ORIGINAL ARTICLE

DOI:10.33897/fujd.v4i2.412

Perception of the Effectiveness of Self-directed Learning in Small Groups Among Final-year Dental Students at Watim Dental College

Aamna Khalil[1], Qudsia Iqbal[2], Zarah Afreen[3], Ammarah Afreen[4], Javeria Afzal[5], Aeeza Malik[6]

Received: 20 Apr 2024 / Revised:07 June 2024 / Accepted: 12 June 2024 / Published online: 15 Jul 2024

ABSTRACT

Objectives: With the passage of time, various teaching methods have been introduced to increase the efficiency of learning process. There is an evolution from the teacher directed learning to self-directed learning in process worldwide, in all fields including medical education. The objective of this study is to assess the perception of final year BDS students regarding self- directed learning in the form of small group presentations at Watim Dental College.

Materials and Methods: It was a cross-sectional study. Sample size (50) was calculated using WHO calculator. The duration of the study was one month. The data was collected from the students of Final year BDS at Watim Dental College. Structured questionnaire was used to assess the student's perspective. Data was entered and analyzed on SPSS version 20 and Microsoft PowerPoint excel.

Results: Results showed that about 60% students agreed that small group presentations were interactive, friendly and innovative, built interaction between teacher and student. Small group discussion increased their thought process and helped them in better communication. 42% strongly agreed and 54% agreed regarding awareness about the presentation schedule, topic and its objectives. 48% agreed that their presentation was attention seeking. 44%, 48% and 50 % agreed that this activity enhanced their learning, improving their computer and communication skills respectively. 46% and 58% agreed about getting the positive peer review and constructed feedback from the teacher respectively.

Conclusion: Our research findings indicate that students acknowledge the benefits of self-directed learning, particularly through small group discussions. An instructional strategy highlighted here is the introduction to self-directed learning, which serves to bridge the gap between teachers and students, ultimately enhancing communication skills among students.

Keywords: Dental Students, Perception, Self-Directed Learning, Small Group Discussion

[1]Assistant Professor, [3]Associate Professor, Department of Prosthodontics, Watim Dental College, Rawalpindi, Pakistan

[2]Assistant Professor, Department of Prosthodontics, Nishtar Institute of Dentistry, Multan, Pakistan

[4]Associate Professor, Department of Operative Dentistry, Watim Dental College Rawalpindi, Pakistan

[5]Assistant Professor, [6]Associate Professor, Department of Community Dentistry, Multan Medical and Dental College, Multan, Pakistan

Corresponding author:

Qudsia Iqbal, House 649 ,Street 23, Phase 8, Bahria Town, Rawalpindi, Pakistan. Email: qudsia1370@gmail.com

How to cite this Article:

Khalil A, Iqbal Q, Afreen Z, Afreen A, Afzal J, Malik A. Perception of the Effectiveness of Self-directed Learning in Small Groups Among Final-year Dental Students at Watim Dental College. Found Univ J Dent. 2024;4(2):66-72

ORIGINAL ARTICLE
DOI:10.33897/fujd.v4i2.412

INTRODUCTION

Complex problems in different aspects of life including learning difficulties, can be well managed by cumulative information of various individuals.[1] Woolley et al revealed that the presence of a 'collective intelligence factor' is indicative of groups activities across a wide diversity of chores.

In the subject of learning, this suggested that learning should aid in maturity, authenticity and freedom of an individual.[1,2] During the process of decision making or finding solution of complex problems, groups of people should find the best one from group. Occasionally, they can perform better than the specialist of the concerned subject. Collective achievement like this is frequently practiced through direct man to man group discussions. Discussion of knowledge and plans between different individuals lead to precise collaborative solutions.[3] Controlled experimental settings have demonstrated that generally groups can select an individual in multitasking, for example in detection of lies, recreate rowdy signals, set up a medical diagnosis, and in different tasks.[3,4]

Self directed learning refers to the capacity to learn new information ,time management, evaluation of the literature resources and evaluation of the student's own skills.[5] It allows health professionals to continuously amplify and process their knowledge . This will improve their clinical intervention, patient care and well-being .[6,7]

Kerr and coworkers carried out research and analysis on small group performance and decision taking. For continuous response distributions and group information processing, small group discussion and group decision making is the preferred method.[5]

There are some factors that enhance the efficiency of small group tasks. An effective facilitator or small group tutor plays a vital role in the success of a small-group discussion.[6] Small group teaching or discussion can fulfil various tasks such as problem-solving, role play, brain storming, discussions, and case based learning. It helps in deep knowledge and more retention. The small group discussion and presentations are encouraging, confidence building, and address the gap between the teacher and student.[5,8] In small group teaching, brainstorming is an effectual teaching learning method that can be employed through the participants to reach towards a conclusion by giving various solutions.[9] Self-directed learning is a major factor for small group activities. This concept shifts the learning responsibility to the students, and they take on an active role in developing and initiating actions necessary to achieve their learning goals.[10]

According to a study by Mehboob et al. the overall average motivation mean score was 82.18%, self-monitoring mean score was 69.23% and inter-personal communication mean score was 70.75%. This study encourages carrying out more research on self-directed learning and small group discussion so that this can be incorporated as an effective tool in under-graduate curriculum.

This study is conducted with an aim to assess the perception of final year BDS students regarding self-directed learning with small group presentations.

MATERIALS AND METHOD

This study was conducted in Department of Prosthodontics, Watim Dental College, Rawalpindi. The participants of this study were the students of final year BDS. Sample size was calculated using WHO calculator formula 1.1. Confidence level was 90% and anticipated population proportion was 0.048. Sample size was 50.[11] Students were divided in 9 different small groups as per their mutual concern and convenience. All groups were assigned their topics to prepare proper PowerPoint presentations and to present their presentations in class in front of their fellows and faculty members

After completion of presentations of all groups a structured questionnaire was distributed to all the participants to get their feedback regarding this activity(SDLI described by Shen et al).[12] A five-point Likert scale was used ranging from strongly agree to strongly disagree. Data was collected and analyzed by using SPSS version 20 and Microsoft Excel. Duration of study was about one month including making of questionnaire, data collection and analysis.

RESULTS

Table 1 shows the questions as well as results of the study. 42% students strongly agreed, 54% agreed, 2 % were not sure and 2 % disagreed on question regarding timely information of presentation schedule. Regarding awareness about the topic and its objectives, 38% students strongly agreed, 58% agreed, 4 % were not

DOI:10.33897/fujd.v4i2.412

sure. In response to question,regarding the interesting and attention seeking nature of the presentations, 16% strongly agreed, 48% agreed, 16 % were not sure and 20 % disagreed. While asking about their comfort level along with their group members, 42% students strongly agreed, 20% agreed, 14 % were not sure, 10 % disagreed and 14% strongly disagreed about their comfort level with other members of their group. 12% students strongly agreed, 44% agreed, 32 % were not sure, 8 % disagreed and 4% strongly disagreed about the question regarding enhancement of learning experience. While answering about improvement in computer skills, 14% students strongly agreed, 48% agreed, 16 % were not sure, 4 % disagreed and 18% strongly disagreed. Regarding increase in communication skills and confidence after delivering of presentation, 28% students strongly agreed, 50% agreed, 12 % were not sure, 10 % disagreed. While asking about the peer review, 16% students strongly agreed, 46% agreed, 18 % were not sure, 12 % disagree, 8% strongly disagreed. While answering about getting appropriate constructive feedback from the teacher, 12% strongly agreed, 58% agreed, 26 % were not sure, 2 % disagree, 2% strongly disagreed. Regarding clarification of complicated topics by the teacher at the end of session, 16% strongly agreed, 58% agreed, 14 % were not sure, 2 % disagree,10% strongly disagreed.

Table 1: Percentages are given in the table below regarding student's perception towards their presentations

		Strongly Agree (%)	Agree (%)	Ambivalent (%)	Disagree (%)	Strongly Disagree (%)
1.	I was informed timely about the presentation schedule.	42	54	2	2	0
2.	I was aware of the presentation topic and its objectives.	38	58	4	0	0
3.	The presentation of our group was interesting and attention seeking.	16	48	16	20	0
4.	I was comfortable working along my group members.	42	20	14	10	14
5.	This group activity helped us in exploring new ideas and enhanced my learning.	12	44	32	8	4
6.	The making of PowerPoint presentation enhanced my skill s in computer usage and programs.	14	48	16	4	18
7.	Delivering presentation to the class boosted my confidence and improved my communication skills.	28	50	12	10	0
8.	At the end of presentation my class fellows gave me both positive and negative constructive feedback.	16	46	18	12	8
9.	At the end of the presentation my teacher gave appropriate constructive feedback on individual as well as group-based performance.	12	58	26	2	2
10.	At the end of the session, my teacher clarified the confusing and complicated points in the topic.	16	58	14	2	10

DOI:10.33897/fujd.v4i2.412

DISCUSSION

Malcolm Knowles explained that learners with self-learning habit were found to be more motivated to implement this strategy and took liability of their own learning.[13, 14]Small group discussions facilitate learners to explore complete knowledge of designated topic, improve communication skill of students and provide a good opportunity to the leader to found perceptive of all participants.[15]To achieve educational goals, the tutor sets learning goals and forms small groups. The groups then receive the scenarios, which they must find their own ways to resolve.[16]This study showed that small group presentations provided opportunities for students to speak in front of others and to receive feedback from teachers and peers. In our study, 60% students agreed that small group presentations were interactive, friendly and innovative, built interaction between teacher and student. Small group discussion increased their thought process and helped them in better communication.[17,18] Sharmila SR et alreported that studying in small groups can be an effective learning activity in which students learn from their teachers and interaction with each other.[15] In our study about 52% students were of the opinion that their learning skills were enhanced in this activity. Similar results were found by Mehboob at al where 51% of students agreed on proactively establishing learning goals.There is similarity between the studies due to the same culture, educational environment and curriculum based medical education system.[12] It was also observed in our study that a group discussion and making of a presentation not only improved performance of students but also increased active participation of students, making environment more friendly than traditional teaching methods. Similar results were found by Zia et al where significant difference was observed in the student's performance after an additional session of SDL in the physiology topics.[19,20]

A major comparison in students' performance has been observed after conducting session for Self-directed learning. It has shown that this learning strategy is fruitful for students to get deep knowledge and helps to score good marks.[21] Results of the study showed that around 60% students agreed that self-directed learning in the form of small group presentations is an effective way of learning and improving teaching skills as showed in previous study.[22] Similar results were found by Hua et al where 74% students were satisfied with self-directed learning methods.[5]Since the topics were assigned 2 weeks before the presentations, and reference books and other resource materials were also shared, the students got ample time for preparation. About 58% students agreed that they were completely prepared for the topic. Similar results were found by Jeon et al where they had 68% students showing self-efficacy.These findings indicate that self-directed learning improve medical students self-efficacy, thereby positively influencing their academic performance.[23]

This study recommends that facilitators should incorporate self-directed learning among students. Students should have proper guidance to ameliorate their self-management skills to take responsibility of their learning, particularly with respect of various learning strategies, duration and with all resources included in curriculum.[24]It is a common observationthat little attention is paid to explicitly encouraging self-directed learning in our teaching institutes**.** For example most students lack metacognitive skills to self-regulate learning and find it difficult to reflect on and navigate their learning process to ensure progress in respective field.[25] In order to transform learners from dependent to self-directed, the teachers should be knowledgeable about teaching approaches that are effective in this manner.[26] For advancing self-directed learning, Cognitive education holds a pivotal role as it underscores the cultivation of critical thinking skills, including categorization, appraisal, drawing inferences, annotation, and meta-cognitive self-regulation.[27] Moreover, it fosters the development of essential dispositions such as perseverance, curiosity, inquisitiveness, questioning, and systematic working methods, all recognized as foundational traits of self-directed learners. These critical thinking abilities and dispositions form the bedrock for achieving both academic success and personal wellbeing. Furthermore, cognitive education facilitates the gradual advancement of self-directedness and autonomy, enabling learners to experience positive emotions, heightened interest, and active engagement in their educational pursuits. Additionally, it equips individuals with the capacity to discern purpose and meaning in their academic endeavors, fostering positive peer relationships, and nurturing personal attributes such as self-determination, vitality, resilience, optimism, and self-esteem. Ultimately, this holistic

DOI:10.33897/fujd.v4i2.412

approach not only enhances personal wellbeing but also contributes to greater academic accomplishments.[26-28] Saurabh and Agrawal described that various learning strategies for example clinical orientations, problem-based learning, case base learning, group discussions and tutorials must include in curriculum to improve student's performance in exams and to develop their personality towards more self-directed.[25,29,30]

SDL is an important aspect of lifelong learning. For future implications, various strategies for SDL should be included in curriculum, so that learners can polish and improve their learning skills. In addition, access to various educational materials through digital technology and artificial intelligence is also of great assistance for self-learning in medical education.

The limitation of this study is small sample size and involvement of one professional class. It should be practiced on different academic sessions and response should be noticed along with the academic performance. Another limitation is that study was based on a self-reported questionnaire that explored student abilities of SDL and, therefore, is not a direct measure of their SDL abilities. This can be improved by exploring new tools for SDL evaluation.

CONCLUSION

Our research findings indicate that students acknowledge the benefits of self-directed learning, particularly through small group discussions. An instructional strategy highlighted here is the introduction to self-directed learning, which serves to bridge the gap between teachers and students, ultimately enhancing communication skills among students.

Various factors play a crucial role in the development and progress of each country, with universities occupying a prominent position. The roles of universities hinge on factors such as the academic quality of faculty, student welfare, and available facilities. Additionally, efforts aimed at enhancing teaching methods and educational offerings are imperative. Moreover, student motivation stands as a vital prerequisite for both learning and achieving success.

Furthermore, initiatives aimed at bolstering student satisfaction and fostering conducive learning environments are paramount. This includes improvements in the social and educational aspects of educational institutions, as well as enhancing the quality of services provided by administrative staff.

DISCLAIMER

None to declare.

CONFLICT OF INTEREST

There is no conflict of interest among the authors.

ETHICAL STATEMENT

The Ethical Review Committee of WMCR granted ethical approval for this study. (Approval number:WMDCR/ERB/2023/38)

FUNDING DISCLOSURE

The author(s) received no financial support for the research, authorship, and/or publication of this article.

AUTHORS CONTRIBUTION

Conception and design of the study: A. Khalil, Q. Iqbal, Z. Afreen

Acquisition of data: A. Afreen, J. Afzal, A. Malik

Analysis and interpretation of data: A. Khalil, J. Afzal

Drafting of the manuscript: A. Khalil, Q. Iqbal, Z. Afreen

Critical review of the manuscript: : A. Afreen, J. Afzal, A. Malik

Approval of the final version of the manuscript to be published: A. Khalil, Q. Iqbal, Z. Afreen, A. Afreen, J. Afzal, A. Malik

REFERENCES

1. Woolley AW, Chabris CF, Pentland A, Hashmi N, Malone TW. Evidence for a collective intelligence factor in the performance of human groups. Science. 2010;330(6004):686-8.
2. Zeng X, Wang T. College Student Satisfaction with Online Learning during COVID-19: A review and implications. Intl J Multi Discip Pers. 2021; 6(1):182-95.
3. Moussaïd M, Noriega Campero A, Almaatouq A. Dynamical networks of influence in small group discussions. Plos One. 2018;13(1):e0190541
4. Hautz WE, Kämmer JE, Schauber SK, Spies CD, Gaissmaier W. Diagnostic performance by medical students working individually or in teams. J Am Med Assoc. 2015;313(1): 303–304.

DOI:10.33897/fujd.v4i2.412

5. Hua M, Wang L, Li J. The impact of self-directed learning experience and course experience on learning satisfaction of university students in blended learning environments: the mediating role of deep and surface learning approach. Front Psychol. 2024;14(3):1278827
6. Hwang Y, Oh J. The relationship between self-directed learning and problem-solving ability: the mediating role of academic self-efficacy and self-regulated learning among nursing students. Int J Environ Res Public Health. 2021;18(4):1–9.
7. Taylor TAH, Kemp K, Mi M, Lerchenfeldt S. Self-directed learning assessment practices in undergraduate health professions education: a systematic review. Med Educ Online. 2023; 28(1):2189553.
8. Serrano DR, Dea-Ayuela MA, Gonzalez-Burgos E, Serrano-Gil A, Lalatsa A. Technology-enhanced learning in higher education: How to enhance student engagement through blended learning. Eur J Educ. 2019;54(2):273-86.
9. Liu TH, Sullivan AM. A story half told: a qualitative study of medical students' self-directed learning in the clinical setting. BMC Med Educ. 2021;21(1):1-1.
10. Ricotta DN, Richards JB, Atkins KM, et al. Self-directed learning in medical education: training for a lifetime of discovery. Teach Learn Med. 2021;12(2):1–11.
11. Inuwa IM. Perceptions and attitudes of first-year medical students on a modified team-based learning(TBL) strategy in anatomy. Sultan Qaboos Univ Med J.2012;12(3):336-343.
12. Mehboob M. The spectrum of Self-directed learning perceptions among faculty members and students of Bolan University of Medical and Health Sciences. Pak J Med Sci. 2022;38(7):1780-1787.
13. Meo SA. Basic steps in establishing effective small group teaching sessions in medical schools. Pak J Med Sci. 2013;29(4):1071.
14. Kononowicz AA, Woodham LA, Edelbring S, Stathakarou N, Davies D, Saxena N, Car LT, Carlstedt-Duke J, Car J, Zary N. Virtual patient simulations in health professions education: systematic review and meta-analysis by the digital health education collaboration. J Med Res. 2019 ;21(7).
15. Sharmila SR, Mungal SU, More SR. Developing competencies of medical students using group discussion as TL method. J Dent Med Sci. 2014; 13(3):24–7.
16. Atta I.S., Alghamdi A.H. The efficacy of self-directed learning versus problem-based learning for teaching and learning ophthalmology: A comparative study. Adv Med Educ Pract. 2018;9(1):623–630.
17. Sajjad S. Effective teaching methods at higher education level. Pak J Spec Educ. 2010, 11(4):29–43.
18. Gopalakrishnan P, Swati Patki, Varghese SS, Harsha CH, Antony R. Effectiveness of different methods of education among first year medical students in Central Kerala. Int J Med Pharm Sci. 2014; 5(1):01–4.
19. Zia S, Jabeen F, Atta K, Sial NA. Self-directed learning (SDL), an effective method for teaching physiology to medical students. Pak. J. Med. Health Sci. 2016;10(3):699-702.
20. Annamalai N, Manivel R, Palanisamy R. Small group discussion: Student's perspectives. Int J App Basic Med Res. 2015;5(S1):18-20.
21. Soliman M, Al-Shaikh G. Readiness for self-directed learning among first year Saudi medical students: a descriptive study. Pak J Med Sci. 2015;31(4): 799 –802.
22. Devi V, Devan D, Soon PC, Han WP. Comparison of self-directed learning readiness among students experiencing hybrid and traditional curriculum. J Clin Diagn Res. 2012; 6(3):1047 –50.
23. Jeon J, Park S. Self-Directed Learning versus Problem-Based Learning in Korean Nurse Education: A Quasi-Experimental Study. Healthcare (Basel). 2021;9(12):1763.
24. Saurabh MK, Agrawal J. International Journal of Basic & Clinical pharmacology the opinion of undergraduate medical students on current curriculum and teaching methodology of pharmacology in four medical colleges of India: a questionnaire-based study. Int J Basic Clin Pharmacol. 2015; 4(1):970 –5.

DOI:10.33897/fujd.v4i2.412

25. Fattahi E, Solhi M, Abbas J, Kasmaei P, Rastaghi S, Pouresmaeil M, Ziapour A, Gilan HD. Prioritization of needs among students of University of Medical Sciences: A needs assessment. J Educ Health Promot. 2020;9:57.

26. Van Tonder GP, Kloppers MM, Grosser MM. Enabling Self-Directed Academic and Personal Wellbeing Through Cognitive Education. Front Psychol. 2022;12:789194.

27. Eloff I, Graham M. Measuring mental health and well-being of South African undergraduate students. Glob Ment Health (Camb). 2020;7:e34.

28. Shrivastava SR, Shrivastava PS. Brainstorming: A tool to facilitate learning among undergraduate medical students. Muller J Med Sci Res. 2018; 9(2):114-5.

29. Lemoine ER, Rana J, Burgin S. Teaching & Learning Tips 7: small-group discussion. Int J Dermatol. 2018;57(5):583-586.

30. Bianchi S, Bernardi S, Perilli E, Cipollone C, Di Biasi J, Macchiarelli G. Evaluation of effectiveness of digital technologies during anatomy learning in nursing school. Appl Sci. 2020;10(2):2357.