach. By self-assessing their current understanding and learning styles, they can develop personalized time management and study strategies that optimize their engagement with and mastery of this learning method.

Identifying learning needs: Studies have shown that identifying students' needs has helped medical education improve circular reform and the learning process [21,22] Our findings included using study guides as an important tool in learning needs identification processes. Study guides, as supplemental resources, represent a response to the evolving curriculum, the overwhelming influx of information, and the diverse learning approaches. They serve as a valuable tool for students to navigate and effectively engage with the complex educational landscapes [23]. Designing, planning, and implementing a precise study guide is important to prepare students for lifelong learning.

Assessing learning: Our findings included students engaging in online assessment quizzes and interacting with peers to acknowledge the assessment. Given the course syllabus's extensive nature, timely feedback is crucial to ensure students' comprehension of each topic before progression to subsequent material. Implementing various assessment techniques, such as online quizzes, has been helpful for students in assessing their learning [24]. This type of formative assessment gives us an appreciation of timely feedback's usefulness in enhancing the students' learning experience. It also directs medical educators to organize a systematic and timely feedback system. [25]

Time management and study schedule: Our findings showed that a few students tend to set goals and deadlines to finish tasks such as studying a topic. Studies prove that a personal development plan is a developmental tool in teaching students to undertake tasks and activities required for learning. [26]

Motivation and Accountability: While maintaining motivation and accountability can be a struggle for dental students, cultivating a strong professional identity and harnessing the power of social influence can create a

supportive network that fosters external validation and constructive feedback. This combined force can motivate students to excel in their academic pursuits and clinical practice.

Professional identity and external validation through mentorship and counseling: Our study found that some students developed a sense of responsibility when dealing with patients professionally. They mentioned they would prefer learning professionalism and handling patient in front of their supervisors. Studies have shown that mentorship programs in health profession education have meaningfully enhanced professional training at the early stages of a profession [27-29].

Perceived challenges and benefits

Reflective writing and self-evaluation: Findings showed that students benefit from reflective writing, which assists them in reflective practice. The finding that reflective writing benefits students in reflective practice aligns with existing literature on the subject. Numerous studies have demonstrated the effectiveness of reflective writing in fostering self-awareness, critical thinking, and personal growth. For example, Gibbs's reflective cycle, a widely used framework for reflection involving description, feelings, evaluations, analysis, conclusion, and action plan, systematically promotes a deeper understanding of one's experiences and identifies growth areas.[30]

The desire for continuous learning: Students in our findings included the desire for continuous learning during their course and training, such as attending seminars and workshops. The finding that dental students express a strong desire for continuous learning through activities such as seminars and workshops aligns with the broader trend of lifelong learning in professional fields. This inclination is rooted in the understanding that the healthcare landscape is constantly evolving, and staying updated with the latest advancements is crucial for maintaining professional competence and providing high-quality care [31]. Studies suggest this attribute is closely linked to typical lifelong learning. [32]

CONCLUSION

This study identified four key themes demonstrating how students used self-directed learning (SDL) to address their learning deficiencies. The first theme, learning by discovery, highlighted students' realization that active engagement, self-assessment, and time management are essential for academic success. Second theme, motivation and accountability emphasized the role of professional identity, social responsibility, and constructive feedback in shaping learning experiences. Third theme, integration of knowledge highlighted the importance of applying theory to practice through active learning strategies such as case-based learning and hands-on patient interaction. Finally, students valued reflective learning opportunities and participation in webinars and workshops to overcome challenges and enhance growth. Together, these findings reinforce the importance of fostering SDL, motivation, knowledge integration, and reflective practice in health professions education.

RECOMMENDATIONS

Medical and Dental schools can incorporate and integrate into Curricula the self-directed learning activities, PDP implementation, and create more CPD opportunities to foster students' autonomy, problem-solving skills and professional development. Faculty development and technological infrastructure must be strengthened to support SDL and collaborative learning. Future research should compare students' experiences in different educational settings to identify best practices and areas for improvement.

Authors Contributions

Author	Area of Contribution
Muhammad Mohsin Khan	1) Substantial contributions to study design, acquisition of data 2) Analysis and Interpretation of data. 3) Drafting of the Manuscript 4) Has given final approval of the version to be published 5) Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.
Brekhna Jamil	1) Conception & design of this research. 2) Critically revising the manuscript for its intellectual content. 3) Has given final approval of the version to be published.

	4) Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.
Nowshad Asim	1) Analysis and Interpretation of data. 2) Substantial contributions to analysis. 3) Critically revising the manuscript for its intellectual content. 4) Proof reading of the manuscript. 5) Has given final approval of the version to be published. 6) Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

REFERENCES

1. Handscombe R. Encouraging students to develop lifelong learning. The British Journal of General Practice. 2010 Dec 1;60(581):940. doi: 10.3399/bjgp10X544203

2. Talati JJ. Lifelong learning: Established concepts and evolving values. Arab J Urol [Internet]. 2014;12(1):86–95. Available from: http://dx.doi.org/10.1016/j.aju.2013.11.001

3. McConnell M, Gu A, Arshad A, Mokhtari A, Azzam K. An innovative approach to identifying learning needs for intrinsic CanMEDS roles in continuing professional development. Medical education online. 2018 Jan 1;23(1):1497374. https://doi.org/10.1080/10872981.2018.1497374

4. Fabiana Meijon Fadul. American Association of Colleges of Nursing and Association of American Medical Colleges. Lifelong Learning in Medicine and Nursing [Internet]. Washington, DC: American Association of Colleges of Nursing; 2010; [Accessed Jan 6 2017]. Available from: 2019;

5. Babenko O, Koppula S, Daniels L, Nadon L, Daniels V. Lifelong learning along the education and career continuum: meta-analysis of studies in health professions. Journal of Advances in Medical Education & Professionalism. 2017 Oct;5(4):157.

6. Pakistan Medical & Dental Council. Guidelines for Undergraduate Medical Education (MBBS) Curriculum. 2024 [cited 2025 Jul 30]. Available from: https://pmdc.pk/Documents/Others/PM%26DC%20GUIDELINES%20FOR%20UG%20M.EDUCATION-06242024035407.pdf

7. DAVIES WK. European lifelong learning initiative. European Journal of Engineering Education. 1993 Jan 1;18(2):125-8. https://doi.org/10.1080/03043799308923224

8. Challis M. AMEE medical education guide no. 19: Personal learning plans. Med Teach. 2000;22(3):225–36. https://doi.org/10.1080/01421590050006160

9. Jennings SF. Personal development plans and self-directed learning for healthcare professionals: Are they evidence based? Vol. 83, Postgraduate Medical Journal. 2007. p. 518–24. https://doi.org/10.1136/pgmj.2006.053066

10. Davis N, Davis D, Bloch R. Continuing medical education: AMEE education guide No 35. Medical teacher. 2008 Jan 1;30(7):652-66. https://doi.org/10.1080/01421590802108323

11. Grant J. The good CPD guide: A practical guide to managed continuing professional development in medicine. CRC Press; 2017 Nov 22. https://doi.org/10.1201/9781315379623

12. Knowles MS. Self-directed learning. New York: association press; 1975 Jan. https://journals.sagepub.com/doi/abs/10.1177/105960117700200220

13. Kehily MJ. Considering the dimensions of lifelong learning tools. 2014;(September).

14. Walsh K. Encouraging Self-Directed Learning. J Dent Educ. 2014;78(8):1105–1105.

15. Tekkol İA, Demirel M. An investigation of self-directed learning skills of undergraduate students. Frontiers in psychology. 2018 Nov 23;9:410879. https://doi.org/10.3389/fpsyg.2018.02324

16. Imran M, Kalantan SA, Alkorbi MS, Shamim MS. Perceptions of Saudi medical students regarding self-directed learning: A qualitative study. J Pak Med Assoc [Internet]. 2021;71(5):1403–8. Available from: https://doi.org/10.47391/JPMA.1403

17. Creswell's Eight Validation Strategies - Walden EDUC 8035 [Internet]. [cited 2022 Jun 27]. Available from: https://sites.google.com/site/waldeneduc8035/creswell-s-eight-validation-strategies

18. Krefting L. Rigor in qualitative research: The assessment of trustworthiness. The American journal of occupational therapy. 1991 Mar 1;45(3):214-22. https://doi.org/10.5014/ajot.45.3.214

19. Mohamad SR, Hussin N. The usage of Microsoft OneDrive among the professional college staff. Journal of Information and Knowledge Management (JIKM). 2021;11(1):84-94.https://ir.uitm.edu.my/id/eprint/65495

20. Akella D. Learning together: Kolb's experiential theory and its application. Journal of Management & Organization. 2010 Mar;16(1):100-12. https://doi.org/10.5172/jmo.16.1.100

21. Samarakoon L, Fernando T, Rodrigo C. Learning styles and approaches to learning among medical undergraduates and postgraduates. BMC Med Educ. 2013;13(1).

22. Koohestani HR, Baghcheghi N. A comparison of learning styles of undergraduate health-care professional students at the beginning, middle, and end of the educational course over a 4-year study period (2015–2018). Journal of education and health promotion. 2020 Jan 1;9(1):208. 10.4103/jehp.jehp_224_20

23. HARDEN, JM LAIDLAW, EA HESKETH RM. AMEE Medical Education Guide No 16: Study guides-their use and preparation. Medical teacher. 1999 Jan 1;21(3):248-65. https://doi.org/10.1080/01421599979491

24. Haugen HJ, de Lange T. Multiple choice as formative assessment in dental education. European Journal of Dental Education. 2024 Aug;28(3):757-69. https://doi.org/10.1111/eje.13002

25. Gerhard-Szep S, Güntsch A, Pospiech P, Söhnel A, Scheutzel P, Wassmann T, et al. Assessment formats in dental medicine: An overview. GMS Z Med Ausbild. 2016;33(4). doi: 10.3205/zma001064

26. Beausaert SAJ, Segers MSR, Gijselaers WH. Using a Personal Development Plan for Different Purposes: Its Influence on Undertaking Learning Activities and Job Performance. Vocations and Learning. 2011;4(3):231–52.

27. Dalgaty F, Guthrie G, Walker H, Stirling K. The value of mentorship in medical education. The clinical teacher. 2017 Apr;14(2):124-8. https://doi.org/10.1111/tct.12510

28. Garmel GM. Mentoring medical students in academic emergency medicine. Academic Emergency Medicine. 2004 Dec;11(12):1351-7. https://doi.org/10.1197/j.aem.2004.06.013

29. Kram KE. Phases of the Mentor Relationship. Academy of Management Journal. 1983 Dec 1;26(4):608–25. https://doi.org/10.5465/255910

30. Abdel-Wahed NA, Sabban H, Khalifa H, Turkistani K. An Appraisal of Dental Students' Perception of Integrating Reflective Practice into the Curriculum: A Pre–Post Intervention Study. The Journal of Contemporary Dental Practice. 2025 Mar 5;25(12):1084-91. https://doi.org/10.5005/jp-journals-10024-3798

31. Firmstone VR, Elley KM, Skrybant MT, Fry-Smith A, Bayliss S, Torgerson CJ. Systematic Review of the Effectiveness of Continuing Dental Professional Development on Learning, Behavior, or Patient Outcomes. J Dent Educ. 2013 Mar;77(3):300–15. https://doi.org/10.1002/j.0022-0337.2013.77.3.tb05471.x

32. Lewis M. Lifelong learning: Why professionals must have the desire for and the capacity to continue learning throughout life. Health information management. 1998 Jun;28(2):62-6. https://doi.org/10.1177/183335839802800209