ORIGINAL ARTICLE

The Conceptions of Learning: A Qualitative Analysis of Dental Students' and Teachers' Perspective at Hamdard University Dental Hospital

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ABSTRACT

Objectives: To identify learning and teaching conceptions in both students as well as teachers of Dentistry. The spectrum of students' and teachers' learning conceptions, presented in this study, is expected to help the teachers better understand their students' diversified requirements and hence select appropriate teaching strategies.

Materials and Methods: A questionnaire with consent and 5 open-ended questions constructed on google forms was distributed to undergraduate students of dentistry, postgraduate trainees, and faculty members. Qualitative analysis of participants' responses was performed following Association for Medical Education in Europe (AMEE) Guide No 131.

Results: The study participants' views about a good learner were mainly found to be teacher-centred. The undergraduate students were more expressive by using a wide range of words for their learning conceptions and expectations. The main teaching conceptions mentioned by the study participants were behaviour modification in addition to the spread of knowledge and facilitation. Teaching was considered an art and a noble profession by the student participants.

Conclusion: The range of conceptions about learning and teaching presented in the study, especially by the students, reinforces the need for the teachers to identify them periodically throughout the course. Relating students' conceptions with one's own and modifying the teaching strategies, accordingly, contribute to making an effective teacher.

Keywords: AMEE Guide, Metacognition, Teaching Conceptions, Learning Conceptions, Learning Preferences, Lifelong Learning

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INTRODUCTION

Learning is a constant and dynamic process.[1] Understanding the learning patterns and styles has always sparked keen interest among educationists and psychologists. The conception of learning is defined as a learner's ideas and beliefs about learning. Yokoyama and Miwa took an account of multiple studies on conceptions of learning and categorized them into three broad groups. Active conception is a process of learning influenced by the learner's intent to bring a positive change in self, passive conception that is influenced by external pressure, and experiential conception of learning that results from day-to-day experiences.[2]

McDonough[3] summarized their discussion on child and adult learning processes by bringing forward the important factors required for learning by both groups. These include a supportive environment, actual situations that bring about new learning, exhibiting material that presents new knowledge, personal interest, practical involvement in the process of learning, facilitation, responsibility towards learning, application of knowledge, feedback and combining new with prior knowledge and life experiences. The difference between child and adult learners brought forward by McDonough was that adults take the responsibility of utilizing the knowledge they already have and their practical experiences to continue goal-oriented learning. Whereas children learn through the same processes unknowingly from their environment.

The Association for Medical Education in Europe (AMEE) publishes guides for teachers in the health profession for professional development.[4] AMEE guide 83 discusses adult learning theories and categorizes them further into six sub-types. 1: Instrumental (behavioural, cognitive, and experiential), 2: Humanistic (andragogy and self-directed learning), 3: Transformative (critical reflection), 4: Social, 5: Motivational, and 6: Reflective models.[5]

Teaching conceptions are educators' opinions regarding what methods are effective and congenial and how they influence the level of participation of both students and teachers. The constructivist approach refers to a combined effort of student and teacher. This is done through active interaction in which the teacher facilitates the students by creating a conducive environment for learning, and the students construct newer knowledge and skills over what they already know.[6]

Shuell[7] keenly assessed the effects of cognitive psychology by discussing behavioural and cognitive conceptions of learning; its active or passive nature; and the role of previous knowledge. He further highlighted the teacher's role in the active participation of students in learning activities, considering their previous knowledge and how to form newer constructs on it.

While comparing critical thinking in Confucian learning conceptions and Western learning culture, Wai[8] found no significant difference between them. In Confucian education, critical thinking is a combination of, knowledge and skills judged responsibly through raising questions, exploring answers, and involving in discussion on self-reflection. Western critical thinking combines the upper three levels of Bloom's taxonomy namely, analysis, synthesis, and evaluation. In another study, Metacognition guides students in using different methods of learning according to the situation. Three terms related to metacognition need to be understood clearly. Deep metacognition entails finding out the truthfulness of the information by combining and testing what was already known with new knowledge and experience. Whereas memorization and practising repeatedly are components of surface metacognition. Facing problems in setting up and failing to display an organized information processing represents disorganisation.[9,10]

Vettori et al[11] evaluated the relationship between surface and deep metacognition with academic achievements in high school students and found a positive relationship between the two. Furthermore, the work of Amadhila and Guest[12] concluded that an effective teacher employs a student-centred and learning-oriented conception framework. Omar[13] investigated the influence of students' personality types on their learning styles and the role of active learning in the subject of preclinical surgery. He emphasized the incorporation of active teaching and learning methodologies along with self-evaluation by the teachers and students to achieve the objectives of the course.

Carlson[14] while discussing the importance of training of maxillofacial surgery postgraduate students in andragogy comments that an effective maxillofacial surgery teacher should not only practically demonstrate, explain, and rationalize various surgical techniques, but document their results as well. In addition to research conducted in the surgical procedures being performed, he/she should simultaneously carry out research in the continuously

evolving field of teaching. Ross[15] highlighted the importance of educators' conceptions of teaching and learning in finding the disparities and guiding how to deal with them.

While agreeing with Carlson and Ross's views, a study was planned to identify learning and teaching conceptions in students as well as teachers of the Dental Section, Hamdard University Dental Hospital. The authors were not able to find any local research on this aspect. The spectrum of students' and teachers' learning conceptions, revealed in this study is expected to facilitate its recognition by the teachers, This local data highlights the importance of selecting teaching strategies that best match the students' diversified requirements in our society.

MATERIALS AND METHODS

A questionnaire-based study was conducted by the Oral & Maxillofacial Surgery department in collaboration with the Department of Research and Innovation, Hamdard University Dental Hospital, Karachi after the approval from the Ethical Review Board of Hamdard University (Ref: HCM&D/021/2023, dated 6th January 2023). All students from first to final year BDS (Bachelor of Dental Surgery), Postgraduate residents, and teachers from basic and clinical sciences consenting to participate were included in the study using a non-probability convenient sampling method.

A specially designed questionnaire with consent and 5 open-ended questions, was constructed on Google Forms.[16] A pilot study for validation of the questionnaire was conducted with 5 representatives from the undergraduate group, 1 from the postgraduate group and 2 from the faculty. The questionnaire was then distributed to undergraduate students of dentistry, postgraduate trainees, and faculty members. The questions asked were (1) What do you understand by the term "Teaching", (2) What do you understand by the term "Learning", (3) What do you hope to achieve as a teacher, (4) What do you hope to achieve as a learner, (5) In your opinion, what are the attributes of a Good Learner.

Qualitative analysis of participants' responses was performed following AMEE Guide No 131.[17] The text of the responses was examined by both authors simultaneously. Thematic analysis was performed after inductively extracting the codes from the text. Two authors analysed the data to cross-check codes extracted to avoid individual bias and missed codes.

Microsoft Excel software was used for tabulation of the data and analysis.

RESULTS

The total number of participants, in our study, was 105. Table 1 shows the demographics of study participants. The qualities of a good learner mentioned by our participants included: keen-reader; self-motivated; critical-thinker; disciplined; hard-worker; tech-friendly; receptive; and having sharp memory.

Table 1: Socio-demographic variables of the study participants

Participants	N	Percentage (%)
First-year	10	67.60%
Second year	2	
Third year	29	
Final year	30	
Postgraduate	11	10.47%
Teacher	23	21.90%

DISCUSSION

Teaching and learning conceptions are the understandings of teachers regarding the preferred ways of teaching and student learning. One broad category of teaching and learning conceptions identified by Bilgin and Aykac[18] was that in which the teacher is the source and means of spreading knowledge and the students are passive receivers. The other category is where the students actively combine new and existing knowledge. These conceptions have a vital role in the choice of teaching strategies and student satisfaction. The purpose of the study was to explore teachers' as well as students' conceptions of teaching-learning and their expectations with the intent to improve teaching strategies and hence achieve student satisfaction and improved outcomes.

Qualities of good learners were searched on the websites of different educational institutes,[19,20] and were compared with those mentioned by the study participants. The attributes which were found lacking in the study participants' views were, self-reflection, collaboration, conflict resolution and knowing how and when to ask for help. A possible explanation would predominantly be a teacher-centred approach which is more frequently used in the study setting. The vocabulary lacking within the replies is mostly related to student-centred learning.

An interesting finding of the study was that the undergraduate students had more words describing

Table 2 shows conceptions of learning from undergraduate students (first to final year), postgraduate students and faculty members.

Table 2: Conceptions of learning from undergraduate students (first to final year), postgraduate students and faculty members

Undergraduate Students	Postgraduate Students	Faculty
Gain something new, Acquiring knowledge and skill/ discovery	Gain something new, Acquiring knowledge and skill/ discovery	Gain something new, Acquiring knowledge and skill/ discovery
Knowledge shared by the teacher	Knowledge shared by the teacher	Behaviour modification
Clearing concepts		Application of knowledge
Learning from mistakes		Continuous process
Understanding		
Grooming self, Behaviour modification		
Memorization		
To be strong in failures and successes		
Change in perspective		
Courage to ask		
Becoming wiser and more communicable		
Experience of skills		
To be beneficial to the society		
New ideas and experiences		
Best response at the time of the exam		

Table 3 shows conceptions of teaching from undergraduate students (first to final year), postgraduate residents and faculty members.

Table 3: Conceptions of teaching from undergraduate students (first to final year), postgraduate students and faculty members

Undergraduate Students	Postgraduate Students	Faculty
Guidance	Providing information	Providing information
Application of knowledge	Spreading knowledge and skills	Facilitation understanding/ clearing concepts
Responsibility/Demanding profession	Behavioural conditioning	Engagement with learners/ Interactive process
Organizational skills	Engagement with learners/Interactive process	Authentic ideas
Providing information	Skill	Spreading knowledge
Facilitating understanding		Mentoring
Spreading knowledge and skills		
Nurturing minds		
Behavioural conditioning		
Engagement with learners/Interactive process		
Positive mindset		
Support		
Instruction		
Art		
Skill		
Occupation		
Noble profession		
Clearing queries		
Learning		
Religious profession		

Table 4 shows Expectations of achievements as teachers by Faculty members and Postgradujate residents.

Table 4: Expectations of achievements as teachers by Faculty members and Postgraduate students

Share knowledge
Develop good communication skills in students
Facilitate students
Provide a uniform learning environment to all students
Teach clinical skills
Clear concepts
Motivate students/ Mentor
Create reading habits in students
Develop good communication skills in self
Inspire students
Good results/students' success
Keep learning
Respect
Students' satisfaction
Better student-teacher relationship
Intellectual nourishment
Implementation of new advancements in the subject

Table 5 shows participants' responses to their expectations as Learners.

Table 5: Participants' expectations as Learners

Undergraduate Students	Postgraduate Students	Faculty
Continuous learning	Learn something new every day	Become a better teacher
As good as mentors		Participate in research
Change		Successful
Positivity and Confidence		Skilful
Set goals and follow plans		Better income
		Role model
		Stay updated

learning as compared to the postgraduate residents and faculty. The conceptions of learning by postgraduate residents and teachers were mainly gaining knowledge and behaviour modification. The undergraduate students came up with ideas like courage to ask, to be beneficial to the society, best response at the time of exam and to be strong at times of failures and successes. A plausible explanation for this might be that these meanings of learning have already been incorporated in the minds of more mature learners which is why they are using broader terms as compared to the undergraduate students who are in their initial phase of learning in this profession. The final year students were much more expressive and vocal regarding their conceptions of learning and expectations of being a learner for example analytical, time management, creative thinking, teamwork, learning from mistakes, and behavioural change. The conceptions revealed in the present study very well fit into broad categories of learning conceptions by Yokoyama and Bilgin, namely active, passive and experiential.[2,18]

Interestingly, a significant relationship between students' epistemological beliefs namely "reflective learning, collaborative knowledge-building, valuing metacognition, certain knowledge, and practical value" with their learning conceptions and academic

achievements has been presented by Lonka and coworkers.[21]

Dart et al[22] discussed three broad categories of learning conceptions namely "qualitative, quantitative and experiential". While investigating the relationship of learning approaches with learning conceptions, the qualitative and experiential conceptions were found to have a deep approach, while the quantitative conception utilized a surface approach. Umapathy et al[23] in their study on computer science students, concluded the students at a higher level of education predominantly utilize deep learning approaches by activating what is already known to develop new ideas. This infers that the teachers should design their methodologies addressing various types of students' preferences.

When the study participants were asked what they understood by the term teaching, the postgraduate residents and faculty responded by spreading knowledge, facilitating, and engaging with students and bringing about behavioural conditioning and modification. The undergraduate students had more words to explain teaching as the application of knowledge, an art and a skill. They consider teaching as a noble and religious profession. This represents students' expectations regarding their teachers. Ross[15] explained that none of the conceptions is better than the other rather it should be used appropriately according to the situation. He emphasized that a teaching conception appropriately matching the teaching situations, leads to the selection of an effective teaching methodology.

Deraney[24] in a survey performed on students of the education department, observed true translation of teacher-centred to student-centred conception. It highlighted the importance of a more interactive student-teacher relationship. In the study by Kenneth,[25] contributors to the making of a good teacher include a grip on the subject, teaching material, methodology, professionalism, a conducive environment, and priority to enhancing students' performance.

In this study, while answering about expectations as teachers, the responses of faculty members and postgraduate students considered as future teachers, include: providing a learning environment to students; achieving good student' results; improving communication skills; improving teacher-student relationships; and implementing new advancements in the subject. In an invited commentary in the field of medical education, Prober and Norden[26] emphasized that both the teacher

and student to reconsider their roles. The teachers should conduct interactive sessions and develop critical-thinking in their students to make future leaders who will provide cost-effective and patient-centred healthcare to the community. Students have the responsibility to acquire essential knowledge upon which the healthcare profession is based and understand the importance of continuously updating their knowledge.

To regulate student learning, Allal[27] highlighted the importance of the combination of self-monitoring by the student, and monitoring by the teachers using interactive teaching methodologies, assessments, and peer feedback. Liebech and Sjølie[28] in their study, highlighted the importance of training the students for collaborative learning which prepares them for real-life scenarios. They also emphasized the role of teachers in designing their teaching that incorporates collaborative learning. Han and Ellis[29] bring forward the importance of discussion either face-to-face or online. They emphasized that just providing opportunities for discussions would not have a significant effect on learning unless the students are guided by the teachers on how to utilize this methodology in improving their learning by considering other participants' ideas and assessing their own. This requires the active participation of the teacher even before the actual discussion starts.

The current study found the expectations as learners changed with the experience level of the participants. The undergraduate and postgraduate students as learners were mainly concerned with continuous learning, setting goals, and following plans. Whereas the faculty members had a wider range of expectations as being skilful, role models, researchers, and having a realistic approach to having a good income. This trend is also expressed by Giordano and Porciúncula[30] in their study. They concluded that educators' teaching and learning conceptions change with experience which in turn brings about a change and improvement of teaching methodologies and hence influences their comprehension and grasp of the syllabus. Carlson[31] relates lifelong learning to self-authoring and self-transforming minds and emphasizes its role in medical education. The findings of the study presented, reinforce the need for the teachers to first understand their own beliefs and preferences for learning, realize the diversity of learning conceptions among their students, design and keep updating their teaching methodologies that best match

the scenario they are dealing with. Omar[13] emphasizes on evaluation of students' learning conceptions and styles at the commencement of each year, reviewing the course, and regular feedback to make teaching effective.

The responses of faculty members were not assessed according to their level of experience, which may also influence their conceptions. Future research exploring this aspect is recommended. The study presented is just the tip of the iceberg. To explore more deeply, it is recommended to conduct regular evaluations of teaching and learning conceptions and feedback from students of each year as well as teachers during the Dentistry course and update the teaching strategies and methodologies according to it. Documenting and sharing these evaluations between related departments of different institutions is also recommended for professional enhancement.

CONCLUSION

A teacher should be a lifelong learner to bridge the gap between their expectations and those of the students and hence achieve better student satisfaction and results. Realization and recognition of students' conceptions and approaches to learning combined with understanding and improving one's own learning and teaching approaches, contribute to making an effective teacher.

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DISCLAIMER

None to declare.

CONFLICT OF INTEREST

There is no conflict of interest among the authors.

ETHICAL STATEMENT

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