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RESEARCH ARTICLE

Identification of the challenges teachers face in teaching small problem-based learning (PBL) groups in the College of Medicine, King Faisal University, Kingdom of Saudi Arabia: a qualitative study [version 1; peer review: 3 approved with reservations]

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Abstract

Background

Recognizing the challenges that teachers face offers a platform for devising innovative teaching strategies, thereby boosting teacher performance. This study seeks to pinpoint the obstacles teachers encounter while conducting small problem-based learning (PBL) groups and to recommend measures that guide educational institutions in determining teacher training needs. Furthermore, the study explores the creation of interventions to bolster PBL teaching practices.

Methods

Utilizing a qualitative approach, semi-structured interviews were administered, prompting participants to contemplate the difficulties of instructing small PBL groups. Ten medical educators, purposefully selected based on their PBL teaching experience, participated. Verbatim transcripts were meticulously analysed using thematic analysis, facilitating code production, comparison, and overarching theme generation.

Results

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Any reports and responses or comments on the article can be found at the end of the article.

The data underscored challenges associated with adopting PBL in a traditional educational setting, emphasizing the imperative for honed facilitation skills, fostering motivation towards PBL, and addressing the ramifications of students' conventional learning backgrounds. Notably, the accruement of experience over time, the enhanced confidence from managing diverse PBL groups, and the importance of knowledge exchange and shared experiences emerged as vital for PBL educators' professional growth.

Conclusions

Actively supporting teachers as they navigate shifts in their roles and urging the incorporation and adept application of teaching techniques can elevate teacher efficacy. Recommendations include the initiation of a teacher development program, the allocation of ample time and resources for student participation in PBL activities, the introduction of a comprehensive teacher assessment system, and the integration of quantitative research methods to further enrich teacher practices and professional advancement.

Keywords
Saudi Arabia, PBL, Undergraduate curriculum, Medical education

This article is included in the Current Challenges and Developments in Health Professions Education collection.

Introduction

An alternative to conventional teaching is active education, in which students engage in learning activities, thereby drawing attention from the teacher to the learner, thus referred to as student-centred learning. This method allows students to actively learn through critical thinking and application by practising relevant activities. One of these is presented in problem-based learning (PBL).

PBL, therefore, presents a means of transmitting medical education in an integrated, contextual, self-directed, and student-centric manner of active learning, as some researchers have previously reported (Barrows, 1986; Wood, 2003). For decades, researchers have been interested in finding out the best teaching approach and qualities of teacher. Many studies have focused on medical education teaching challenges in a student-centred approach like PBL and how to best support teachers in adopting change in a teaching role (Furquim et al., 2015; Margetson, 1998; Salinitri et al., 2016; Snelgrove et al., 2009).

However, the success of this shift from conventional teaching to an emerging approach, such as PBL, is largely influenced by the role of teaching staff in this procedure. The investigation has recently focused on understanding the challenges and obstacles that hinder the proper implementation of PBL (Azer, 2001; Snelgrove et al., 2009). The function of a teacher in a conventional curriculum differs from a teacher's role in a PBL educational setting (Addae et al., 2017). In PBL, teachers facilitate active learning, encourage critical thinking, and promote self-directed learning amongst the learners (Dodds et al., 2001; Zahid et al., 2016). The function of a teacher is defined as 'conductive' or 'facilitative' (Sa et al., 2019).

However, teachers often struggle to implement good facilitation strategies and avoid ineffective ones as well. However, evidence suggests that the use of effective teaching techniques and facilitation skills could significantly improve the performance of teachers (Boelens et al., 2015).

In this study, we explored the teaching challenges of teachers of small PBL groups in King Faisal University (KFU) Medical College in the Kingdom of Saudi Arabia (KSA) by extracting qualitative data from their experiences, opinions and what they think or feel about teaching small group PBL curriculum at the KFU College of Medicine.

Context of the study

The College of Medicine at King Faisal University (KFU) was established by Royal Decree in the year 2000 to help meet the needs of the Kingdom of Saudi physicians to provide the necessary health care and to promote the health of individuals and groups in KSA. The teaching style was then conventional until an agreement was signed in the academic year of 2007 to 2008 with the University of Groningen to pursue their PBL curriculum (Al Bu Ali et al., 2013).

The PBL was, therefore, first introduced to KFU as an approved curriculum in 2012, combining basic science with clinical subjects. This new curriculum includes 10 semesters of study in five years. For the first three years known as the pre-clinical years, most of the small PBL groups' teaching takes place. Then the final two years focus on clinical training. After that, the student will enter the internship programme and rotate between a variety of medical specialities.

However, the PBL model is based on social-constructivist values that encourage active and self-directed student learning (Hrynchak & Batty, 2012; LeFebvre, 2016). The dynamics of the learning environment within the framework of small group facilitation are primarily based on the recruitment of qualified teachers that govern the quality and success of PBL as viewed in Woods (1994). In addition, Salvatori (2000) indicated that the participation of teachers in instilling critical thinking and promoting personal growth were important aspects of teaching in small group work in PBL. In comparison to conventional teaching, a number of teaching skills are required to apply the principles and practice of PBL, such as knowledge of group dynamics, student assessment, use of different learning resources, and leadership and organizational skills (Jung et al., 2005).

Keep in mind that the experiences of teachers originated from the conventional teaching programmes, which embraced a behavioural approach. Subsequently, the teachers must adapt to this educational system by using new teaching methods and the facilitation skills appropriate for the PBL method.

Research rationale

The indispensable role of socio-cultural contexts in shaping PBL pedagogical challenges cannot be understated (Leung et al., 2008). A significant portion of research in this arena is anchored in socio-cultural backdrops distinct from the Middle East, with a mere smattering focused on the Kingdom of Saudi Arabia (KSA). This disparity in research contexts calls into question the broader applicability of such findings to the KSA environment. Hence, there emerges a pressing need for nuanced research, intimately woven into the KSA's unique socio-cultural tapestry.

Guiding this research is the interpretive philosophical paradigm, frequently referred to as the constructivist paradigm. This choice resonates with the study's ethos, emphasizing the individualized nature of human experiences and engagements. It posits that individuals' perceptions are intricately crafted by their singular experiences and cultural bearings (Rubin & Rubin, 2012). This philosophical stance necessitates a meticulous dissection of educators' roles, engagements, and aspirations (Anderson, 2010).

Methods

Ethical statement

The research proposal for this study received ethical approval from the IRB committee of College of Medicine at King Faisal University (Letter No. 12D/MED/2018-19) dated 21-09-1440H [Sunday, May 26, 2019]. Written informed consent was obtained from all faculty of College of Medicine at King Faisal University before data collection, and all methods were carried out in accordance with the Declaration of Helsinki. All the selected respondents were given assurance of

confidentiality that the information gathered will be used exclusively for research purposes. All participant agreed to participate before answering the questions.

Instrument development

Initial grid formation: Drawing from an exhaustive review of contemporary instructional materials and relevant literature, we curated an initial grid encompassing key subjects pertinent to our research objectives (De Grave *et al.*, 1999; Irby *et al.*, 1991). This ensured that our instrument would provide a structured yet comprehensive frame for the interviewees.

Specialist involvement

Identification of specialists: Specialists from the medical education department in KFU - the principal investigator workplace-were selected based on their extensive experience and publications in the domain of teaching techniques and methodologies. This ensured that the insights and feedback received would be both relevant and grounded in substantial expertise.

Discussion process: A series of focused group discussions were organized, wherein specialists rigorously examined our initial grid. They were encouraged to provide candid feedback, suggest additional areas that may have been overlooked, and critique any redundancies or ambiguities.

Modifications post-discussion: Based on the invaluable feedback from the specialists, several iterations were made to refine the grid. Additions included more nuanced questions that probed deeper into certain challenges, while redundant or overlapping areas were streamlined for clarity.

Final instrument: The resultant grid, having undergone thorough vetting and refinement with expert input, was finalized for use in our individual structured interviews (see Table 1) (DiCicco-Bloom & Crabtree, 2006).

In this research, we employed purposeful sampling, a non-probability sampling technique that involves selecting information-rich cases suited to the objectives of the study. As described by Cohen *et al.* (2011), purposeful sampling is particularly valuable for qualitative research where resources and time are limited. This method allows researchers to focus on specific characteristics of a population that are of interest, which can yield insights more efficiently than random sampling. Silverman (2013) supports the use of this approach, noting its effectiveness in qualitative studies for obtaining the most relevant data from the best possible sources. By focusing on elements that are central to the research question, purposeful sampling enhances the depth and quality of data collected, facilitating a more nuanced analysis within the constraints imposed.

Participants for the study were selected based on the following criteria:

Inclusion criteria
- PBL teachers currently employed at KFU Medical College.
- Teachers who have been involved in PBL facilitation for at least one academic year.
- Educators willing to provide informed consent for participation in the research.

Exclusion criteria
- Educators not involved in the PBL teaching method.
- Teachers who have been involved in PBL facilitation for less than one academic year.
- Any educator who has not provided explicit consent for participation.

Data collection commenced on Sep. 1st 2019 and concluded on Nov. 30th 2019. All interviews took place in a quiet, neutral, and private meeting room at KFU Medical College, ensuring an environment conducive to open dialogue while preserving participants' confidentiality.

After conducting the eighth interview, the primary investigator Shaima Alothman observed that the data was becoming repetitive, with no emergence of new concepts or themes, indicating potential saturation. After discussion with Dr. Michal Tombs as a supervisor, the decision was taken to ascertain the attainment of this theoretical saturation point, so the primary investigator interviewed two additional educators. All participants, including these later ones, were approached and integrated into the interview process using consistent criteria and methods.

To ensure diverse representation in our study, we employed a maximum variation sampling strategy, as recommended by Kuper *et al.* (2008). This method involves deliberately selecting participants who represent a broad range of characteristics within the target population, in order to capture diverse perspectives and experiences. In the context of our study, out of the ten Problem-Based Learning (PBL) teachers interviewed at King Faisal University (KFU) Medical College, we included an equal gender split of five males and five females. This reflects the gender distribution of our faculty. Additionally, their teaching experience ranged widely—from a minimum of five years to over two decades of instructional involvement. This strategic sample selection enabled us to gather comprehensive insights into the varied experiences within the faculty at KFU Medical College.

Data collection

Interviews were carried out from September 1st to October 31st, 2019. All participants gave explicit consent prior to the initiation of the interviews. These discussions were held in a private meeting room within the College of Medicine to

ensure a quiet and confidential environment conducive to open dialogue. Each session was diligently recorded using audio equipment, with durations averaging 40 minutes, though they ranged from 20 to 60 minutes.

The primary investigator spearheaded the interview process. To maintain consistency and ensure comparability across all interviews, a topic framework was utilized. This framework underwent iterative refinements after each session. Changes to the framework were primarily influenced by the emerging patterns and nuances in participants' responses, as well as insights from the field notes. These adjustments ensured that subsequent interviews were more focused and addressed pertinent themes more deeply. The purpose of these refinements was to capture a comprehensive understanding of the teachers' experiences and challenges while maintaining the integrity and consistency of the research.

Data analysis and interview tool development

The primary investigator meticulously transcribed and coded each interview transcript. During the coding process, particular emphasis was placed on ensuring participant anonymity. Names and any potentially identifiable information were replaced with pseudonyms or general descriptors, and any direct references to specific institutions or places were neutralized.

Central to the analytical approach was the principle of constant comparison. Each data point was systematically evaluated, with a keen focus on identifying both similarities and differences. The intention was to understand themes and patterns while appreciating the unique nuances of each participant's perspective.

The interview guide was crafted to stimulate open-ended discussions, ensuring participants had the freedom to express themselves while still aligning with the research objectives. To offer structure and comprehensiveness, it was categorized into three distinct sections, with each section encompassing two to five questions. Here's a general overview of the question types:

Demographic data
Closed-ended questions: Gender, position, teaching experience.

Warming-up and initial thoughts
Closed-ended questions: Teaching experience, group size, workload.

Open-ended questions: Initial thoughts and curriculum impact.

Challenges and preparedness
Open-ended questions: Preparedness, preparation factors, training.

Open-ended questions: Specific challenges faced.

The development of this interview tool was a collaborative effort, involving iterative discussions and reviews. Before finalizing the guide, it was piloted with a subset of participants to gauge its effectiveness and clarity. Based on the feedback and preliminary insights gathered from the pilot phase, several modifications were made to enhance the relevance and precision of the questions.

Data analysis

The first analytical step was the *verbatim* transcription of all interviews. In similar qualitative research, many literature studies conducted a thematic content analysis, which also I found to be a useful and robust framework (Doherty *et al.,* 2018; Hassanien, 2018; Maudsley, 2002). Subsequently, axial coding was performed by looking for recurrent, related, and linked codes to combine them into one sub-theme in order to obtain fewer but more comprehensive themes. As part of this study, we grouped all related and interconnected sub-themes under one comprehensive theme and gave detailed and informative names addressing the content validity of the themes (Rubin & Rubin, 2012). Upon reading the interview transcripts many times and creating sub-themes from the different transcript codes, these sub-themes were then grouped into a few themes (Braun & Clarke, 2006).

Results

Four themes were generated (Table 1).

Table 1. Generated themes of teachers' challenges in small problem-based learning group teaching.

Themes	Subthemes	Description
Theme 1: Shifting from a teacher-centred to a student-centred approach	Beliefs, feelings, and attitudes toward PBL	Convictions, emotions, and perceived ideas of participants toward their teaching with a PBL approach
	Logistical barriers	Administrative role in recruiting faculty with dedicated mission to avoid multitasking faculty
	Sources of motivation	Reasons that motivate participants to be persuaded by their new roles and to overcome challenges

Themes	Subthemes	Description
Theme 2: Building up trust in the group	Group size Ground rules Group dynamics	Significant factor has an impact on quality of teachers' performances, student knowledge and performance in the group Strategies participants use to regulate group function and maximise the educational benefits Ability to maintain and enhance group members' interaction, which influences student learning
Theme 3: Facilitating critical thinking	Student background/English language/ Assessment-derived learning Student readiness/ Saudi context/ English barrier Session timing	Student-related barriers against active learning, as perceived by teachers Important factor affects student participation in the group
Theme 4: Guiding group discussions without being too dominant	Teacher preparation Scaffolding	Techniques, means and abilities that teachers need to facilitate active group learning Approaches, actions, and plans that teachers adopt to achieve learning outcomes of the group.

Theme 1: shifting from a teacher-centred to a student-centred approach

1- Beliefs, feelings, and attitudes toward PBL

This sub-theme revolved around the teachers' sentiments regarding the evolution in their teaching roles. The change significantly moulded a teacher's responsibility in the PBL paradigm from the traditional instructional role to that of a facilitator.

Dr FA expressed her initial scepticism:

'I didn't believe it and we opposed it really, we said no.....and tried our best to stop this type of teaching.'

2- Source of motivation

The sub-theme evaluated the factors that motivated educators to undertake small PBL sessions. There appeared to be a division between intrinsic and extrinsic motivations.

Some comments highlighted the role of extrinsic factors such as training:

'When we go step-by-step and we have many training workshops here and in the Netherlands, it helped us, that we can understand what the process is and how we can run such a curriculum. Now, I feel that I'm comfortable with this.' (Dr Y)

Others found inspiration through practice:

'Later on, when I did practise it, I found it was, very interesting, ... on the outcome of students and for the teacher. For myself also, I think this is the new era of things.' (Dr M)

Theme 2: building up trust in the group

The importance of trust within PBL groups surfaced as a critical topic from the interviews. Three distinct sub-themes underpinning this trust were identified:

1- Group size

Dr NR observed: 'It was not more than eight, but there has been a gradual increase, now we have twelve. Sometimes it goes to fifteen.'

Dr FA highlighted the challenge: 'Increasing the number of students may affect the type of teaching or the facilitation for these groups...I find it's somehow difficult.'

2- Ground rules

Dr M's strategy: 'First thing is we try to build a rapport with the students, make them feel comfortable... Then reflection, which is an important part of PBL.'

Challenges faced: 'Some students are overactive and some are very laid-back, not participating actively. The principle is to make them all participate equally in the discussion, so that was a challenge.' (Dr M).

3- Group dynamics

Dr A's concern: '… for the group dynamics, they feel that even without doing anything, they can get scores, that defeats the process of learning.'

Various solutions and insights were given by the participants. Dr FA emphasized teamwork, Dr Y suggested counselling less active participants, and Dr MN emphasized student orientation.

Theme 3: facilitating critical thinking

The findings revealed a set of student-related challenges that teachers faced in facilitating problem-based learning (PBL), alongside the strategies teachers adopted to address these challenges.

1- Student background

Conventional learning attitudes: Dr FH described the challenges stemming from students' prior educational experiences, stating,

'Until high school levels, there is no problem-based learning ... They are convinced that the teacher is going to tell us... They have no experience of self-directed learning.'

Language barriers: Another challenge was the language in which PBL sessions were conducted. Dr FH observed: 'because these sessions are done in the English language, not in their Arabic native language, so they were feeling too shy to participate.'

2- Timing of sessions
The timing of PBL sessions was identified as a factor influencing student engagement. Dr YR noted: 'At the beginning of the academic year, they are very keen to do well, their motivation level goes down if the week is near the exam, ask the tutor to make the session short and finish it off early.'

Theme 4: Guiding group discussion without being too dominant
1- Teachers' pre-session preparation
The actions and plans that teachers adopt to achieve learning outcomes of the groups and overcome related challenges.

As, Dr 11 described the transformation of the teacher's role:

'Transformation from being the master of teaching, to being in some role as a facilitator.' (Dr 11)

2- In-session teachers' skills
The challenges related to techniques and abilities that teachers need to facilitate group active learning. These can be named as scaffolding and giving constructive feedback.

For example, Dr 2 expressed the facilitation process inside small PBL group:

'Old curriculum, you pour yourself to the student, you give them your idea, but this time you hold back, listen to them. they have to come with knowledge, they have to read and so on. You can step in when you find them going away from the right thing, bring them, guide them back.' (Dr 2)

Discussion
The shift from a conventional teaching role to that of a facilitator in the PBL model echoes the insights provided by the General Medical Council (1993) and Walton (1994). A significant portion of the educators showcased resistance towards embracing PBL. This resistance is not isolated; studies by Abdel-Hamid (2017) and Gameel and Beeri (2016) have similarly cited that educators felt newer pedagogical methods like PBL offered no additional benefits over traditional teaching styles. This potentially elucidates the hesitance or resistance shown by several educators.

An intriguing aspect of the PBL model is the debate surrounding the role of subject expertise. Research by Silver and Wilkerson (1999) has highlighted that being a subject matter expert might inadvertently impair student learning within the PBL setup. This concern was also voiced by Dr NR, underscoring the pedagogical challenges associated with the PBL format.

The motivation of educators to participate in PBL can be traced back to both internal and external factors. The feedback from educators emphasises the transformative role of training and firsthand practice in shaping their perspectives. Previous studies, such as those by Lee *et al.* (2013), Maudsley (2002), and Spronken-Smith and Harland (2009), further corroborate the value of practical experience in refining educators' attitudes and amplifying the proficiency of PBL facilitators.

Trust and group dynamics in PBL sessions
The emphasis on trust, as echoed in the interviews, underscores its pivotal role in PBL sessions. Given that PBL hinges on group discussions and peer learning, fostering trust is essential.

Group size
The concerns raised about the swelling size of groups resonate with Edmunds and Brown's (2010) observations. While a larger group might pool in more knowledge resources, it risks hampering individual participation. This dilemma was lucidly captured by Swanwick (2014), who referred to Dr David Matheson's insights, suggesting an optimal group size between five and seven for PBL sessions. Notably, the findings from our study corroborate these insights.

Ground rules
Setting ground rules emerged as an essential step to ensure effective group function. The importance of establishing a communication framework, as mentioned by Azer (2009), and the challenges of balancing participation among overactive and passive students became evident.

Group dynamics
Vygotsky's (1978) social constructivist theory underscores the importance of social context in learning. The teachers' emphasis on teamwork and Vygotsky's Zone of Proximal Development (ZPD) theory underlines this. However, misconceptions about group dynamics can hinder learning, as pointed out by Dr A. The solutions offered by the participants, from emphasizing teamwork to individual counselling sessions, provide a multi-faceted approach to handling group dynamics.

In summation, building trust in PBL groups is multifaceted, requiring careful consideration of group size, setting explicit ground rules, and managing group dynamics.

Facilitation challenges in PBL sessions
Student background and its implications
The findings underscored the inherent challenges associated with shifting from a traditional learning system to PBL. In Saudi Arabia's context, where conventional methods dominate pre-university education, transitioning students into self-directed

learners in PBL becomes a significant task. The observations from Dr FH reaffirm the considerable shift in mindset and approach needed to adapt to PBL.

Language barriers
The English language barrier posed a unique challenge. Students' hesitancy to participate due to language unfamiliarity is not just a linguistic challenge but a hurdle in the adoption of PBL. This observation resonates with studies by Hamdy *et al.*, (2010) and others, pinpointing the impact of English proficiency on student performance, particularly in the Saudi Arabian context of medical colleges.

Session timing and student engagement
The findings regarding the timing of sessions provide valuable insights into student motivation and engagement. It suggests a fluctuating interest level among students, with peak enthusiasm at the start of the academic year and a wane as exams approach. Teachers and institutions might need to reconsider scheduling or adapt teaching methodologies to accommodate such patterns.

Conclusions
This study was conducted to examine the teaching challenges faced by teachers in small PBL groups in KFU medical college in the Kingdom of Saudi Arabia. The assumption was that, if challenges do exist in the teaching of small groups and tutors do indeed face them, then educational institutions can use this information to introduce professional interventions that can target the area of need. Overall, the literature review highlighted the importance of identifying the teaching challenges of PBL and providing suitable strategies and training support to enhance the teachers' performance and to promote the goal of lifelong learning. The findings of the study contribute to the body of existing literature. This study used the qualitative approach of semi-structured interviews to explore these topics with five female and five male medical educators in KFU medical college.

The results revealed interesting insights into factors of experience gained over time, how managing a range of PBL groups greatly increased the confidence and expertise of PBL teachers and that exchanging knowledge and sharing experience are integral to professional development as a PBL teachers. Several suggestions were made, including the exchange of experience through frequent meetings and continuous training sessions to refresh teachers and update their knowledge on

how to improve their teaching strategies and professional skills. Accordingly, adult learning concepts may be applied, e.g., offering the staff continuous development sessions will tackle their needs and apply the concepts of adult learning. This represents a necessary step in improving teachers' performance and overall college outcomes.

Finally, interviewees raised issues about logistics barriers and the students' conventional learning background. These were identified as important issues that affect their performance. However, larger-scale research is required to better understand the challenges that impact teachers' performance and to inform practical solutions. Further research will enable an examination as to whether the results of the present study will be applicable in similar contexts and will have practical implications for enhancing the academic role of teachers and improving their teaching strategies and professional skills.

Data availability
Underlying data
DRYAD: Identification of the challenges teachers face in teaching small PBL groups in the College of Medicine, KFU, Kingdom of Saudi Arabia. https://doi.org/10.5061/dryad.bcc2fqzmm (Alothman & Tombs, 2024).

This project contains the following underlying data:
- De-identified interview transcripts

Extended data
DRYAD: Identification of the challenges teachers face in teaching small PBL groups in the College of Medicine, KFU, Kingdom of Saudi Arabia. https://doi.org/10.5061/dryad.bcc2fqzmm (Alothman & Tombs, 2024).

This project contains the following extended data:
- Interview guide

Data are available under the terms of the Creative Commons Zero "No rights reserved" data waiver (CC0 1.0 Public domain dedication).

Acknowledgments

References

Abdel-Hamid GA: **Problem-Based Learning facilitates vertical integration of basic and clinical sciences in medical curriculum.** *MOJ Anat Physiol.* 2017; **3**(3): 110–111.
Publisher Full Text
Addae JI, Sahu P, Sa B: **The relationship between the monitored**

performance of tutors and students at PBL tutorials and the marked hypotheses generated by students in a hybrid curriculum. *Med Educ Online.* 2017; **22**(1): 1270626.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**
Al Bu Ali WH, Balaha MH, Kaliyadan F, *et al.*: **A framework for a competency**

based medical curriculum in Saudi Arabia. *Mater Sociomed.* 2013; **25**(3): 148–52.
PubMed Abstract | **Free Full Text**

Alothman SM, Tombs M: **Identification of the challenges teachers face in teaching small PBL groups in the college of medicine, KFU kingdom of Saudi Arabia**. Dryad. [Dataset]. 2024.
http://www.doi.org/10.5061/dryad.bcc2fqzmm

Anderson C: **Presenting and evaluating qualitative research.** *Am J Pharm Educ.* 2010; **74**(8): 141.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Azer S: **Problem-Based Learning: challenges, barriers and outcome issues.** *Saudi Med J.* 2001; **22**(5): 389–397.
PubMed Abstract

Azer SA: **Interactions between students and tutor in Problem-Based Learning: the significance of deep learning.** *Kaohsiung J Med Sci.* 2009; **25**(5): 240–249.
PubMed Abstract | **Publisher Full Text**

Barrows HS: **A taxonomy of Problem-Based Learning methods.** *Med Educ.* 1986; **20**(6): 481–486.
PubMed Abstract | **Publisher Full Text**

Boelens R, De Wever B, Rosseel Y, *et al.*: **What are the most important tasks of tutors during the tutorials in hybrid Problem-Based Learning curricula?** *BMC Med Educ.* 2015; **15**(1): 84.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Braun V, Clarke V: **Using thematic analysis in psychology.** *Qual Res Psychol.* 2006; **3**(2): 77–101.
Publisher Full Text

Cohen L, Manion L, Morrison K, *et al.*: **Research methods in education.** 7th ed. Abingdon: Routledge, 2011.
Reference Source

De Grave WS, Dolmans DHJM, Van Der Vleuten CPM: **Profiles of effective tutors in problem-based learning: scaffolding student learning.** *Med Educ.* 1999; **33**(12): 901–6.
PubMed Abstract | **Publisher Full Text**

DiCicco-Bloom B, Crabtree BF: **The qualitative research interview.** *Med Educ.* 2006; **40**(4): 314–321.
PubMed Abstract | **Publisher Full Text**

Dodds AE, Osmond RH, Elliott SL: **Assessment in Problem-Based Learning: the role of the tutor.** *Ann Acad Med Singap.* 2001; **30**(4): 366–70.
PubMed Abstract

Doherty DO, Mc Keague H, Harney S, *et al.*: **What can we learn from Problem-Based Learning tutors at a graduate entry medical school? a mixed method approach.** *BMC Med Educ.* 2018; **18**(1): 96.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Edmunds S, Brown G: **Effective small group learning: AMEE guide no. 48.** *Med Teach.* 2010; **32**(9): 715–726.
PubMed Abstract | **Publisher Full Text**

Furquim L, Pluskwik E, Wiggins S: **Shifting facilitator roles: the challenges and experiences of tutors within aalborg and maastricht PBL settings.** 2015.
Reference Source

Gameel WOI, Beeri AO: **Problem-Based Learning in the National University-Sudan: a reflection on the experience.** *Sudan Medical Monitor.* 2016; **11**(3): 87.
Publisher Full Text

General Medical Council: **Tomorrow's doctors: recommendations on undergraduate medical education.** London: General Medical Council, 1993.

Hamdy H, Telmesani AW, Al Wardy N, *et al.*: **Undergraduate medical education in the Gulf Cooperation Council: a multi-countries study (part 1).** *Med Teach.* 2010; **32**(3): 219–224.
PubMed Abstract | **Publisher Full Text**

Hassanien M: **Faculty members' perception towards changes in medical education in Saudi Arabia.** *MedEdPublish.* 2018; **7**(1).
Publisher Full Text

Hrynchak P, Batty H: **The educational theory basis of team-based learning.** *Med Teach.* 2012; **34**(10): 796–801.
PubMed Abstract | **Publisher Full Text**

Irby DM, Lippert III FG, Schaad DC: **Psychomotor skills for the general professional education of the physician.** *Teaching and Learning in Medicine: An*

International Journal. 1991; **3**(1): 2–5.
Publisher Full Text

Jung B, Tryssenaar J, Wilkins S: **Becoming a tutor: exploring the learning experiences and needs of novice tutors in a PBL programme.** *Med Teach.* 2005; **27**(7): 606–612.
PubMed Abstract | **Publisher Full Text**

Kuper A, Lingard L, Levinson W: **Critically appraising qualitative research.** *BMJ.* 2008; **337**: a1035.
PubMed Abstract | **Publisher Full Text**

Lee GH, Lin CS, Lin YH, *et al.*: **How experienced tutors facilitate tutorial dynamics in PBL groups.** *Med Teach.* 2013; **35**(2): e935–42.
PubMed Abstract | **Publisher Full Text**

LeFebvre L: **Team-Based Learning for the basic communication course: a transformative pedagogical approach.** *Review of Communication.* 2016; **16**(2–3): 192–212.
Publisher Full Text

Leung AKY, Maddux WW, Galinsky AD, *et al.*: **Multicultural experience enhances creativity: the when and how.** *Am Psychol.* 2008; **63**(3): 169–81.
PubMed Abstract | **Publisher Full Text**

Margetson D: **Why is problem-based learning a challenge?** In: Boud, D., Feletti, G. (Eds.), *The Challenge of Problem-Based Learning.* Kogan Page, London, 1998.

Maudsley G: **Making sense of trying not to teach: an interview study of tutors' ideas of Problem-Based Learning.** *Acad Med.* 2002; **77**(2): 162–72.
PubMed Abstract | **Publisher Full Text**

Rubin HJ, Rubin IS: **Qualitative interviewing: the art of hearing data.** 3ed ed. London: SAGE, 2012.
Reference Source

Sa B, Ezenwaka C, Singh K, *et al.*: **Tutor assessment of PBL process: does tutor variability affect objectivity and reliability.** *BMC Med Educ.* 2019; **19**(1): 76.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Salinitri DF, Crabtree BL, Wilhelm S: **A PBL training program for facilitators and student rooted in the constructivist philosophy.** In: Henderson, R. *Problem Based Learning: Perspectives Methods and Challenges.* Nova science publishers, 2016.
Reference Source

Salvatori P: **Implementing a problem-based learning curriculum in occupational therapy: a conceptual model.** *Aust Occup Ther J.* 2000; **47**(3): 119–133.
Publisher Full Text

Silver M, Wilkerson LA: **Effects of tutors with subject expertise on the problem-based tutorial process.** *Acad Med.* 1999; **66**(5): 298–300.
PubMed Abstract | **Publisher Full Text**

Silverman D: **Doing Qualitative Research.** 4th ed. London: SAGE, 2013.
Reference Source

Snelgrove H, Familiari G, Gallo P, *et al.*: **The challenge of reform: 10 years of curricula change in Italian medical schools.** *Med Teach.* 2009; **31**(12): 1047–1055.
PubMed Abstract | **Publisher Full Text**

Spronken-Smith R, Harland T: **Learning to teach with Problem-Based Learning.** *Act Learn High Educ.* 2009; **10**(2): 138–53.
Publisher Full Text

Swanwick T: **Understanding medical education: evidence, theory and practice.** Wiley-Blackwell. ASME, 2014.

Vygotsky L: **Mind in Society.** Cambridge, MA: Harvard University Press, 1978.
Reference Source

Walton H: **Proceedings of the 1993 world summit on medical education of the World Federation for Medical Education.** *Med Educ.* 1994; **28**(suppl 1): 1–117.

Wood DF: **Problem Based Learning.** *BMJ.* 2003; **326**(7384): 328–330.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Woods DR: **Problem-based learning: how to gain the most from PBL.** 1994.
Reference Source

Zahid MA, Varghese R, Mohammed AM, *et al.*: **Comparison of the Problem Based Learning-driven with the traditional didactic-lecture-based curricula.** *Int J Med Educ.* 2016; **7**: 181–7.
PubMed Abstract | **Publisher Full Text** | **Free Full Text**

Open Peer Review

Current Peer Review Status: ?   ?   ?

Version 1

Reviewer Report 13 September 2024

?   Mona Al-Sheikh

Department of Physiology, College of Medicine, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

The title is too long. I suggest modification to: identification of the challenges teachers face in teaching small problem-based learning (PBL). I also suggest to modify teachers in the title to facilitators. In the background, the aim of the study is to boost teacher performance, while I think the real objective is to improve the PBL outcomes and maximize learning by this strategy.
I congratulate the researcher for choosing a qualitative design, but 10 facilitators is a small size. The conclusion in the abstract should only include the findings and what they implicate. What is written is more like recommendations based on the findings.

The conclusion at the end of the manuscript is very long and should be trimmed to summarize the obstacles and challenges to PBL as perceived by faculty.

Is the work clearly and accurately presented and does it cite the current literature?
Yes

Is the study design appropriate and is the work technically sound?
Yes

Are sufficient details of methods and analysis provided to allow replication by others?
Yes

If applicable, is the statistical analysis and its interpretation appropriate?
Yes

Have any limitations of the research been acknowledged?
No

Are all the source data underlying the results available to ensure full reproducibility?

Partly

Are the conclusions drawn adequately supported by the results?

Partly

Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Reviewer Report 06 September 2024

https://doi.org/10.21956/mep.21588.r38556

? **Syahraini Tambak**

Islamic Religiosu Education, Islamic University of Riau (Ringgold ID: 175474), Pekanbaru, Riau, Indonesia

1. In the background section, it is necessary to comprehensively explain the research problem, as well as the state of the art. The focus of the research needs to be explained specifically point by point.
2. Data analysis needs to be described in detail at each step.
3. Dialogue on research results needs to be strengthened so that the position of the results of this research is visible compared to previous research. It has not yet been seen that the challenges teachers face in teaching small problem-based learning (PBL) groups have been discussed thoroughly.
4. In the conclusion, it is necessary to add research limitations.

Is the work clearly and accurately presented and does it cite the current literature?

Partly

Is the study design appropriate and is the work technically sound?

Partly

Are sufficient details of methods and analysis provided to allow replication by others?

Partly

If applicable, is the statistical analysis and its interpretation appropriate?

Yes

Have any limitations of the research been acknowledged?

No

Are all the source data underlying the results available to ensure full reproducibility?
Yes

Are the conclusions drawn adequately supported by the results?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: 1. Learning method

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Reviewer Report 04 September 2024

https://doi.org/10.21956/mep.21588.r38558

? **Fred Ssemugenyi** (ID)

Papua New Guinea University of Technology, Lae, Morobe Province, Papua New Guinea

Identification of the challenges teachers face in teaching small problem-based learning (PBL) groups in the College of Medicine, King Faisal University, Kingdom of Saudi Arabia: a qualitative study

Dear Shaima et al, I would like to thank you for addressing a topical instructional issue and highlighting a few interventions that may be adopted to improve PBL teaching practices. Notwithstanding this paper is blessed with several limitations which may hinder its value to the teaching fraternity if not addressed in sufficient terms;

1. The research title contains more than necessary characters. Please remember that the recommended word count for research titles is between 10-15.

2. While your spell out the intentions of your study in the 1st paragraph of the abstract, you fail to share with us in the text the research questions this inquiry was set out to investigate.

3. The study findings are wanting in all respects: Noting responses of your respondents is okay, but you need to make sense of these responses. What do they mean in view of the research questions, study context and to the teaching fraternity? Again, it is necessary to report your finding in congruence with the research questions.

4. It is clear that you conducted the interviews for one month (1st September -30th

September). While this may be okay in controlled research environments, your research context was not controlled. Why did you spread them for a month, and yet they were only 8 interviews? How did you control reactivity of the respondents? This seems to be a potential threat to the validity of the findings.

5. Throughout the text, I have failed to locate the exact number of your respondents. However, you concede in the text that the sample size was very small, and this does not only bias the results, but affect generalizability as well.

6. Although the inclusion section specifies the criteria for inclusion, it would be much wiser to consider teachers with rich experience in both PBL and other traditional instructional methods. This would help you to obtain rich and balanced dataset.

7. You may also consider providing extra information (i.e., data portfolios, and interview pictures) for authenticity.

Is the work clearly and accurately presented and does it cite the current literature?
Partly

Is the study design appropriate and is the work technically sound?
Partly

Are sufficient details of methods and analysis provided to allow replication by others?
Partly

If applicable, is the statistical analysis and its interpretation appropriate?
Partly

Have any limitations of the research been acknowledged?
Yes

Are all the source data underlying the results available to ensure full reproducibility?
No

Are the conclusions drawn adequately supported by the results?
Partly

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Instructional Methods

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.