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Exploration of Factors Influencing Co-creation in Medical Education using Holistic Approach

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ABSTRACT

Introduction: Co-creation, an emerging pedagogical concept, has become a promising approach to enhancing medical education. Despite the escalating demands and justifications for involving learners in the educational design process, students and faculty lack familiarity with implementing this approach.

Objective: This study adopts a holistic approach to identify and examine the diverse factors that impact co-creation in medical education.

Methods: The study employed a qualitative approach using a semi-structured, open-ended questionnaire. An interview guide was utilized for data collection. The total number of participants in the present study was 16.

Results: The study was concluded by highlighting the stakeholders' experiences, explaining the factors that motivate their participation, and outlining the challenges faced in the student-staff engagement process.

Conclusion: Educational institutions can foster a collaborative learning environment by investing in partnership programs.

Keywords: Co-creation, factors, holistic approach, medical education, stakeholders

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INTRODUCTION

Medical education plays a pivotal role in shaping competent and compassionate healthcare professionals. It equips students with the knowledge, skills, and attitudes necessary to meet patients' evolving needs (Bovill et al., 2011). The development of medical curricula has been the responsibility of experts within academic institutions. These experts rely on a top-down approach that may only partially align with all stakeholders' diverse needs and perspectives, including students, faculty, and the broader healthcare community. There is a growing interest in adopting innovative strategies that foster collaboration and inclusivity (Lubicz-Nawrocka, 2019). This is to address modern healthcare complexities better, and co-creation is one such strategy. Co-creation is a close collaboration between students and teachers, aiming to improve teaching and learning by welcoming students' perspectives and actively involving them in the educational design process (Bovill et al., 2016a).

It is a relatively new concept for students and teachers in our part of the world. Co-creation of learning and teaching occurs when staff and students work collaboratively with one another to create components of curricula and/or pedagogical approaches (Bovill, 2018). It is an evolving approach that actively engages students and staff in designing an effective learning environment (Martens et al., 2019). Despite the increasing demands and compelling reasons for involving learners in educational design, students and staff are unfamiliar with adopting this approach and implementing it successfully (Könings et al., 2021). Traditionally, learning and teaching in medical colleges in Pakistan have been teacher-centered and driven. The teachers decide the content, teaching, and assessment methodology. Minimal input is taken from the students – if taken at all. By engaging diverse voices and perspectives, co-creation enables the integration of learner-centered principles, experiential learning, and contemporary evidence into curriculum design. This participatory model of curriculum development aims to create a more relevant, contextually appropriate, and engaging educational experience for both students and educators (Matthews et al., 2018). This research explores the influencing factors associated with co-creation, offering valuable insights into stakeholder's experiences. It also aims to provide cultural context for the future utilization of Co-creation as a curriculum development strategy.

METHODOLOGY

The present study used a qualitative-exploratory research design. The co-creation process was used for undergraduate medical students in their 5th year of MBBS to incorporate a (Professionalism, Ethics, Research, and Leadership) PERL module into their planner. The module development request was received through the curriculum committee by the students in the final year of MBBS. Faculty members who volunteered to attend the co-creation lecture were selected for the activity and received a briefing on student-staff partnership based on the study conducted by (Cook-Sather et al., 2014). Students and staff with prior learning and teaching experience in small-group pedagogy were included. Sixteen participants co-created the module, including eight students and eight faculty members (M =7, F =9). Mutual respect between students and staff was evident throughout the process, despite potential differences in their contributions. Together, they partnered and held sessions where they decided on the course content that would be taught and

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delivered after successfully creating the module. The data was collected after co-creation with open-ended questionnaires. All participants were interviewed using Zoom at their convenience. The interview primarily followed the questions taken from the interview guide. Each of the interviews and group data were audio-recorded and transcribed. The entire study lasted three months, while the data collection lasted approximately 20 days. The research received ethical clearance from the Avicenna Ethics Committee on 24/7/23, and the study's aims and voluntary participation were made clear through participant consent forms.

RESULTS

Similar codes were consolidated where significant resemblances were observed. Subsequently, these comparable codes were grouped into themes after axial coding. The data was analyzed in two dimensions, i.e., students and teachers. In the student's dimension, students/students responded about their experiences with co-creation. The teachers were asked to share their experiences in their respective dimensions. The analysis deduced five common themes: perception and understanding of co-creation, facilitating factors for co-creation, barriers, and challenges to co-creation, technology, co-creation strategies, and strategies for successful co-creation. The identified themes are given in Table 1.

Table 1: Themes identified as factors influencing co-creation in medical education.

Theme I	**Understanding of co-creation**
	Awareness of co-creation
	Importance of co-creation in medical education
Theme II	**Facilitating factors for co-creation**
	Collaboration and teamwork
	Supportive institutional environment
	Effective communication and information sharing
	Engagement and participation of stakeholders
Theme III	**Barriers to co-creation**
	Lack of time and workload pressure
	Resistance to change or conditional mindset
	Power dynamics and hierarchy
	Limited stakeholder engagement or participation
Theme IV	**Technology and co-creation**
	Role of technology in facilitating co-creation
	Digital platforms and tools for Collaboration
Theme V	**Strategies for successful co-creation**
	Effective communication and stakeholder engagement strategies
	Training and support for co-creation processes
	Addressing power imbalance and promoting equal participation

Understanding co-creation

Student's perspective: According to students, co-creation in medical education involves faculty and medical students working together. It is about sharing ideas and knowledge and making decisions. It contributes to teamwork, and most students favoured co-creation as a promising approach to building self-confidence.

Faculty's perspective according to the teachers, co-creation is an innovative approach in medical education that allows students to communicate with each other at their level. It accredits professional growth. It incorporates multiple stakeholders to design or defend activities for development.

Facilitating factors for co-creation

Student's perspective: Co-creation generates a friendly environment by working in collaboration. In the learner's opinion, pooling ideas generates more dynamic and versatile solutions that produce better results. Understanding and bonding between participants facilitate co-creation.

Faculty's perspective: According to the staff, creativity, communication skills, and leadership qualities are the strengths of co-creation. It is the teacher who cultivates the cues for students as to what kind of relationship is going to be established. Some teachers thought that the institute's motivation for co-creators was critical.

Barriers to co-creation

Students' perspective: They stated that a lack of confidence is a barrier to co-creation. It becomes difficult to explain your point to others. Team coordination and management facilitate co-creation. Conflicting ideas within a team is a significant challenge to co-creation. Lack of IT facilities was also one of the points; a few students had also requested access to the E-library for assistance during co-creation.

Faculty's perspective: The major challenge found, in the teacher's opinion, was time constraints. In addition to time constraints, they disclosed their difficulties balancing work pressure and engaging in co-creation activities. They expressed concerns about the potential lack of relevant authorities recognizing their contributions. According to respondents, students initially felt shy. It was noted that the staff actively engaged with them, and most teachers showed encouraging and non-confrontational behavior during the exercise, making the activity enjoyable. By recruiting enthusiastic, intrinsically motivated, and engaged individuals in co-creation, we can ensure the significance of their contribution. Also, offering training and preparing the participants for their designated roles is essential to cultivating their active involvement.

Technology and co-creation

Student's perspective: According to the students, technology is constructive in facilitating cooperation. They suggested that the institute provide resources like the Internet and computers to share ideas digitally instead of always meeting in person.

Faculty's Perspective: Their primary concern was that the students could misuse the technology; some members explained that few had just copied the data from the internet during the co-creation process. Participants recognized the role of digital communication tools in facilitating start a new sentence from "they" emphasized the need for supportive institutional

environments as an external motivation for collaborative activities.

Strategies for successful co-creation

Student's perspective: According to the students, the environment must be friendly and supportive of cooperation. Some students said that co-creation is fantastic and that the session is productive. Further, laptops, tablets, and apps such as Zoom, WhatsApp, and other social media apps can be helpful for co-creation.

Faculty's perspective: The faculty explained how interaction and trust-building are the prime factors that can lead to successful cooperation. Planning and management, resolving issues, implementing suggestions, and considering feedback are essential for creating an inclusive and supportive co-creation.

Our findings show that the 'cooperation and 'enthusiasm fostered during co-creation helped many student participants by enhancing their intrinsic motivation to do their best work. Factors for successful co-creation are identified in this theme. These factors include practical communication skills, training and support, engagement of stakeholders, and the creation of an inclusive and supportive co-creation culture.

DISCUSSION

The current analysis of factors influencing co-creation is based on specific themes. The first theme highlights students' and teachers' take on the conception and perception of co-creation. It discusses their positive approach to the value of co-creation in the medical field. The in-depth research revealed that students and teachers were ready to face positive criticism during co-creation sessions that broke traditional norms. Students highlighted that taking risks can sometimes feel scary, but when supported well, students can learn from trying new things and experiencing productive struggle, which was also reported by (Lubicz-Nawrocka, 2019).

The study in the second theme suggests that teamwork, collaboration, and open discussions pave the way to a healthy environment. It broadens students' knowledge, boosts their confidence, provides better results, and encourages them to take on new initiatives. Emerging research demonstrates that students are a valuable and often unrealized resource in higher education and that academic staff and students can benefit significantly from working collaboratively on teaching and learning. When an educational organization is committed to continuous improvement, it entails involving students in augmenting institutional effectiveness and student development and learning (Suliman et al., 2023).

The third theme identified various obstacles to co-creation. The significant barriers identified in this study are a lack of communication between students and teachers due to a strict working environment routine, teacher workload, personality issues, hierarchical problems, and the supportive and limited participation of the stakeholders. This aligns with the challenges observed by Bovill et al. (2016). The participants also suggested they must be given prior training, including lectures or workshops. The fourth theme highlights the role of technology in co-creation. Digital media allows stakeholders to actively participate in meetings and group discussions while being physically absent. Post-digital thinking and dialogue during curriculum co-creation foster collective intelligence within supportive learning environments by respecting students' contributions as they share responsibility for cross-fertilizing ideas and learning (Lubicz-Nawrocka, 2023).

In the fifth theme, most participants emphasized the necessity of revisiting various traditional perspectives and beliefs. Students should be encouraged to participate in their educational journey; otherwise, they will lack the expertise and confidence to advocate for their perspectives. This aligns with previous research indicating that students often remain passive recipients unless provided with opportunities that empower them as proactive change agents (Suliman et al., 2023).

It is clear from both the research findings and literature reviews that co-creation is a positive factor in medical education that can benefit both students and stakeholders, as well as that it can play a pivotal role in the implementation of successful strategies for the treatment of patients and enhance its role in the lives of people.

CONCLUSION

Co-creation is a positive factor in medical education that builds trust between students and stakeholders and supports students in expressing their views openly. Co-creation is identified as a better approach for collaboration, understanding, and communication between instructors and students in medical education. A supportive environment, effective communication, available resources, and infrastructure are the factors that facilitate co-creation. Some of the barriers include lack of time, workload pressure, traditional mindset, resistance or hesitance to change, power dynamics, hierarchy, and limited participation of stakeholders. The role of technology is also evident in co-creation. Digital platforms and tools for collaboration facilitate co-creation. Practical communication skills, training and support, engagement of stakeholders, and the creation of an inclusive and supportive culture can promote co-creation. With proper design and training of students and teachers, the barriers can be overcome, and co-creation can also be initiated in our medical colleges for more effective medical education.

LIMITATIONS

The study findings were drawn from a sample of participants from a single undergraduate institution that may not be completely transferable to other institutions. Since our study was undertaken for final year MBBS students, we invite investigation into BDS and other social sciences to explore perceptions regarding co-creation.

RECOMMENDATION

The relative novelty of co-creation within the Pakistani medical education context implies that there are still knowledge gaps to be explored. Further research must address strategies for involving and engaging students in co-creation initiatives to

improve learning and facilitate achievement.

DECLARATION OF INTEREST

The authors declare no conflict of interest.

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AUTHOR'S CONTRIBUTION

1. F.S.: Created the concept and design of the research, prepared the initial draft, collected data, and interpreted the results.

2. M.S.: Literature search and write-up

3. F.I.: Literature search and analysis of data

4. S.R.: Conclusion and results