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Exploring the Level of Interest of Faculty Members towards Problem Based Learning Process

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ABSTRACT

Objective: To explore the knowledge, interest, and perceived barriers among Basic Medical Sciences faculty regarding the implementation of Problem-Based Learning (PBL) at Liaquat University of Medical and Health Sciences (LUMHS), Jamshoro.

Methodology: A qualitative exploratory design using a phenomenological approach was employed. Eighteen faculty members were selected via purposive sampling, representing both PBL-experienced and non-experienced individuals. Semi-structured, face-to-face interviews were conducted and audio-recorded, transcribed verbatim, and analyzed thematically using NVivo.

Results: Five major themes emerged: knowledge of PBL, impact on students, interest promoters and inhibitors, institutional role, and current interest level. Most faculty (16/18) recognized PBL as a student-centered strategy fostering critical thinking and collaboration. However, few had formal training, and many were uncertain about its theoretical underpinnings. Institutional support was identified as a key enabler (14/18), while lack of resources (13/18), inadequate training (12/18), increased workload (13/18), and limited administrative backing (10/18) were prominent barriers. The average faculty interest in PBL was 8.5/10. While faculty expressed enthusiasm for adopting PBL, many stressed the need for structured training programs, gradual implementation, and enhanced logistical support. Faculty also highlighted variability in student engagement and emphasized the importance of tailored strategies to improve participation.

Conclusion: The findings indicate a high level of interest in PBL among faculty at LUMHS. While institutional support exists, successful implementation is hindered by insufficient training, increased workload, and resource limitations. Addressing these challenges through targeted institutional policies, faculty development initiatives, and phased integration of PBL can promote sustainable adoption of this learner-centered teaching method.

Keywords: Problem-Based Learning, Faculty Perception, Medical Education, Implementation Barriers.

Introduction

Problem-based learning (PBL) has long been recognized as an educational approach, but in recent decades, it has emerged as the favored teaching method in higher education across the world.[1,2] PBL is associated with numerous positive student outcomes, such as enhanced motivation, improved collaboration, better long-term knowledge retention, and the development of essential skills like teamwork, problem-solving, information sharing, and interpersonal communication. It also fosters more positive attitudes without requiring an extension or overload of the existing curriculum.[1-5] In spite of numerous advantages of PBL, there are many challenges to its implementation and maintenance. Equipped tutorial rooms, recruitment of adequate numbers of qualified faculty, tedious exercise to develop a single PBL case are to name a few. All these require rigorous planning,

faculty training and most importantly, commitment and proper understanding of the philosophy behind implementation of PBL.[1-6] A more specific challenge related to shift from traditional teaching to PBL is the lack of teachers' understanding regarding his/her role in the process. Although general teaching skills are present in both traditional and PBL classrooms, PBL also require a new set of teaching skills. Becoming a PBL tutor requires a significant change in the role and may be difficult to incorporate a completely different style. Some teachers may be familiar with the term PBL and may possibly have some understanding, for others, there are genuine feelings of uncertainty about their job as PBL facilitators. Some consider it a demotion from their ambitioned status as eminent academics to insignificant facilitators of learning.[1,2] Hence their role requires consideration of many factors.

Several studies have evaluated PBL application from the facilitators' perspectives and student's perspective, yet limited literature available about factors affecting the interest of teachers towards PBL.

Faculty perceptions on PBL curricula are generally positive but still needs further exploration about factors, affecting their readiness to accept PBL, and to prevent them from becoming frustrated and oppose the PBL curriculum.[1,7] Knowing teachers' views will help in understanding, how teachers are perceiving about the reasons affecting their level of interest and subsequently, acting upon this shift, eventually directing towards sustainable implementation of PBL.

Problem-Based Learning (PBL) is widely recognized as an innovative and effective instructional method with a proven track record globally. However, its introduction and evaluation in our country remain relatively recent, as traditional teaching approaches are deeply embedded in the educational system, making reform efforts challenging. Like other medical universities in the country, the Department of Medical Education (DME) is actively working to enhance teaching methodologies. Since faculty members play a crucial role in the successful implementation of PBL, it is essential to understand their perspectives on the factors that influence their interest in this teaching approach. By exploring factors this study aims to identify the factors that influence the interest of Basic Medical Sciences faculty in implementing PBL, contributing to a more effective and modern educational environment at LUMHS. Gaining insight into these factors will guide strategies to foster faculty engagement, allowing students to fully benefit from PBL's potential. Additionally, the findings may inform institutional policies on adopting and integrating PBL into the curriculum.

Methodology

This qualitative study was conducted at LUMHS Jamshoro during the month of April to July 2023 to explore interest level and knowledge of faculty members' perceptions of Problem-Based Learning (PBL). A phenomenological approach was chosen to gain an in-depth understanding of how faculty members experience, interpret, and engage with PBL in their teaching practices. The study sample comprised 18 faculty members from the Basic Medical Sciences department, including both those who were actively involved in the PBL process and those who were not. A non-probability purposive sampling technique was employed, which is commonly used in qualitative research to select participants who can provide rich, relevant data.

After obtaining approval from the Research Ethical Committee (REC/48 dated 11-4-2023) at LUMHS, the faculty members were invited to participate in face-to-face interviews. Informed consent was sought from each participant before the interview. The interviews, lasting between 10 to 15 minutes, were conducted in a conversational manner, allowing for a two-way exchange between the interviewer and the interviewees. Audio recordings were made using a Samsung A30 device. The interview questions were designed to explore various aspects of PBL, including the challenges in its implementation, the factors hindering its adoption, and faculty members' perceptions and beliefs. These questions were prepared in advance and used consistently across all interviews. Date, location and timing for the interviews were scheduled according to the preferences of the faculty members to minimize disruption to their teaching activities. Prior to the interviews, participants were briefed regarding the purpose of study and procedure. Interviews were recorded and transcribed verbatim, ensuring confidentiality and privacy. Privacy was maintained by assigning pseudonyms or codes to the participants. Faculty members had the right to withdraw from the study at any point, and all sources used in the study were properly acknowledged.

The data analysis process revealed five main themes and its subthemes. For the purpose of this study, the themes focused on educators' views and perceptions of PBL, the factors influencing faculty interest in PBL, the challenges

and barriers to PBL adoption, faculty awareness of PBL, and institutional support for PBL implementation.

The transcripts were thoroughly reviewed, with codes identified and themes through thematic analysis. Key themes were extracted by grouping similar words, phrases, and statements into categories that aligned with the aims and objectives of study. Analysis was performed using Nvivo.

Results

The results revealed five themes in total. Theme one "*Knowledge of PBL''*. It consists of 27 relevant Statements. The statements from respondents with associated codes are mentioned in below sections.

Knowledge of PBL (Theme-1)

Understanding: On the understanding regarding PBL majority of the faculty members (16 out of 18) showed the PBL as the centered approach of the students which may underscore the active learning via critical thinking and the real-life scenarios. However, 7 faculty members also perceived it's an approach to improve the problem solving skill and collaboration. While, the few faculty members indicated uncertainty regarding its theoretical basis, suggesting diversity in understanding.

Type of strategy: According to 14 faculty members PBL is the interesting due to its collaborative and the dynamic nature, while 4 faculty members commented that, although the technique has potential; its effectiveness ultimately depends on how it is applied.

Training of PBL: Only 7 out of 18 faculty members said they had attended a workshop and just 2 received formal training. Most of the members (9/18) stated a desire to learn more regarding PBL but acknowledged the absence of structured training.

Strength and Weaknesses: Based on strength of PBL, the 12 faculty members reported the potential of PBL to stimulate critical thinking as one of its perceived qualities, in addition to the development of teamwork and the encouragement of self-directed learning. According to weaknesses of PBL, there were different views by 9 members as its implementation is both rewarding and challenging, though, since participants noted that it takes a lot of work, they pointed out that it depends on the ability of learners, and 4 members pointed out difficulties with monitoring.

"Problem based learning in which we assess the student's prior knowledge or previous knowledge." (I-11)

"From my point of view, PBL is a basically problem-based learning program in our basic medical sciences, there is a collaboration of the basic medical subjects and clinical correlations." (I-4)

"I have attended a workshop. I'm aware about it, but not particularly specifically trained." (I-8)

Impact on Students (Theme-II)

Learning: On the question regarding observed changes among students by PBL using, the most of the faculty members (15 out of 18) said actuality, they still unable to start the PBL in a meaningful way. However, some members addressed the difficulties in accommodating less motivated students and the variations in involvement.

Conduct/Behavior: According to 8 members, students usually demonstrated self-control and punctuality throughout PBL sessions. 3 members pointed out inconsistencies, pointing out that clearer rules and increased motivation are needed to increase attendance, while few faculty members reported the discipline and punctuality of students in attending PBL sessions are mixed as some students focused, punctual, and attentive, particularly in the early hours, others exhibit lower levels of interest and involvement because of things like exhaustion, a lack of preparation, or inadequate directions and implementations.

"Yes creates critical thinking in students they are very much confident about the cases and their presentation, those universities who are observing the PBL system their students they are very confident." (I-1)

"To some extent they are regular and interested regarding these cases." (I-16)

"They are very well disciplined and punctual, especially the early timings." (I-4)

Interest promoters and inhibitors (Theme-III)

Enablers: Question on the possible enablers to the PBL interest, the 14 faculty members out of 18 highlighted the significant support from institutions being a key enabler for the implementation/ adopting of Problem-Based Learning (PBL), while 09 out of 18 members mentioned the regular workshops and training sessions. Furthermore, 7 members identified the accessibility of standardized resources and guidelines as an essential element as an enabler

Challenges: Main challenges to implementing Problem-Based Learning (PBL) consist of insufficient resources, as reported by 13 out of 18 faculty members and the

inadequate level of faculty training was reported by the 12 faculty members. However, a substantial workload as well as time restrictions was also commonly mentioned as major barriers to PBL implementation reported by the 10 faculty members.

Anticipated Hindrances: One of the main problems to PBL practice is an increasing workload mentioned by the 13 faculty members. These participants voiced worries about the extra time and work needed to organize and carry out PBL sessions, which can put a burden on faculty schedules and available resources. 09 respondents also cited resistance to change as a major problem, with many highlighting the possibility of resistance from faculty members used to traditional teaching methods when switching to PBL. A lack of administrative support was mentioned by 10 members in terms of resources and encouragement could make it more difficult to implement PBL successfully. Few faculty members showed the main barrier to overcoming the cultural and logistical difficulties of implementing a new teaching paradigm was thought to be the lack of administrative assistance.

Work Load: Based on above question burden connected with PBL was difficult for most participants (10 out of 18) to handle. Only 4 members thought the workload was doable, and the other 14 pointed out that manipulating PBL with their other obligations was extremely difficult. These participants frequently mentioned time restrictions, a lack of institutional support, and inadequate resources as major obstacles to devoting enough time and effort to PBL. 6 members also highlighted the difficulty of rearranging other personal, professional, and academic obligations, which made it even harder for them to successfully adopt PBL. Few members point out the issues may be made worse in underdeveloped nations by inadequate infrastructure, bigger class sizes, and the requirement for additional faculty training, all of which make it more difficult to handle the rigorous character of PBL.

"Our senior faculty is not knowing this learning, so they are continuously resisting this." (I-5)

"We want Strong backup from administration, thing to improve our PBL sessions." (I-5)

"Possible factors, Madam, which promote this PBL from my point of view one factor is that we are interested in different clinical scenarios, number, second, basic medical science teachers are highly interested. (I-1)

There should be number one rumination, number two certificates should be given to the tutors or our

coordinators and those who are involved in the PBL." (I-11)

"No, it's a too much tough job for the teachers. Faculty Is already engaged in other responsibilities like field visit, lectures, demonstrations and other things also, but faculty number is higher, then we can conduct the BPL." (I-9)

Role of Institution (Theme-IV)

Institutional Support: According to the opinion regarding support to PBL implementation, almost all faculty members thought there was an enough institutional support, with many pointing to a lack of funding, resources, and training opportunities as the main barriers. Faculty may find it difficult to conduct successful PBL sessions without sufficient funding and access to the required resources. Furthermore, teachers' capacity to completely adopt the new teaching technique is constrained by the absence of organized training programs. A more organized execution strategy and more explicit policies were also recommended by a few responders. While a planned strategy could handle the practical difficulties of switching from traditional teaching methods to a more participatory, student-centered approach, a well-defined policy could serve as a guide for faculty, guaranteeing consistency in how PBL is implemented throughout all courses.

Advice to Institutional Policy: Most common recommendations were to the provision of sufficient resources, as recommended by 15 faculty members out of 18, and 10 members' offer regular faculty training as frequent training programs would give faculty members the abilities and information, they need to lead PBL successfully, and sufficient resources like technology, learning materials, and support personnel are important to ensure that PBL sessions run smoothly. Several members also advised the incorporating PBL into the curriculum gradually so that teachers and students could get used to the new teaching style without feeling overburdened. It was also recommended that PBL's efficacy be tracked over time, allowing the university to make well-informed modifications in response to input and results.

Institutional support, we being a public sector university, we have some restrictions and some limitations to our resources and our finance and everything else.

I think institution support is there. (I-15)

The institution is supporting for the performing the PBL class institution.

PBL should be implemented at every university, at every level throughout the first year, second year, third year, 4th year or fifth year. This should be implemented because it will enhance the capabilities of the students, the group working capabilities of the students. So I will advise it should be implemented. (I-11)

**Current status of interest level regarding PBL process (Theme-V)**

Supporting formal policy to implement PBL: Almost all faculty members said they would support it as long as sufficient resources and training were made available. For PBL to be implemented successfully and for teachers and students to be able to adjust to the new teaching methodology, these participants underlined the importance of adequate planning and the required resources. Although few, however, expressed worries about possible opposition from teachers or pupils, believing that some could be hesitant to adopt a change from conventional teaching techniques.

Interest Rate (out of 10): Faculty members gave Problem-Based Learning (PBL) an average interest value of 8.5 out of 10. Those who had previously received training and had a good experience with PBL tended to provide higher evaluations, which ranged from 6 to 9 out of 10. While participants with less training or experience ranked their interest slightly lower ranged 4 to 7, those who had prior exposure to PBL appeared more confident in its advantages and more excited about its use.

Discussion

To align with the global standards for medical education and include different ways of learning, new curricula have started using methods like problem-based learning (PBL).[9] The inadequate quality of health professional education in developing countries including Pakistan, based on a traditional curriculum, has created major difficulties for graduates in solving real-world health issues effectively. This qualitative theme based study has been done to evaluate the interest level and perceptions of the faculty members regarding PBL and firstly they interviewed regarding knowledge, training and its advantages and disadvantages and the most faculty members (16 out of 18) were known the PBL as a student-centered approach promoting critical thinking, problem-solving, and collaboration, though some were uncertain about its theoretical basis and 9 faculty members attended the workshop and formal training. While many found PBL dynamic and engaging, its effectiveness depends on proper implementation and training, which is currently lacking for most faculties. Key strengths included encouragement teamwork and self-directed learning, but challenges like high effort, learner variability, and monitoring difficulties were also noted. In aligns to this study a Saudi Arabian study revealed that about 30% of participants had experience as PBL tutors prior to joining the faculty of medicine, but all became PBL tutors after their appointment, only one-third of the clinical staff was aware with the PBL process upon joining and approximately 80% expressed a preference for a best curriculum as the ideal model for medical education.[10] In the study by Ferreira Filho OF et al[11] reported that the 55% of members felt well-informed about the PBL, only 28.9% believed these changes were thoroughly discussed. In the comparison of this study Wondie KY et al[12] surveyed 415 academicians, achieving a response rate of 97.8%. Among them, 66.3% demonstrated strong knowledge, over half (51.1%) displayed a positive attitude, and a majority had more than nine years of experience, with prior PBL training. Differences in members' knowledge and training for PBL observed across studies may be attributed to significant variations in sample size, selection criteria, and study design.
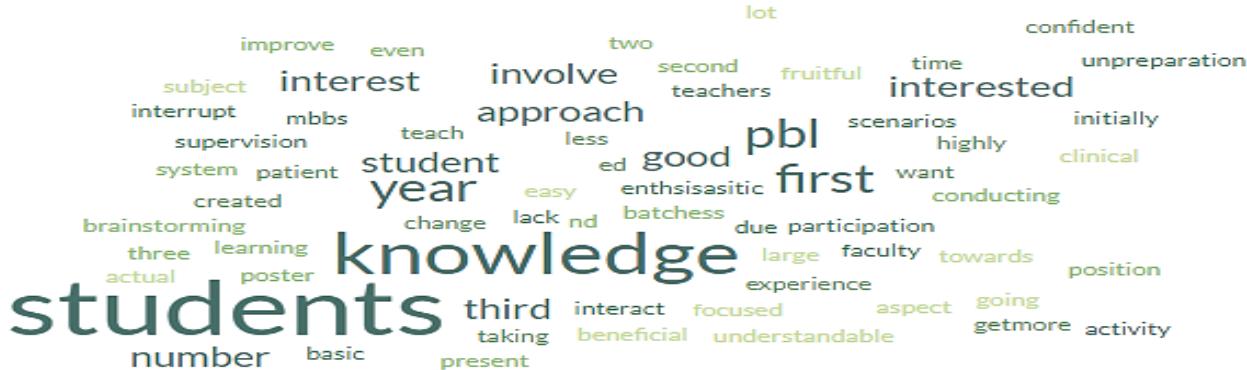
In this study almost all of the faculty members expressed strong interest in PBL, giving it an average rating of 8.5/10. They emphasized that successful implementation requires proper planning, resources, and training. In aligns to these findings Abdelkarim A et al[13] reported that among the respondents, 41% of medical faculty and 22% of dental faculty believed that PBL is suitable for all subjects. Furthermore, this study highlights the interest promoters, challenges, and barriers related to the implementation of Problem-Based Learning (PBL).

Several enablers were identified, including institutional support (14/18 faculty members), regular workshops and training sessions (9/18), and access to standardized resources and guidelines (7/18). However, significant challenges such as insufficient resources (13/18), inadequate faculty training (12/18), and high workload and time constraints (10/18) were reported. Additionally, resistance from senior faculty members to adopting the new methodology was frequently noted. Anticipated obstacles include increased workload (13/18), resistance to change (9/18), and a lack of administrative support (10/18), which may hinder successful PBL implementation. In aligns to this study Yam S et al[14] concluded the challenges in implementing PBL include workload management, limited content knowledge among teachers, lack of experience for both educators and students, and the need to create specialized materials for off-campus learning. Our findings were also supported by the several other studies where reported the institutional challenges to active learning include inadequate administrative support, poorly designed learning spaces that hinder student interaction, and limited faculty training opportunities in active-learning methods.[15-17] On the other hand Mohammed AB et al[18] also reported that the implementation of PBL faces challenges such as insufficient training and awareness among educators and students, along with a lack of necessary resources (same observed in this study) . As a resource-intensive and time-demanding instructional method, PBL adoption is further hindered by the unpreparedness of the educational environment.[18]

In this study on the institutional role in PBL implementation, majority of the faculty highlighted citing lack of funding, resources, and organized training as major barriers, while interestingly according to most of faculty members there was a sufficient institutional support. Recommendations included providing adequate resources (15/18 faculty) and offering regular training programs (10/18). Encouragement of gradual integration of PBL into existing curricula and monitoring of the implementation effectiveness were also recommended to assist in adoption and enhance the effectiveness. Such results were consistent with several other studies.[19-22]

Tefera AS et al[23] also reported that the challenges encompassed excessive workloads for both students and tutors, insufficient training and experience on the part of tutors, hesitation from students, the lack of consistent case scenarios, the subjective nature of evaluation methods, and the immediate assessment of students during session.[23] Certain of the study findings bring important implications for the practical implementation of PBL. On the other hand, some inconsistent findings compared to previous studies might be due to differences in sample size and study design as well as the varying institutional contexts of service delivery between settings.

This qualitative study, though small and single-institution-based, provides preliminary data on the need for PBL in education. Regardless of these limitations, the study underlines the significance of the institutional support, faculty training, and resource allocation in implementing the PBL. Study serves as a starting point for future research to address the comprehensive implication and the effectiveness of PBL across the health institutes. To strengthen the evidence base, future longitudinal research studies with valuable, more diverse sample size and the multi-center are suggested, to explore the deep understanding of the long-term impact and feasibility of the PBL.

Conclusion

This thematic analysis revealed a strong positive interest among faculty members toward Problem-Based Learning (PBL). Interestingly there was a sufficient institutional support to faculty, while several factors were identified including inadequate resources, lack of faculty training, and disagreements about its implementation. To sustain and enhance faculty interest in PBL, participants emphasized the importance of systematic preparation, adequate resource allocation, and regular faculty training sessions. Addressing these challenges through clear institutional policies and a gradual transition to this student-centered approach is essential for overcoming barriers and ensuring its successful implementation. Future research also recommended validating these findings and providing additional insight into the sustainable application of PBL.

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