Preliminary Insights Into Project-Based Learning (PBL) Implementation to Enhance Learning at Elementary Schools in Pakistan

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ABSTRACT

Project-based learning (PBL) is an educational approach centered on students, with a focus on cultivating critical thinking, problem-solving skills, and collaborative abilities. Extensive evidence exists showcasing its effectiveness in nurturing 21st-century skills such as communication, creativity, and critical thinking. However, the successful integration of PBL into elementary school lessons faces challenges, with a number of determinants affecting its outcomes. This study aims to investigate teachers'practices in implementing PBL at elementary schools and the impact on student learning engagement and performance. Employing a qualitative approach, the study incorporates interviews with purposive samples who are experienced elementary school educators and this was complemented by classroom observations in PBL settings. The findings reveal that the teachers reported observable learning engagement improvements among their chargers and expressed a sense of gratification from their PBL lessons as they experience new and positive pedagogic challenges during the whole process. Findings from this research could serve as a useful guideline for elementary level PBL implementation. Furthermore, the results of this study provide deeper comprehension of the factors influencing teachers' buy-in of PBL use in the and their implications for the nationwide adoption.

Keywords: Project-based learning, elementary school, teachers'practices, 21st century skills

ABSTRAK

Pembelajaran berbasis proyek (PBL) adalah pendekatan pendidikan yang berpusat pada siswa, dengan fokus pada pengembangan pemikiran kritis, keterampilan pemecahan masalah, dan kemampuan kolaboratif. Banyak bukti yang menunjukkan keefektifannya dalam mengembangkan keterampilan abad ke-21 seperti komunikasi, kreativitas, dan berpikir kritis. Namun, keberhasilan integrasi PBL ke dalam pelajaran sekolah dasar menghadapi tantangan, dengan sejumlah faktor penentu yang mempengaruhi hasilnya. Penelitian ini bertujuan untuk menyelidiki praktik guru dalam mengimplementasikan PBL di sekolah dasar dan dampaknya terhadap keterlibatan dan prestasi belajar siswa. Dengan menggunakan pendekatan kualitatif, penelitian ini menggabungkan wawancara dengan sampel purposif yang merupakan pendidik sekolah dasar yang berpengalaman dan dilengkapi dengan observasi kelas dalam pengaturan PBL. Temuan penelitian ini mengungkapkan bahwa para guru melaporkan adanya peningkatan keterlibatan belajar yang dapat diamati di antara para peserta didik mereka dan menyatakan rasa puas dari pelajaran PBL mereka karena mereka mengalami tantangan pedagogis yang baru dan positif selama proses pembelajaran berlangsung. Temuan dari penelitian ini dapat menjadi pedoman yang berguna untuk implementasi PBL di tingkat sekolah dasar. Selain itu, hasil penelitian ini memberikan pemahaman yang lebih dalam tentang faktor-faktor yang mempengaruhi penerimaan guru terhadap penggunaan PBL dan implikasinya terhadap adopsi PBL secara nasional.

Keywords: Pembelajaran berbasis proyek, sekolah dasar, praktik guru, keterampilan abad ke-21

INTRODUCTION

Education's enduring importance lies in its ability to empower individuals, drive economic progress, and build cohesive societies. (Masterson, 2023) However, traditional pedagogical approaches are being challenged to keep pace with evolving learner needs and the demands of a digital world (Ahmad et al., 2021). This is where innovative teaching approaches like project-based learning (henceforth PBL) shines, in immersing students in real-world challenges through collaborative inquiry (Karjick & Shin, 2014). PBL actively involves students in tackling real-world problems as a means of learning. This type of learning is highly motivating for students and allows them to develop a range of 21st century skills (Jan, et al., 2023). Extensive research by the Organization for Economic Co-operation and Development (OECD) in 2020 has demonstrated that PBL is highly effective in enhancing various aspects of student learning, including academic achievement, critical thinking, and problem-solving skills (OECD, 2020). Notable distinctions between PBL and traditional teaching methods include the student's central role in defining and solving problems as opposed to following prescribed procedures in teacher-centered lectures and textbooks (Ismail, et al., 2022). Furthermore, PBL often suggests solutions, while traditional learning requires their execution. PBL typically unfolds over an extended time-frame, in contrast to the shorter duration of traditional lessons (Ferrero et al., 2020).

Problem Statement

In the ever-evolving technological landscape of the present era, the methods of learning continue to evolve rapidly to equip individuals with the skills necessary to confront the challenges of the 21st century (Ahmad & Mohd Said, 2013). An analysis of recent technological, economic, and workforce trends underscores the evolving nature of the job market. According to a study conducted in Pakistan in 2022, technological advancements are reducing the demand for routine manual tasks, affording workers more time to engage with people, address strategic challenges, and exercise creative thinking (Iqbal, et al., 2022). Consequently, students are recognizing that future success will hinge on a diverse array of skills, including creative and critical thinking, problem-solving abilities, and a profound understanding of key disciplines (Schwab & Zahidi, 2020).

It becomes increasingly imperative to modernize the school curriculum in the educational system, spanning from primary to higher levels (Ismail, et al., 2022). In an era where the workforce is rapidly evolving, Pakistan is no exception, and the significance of education and knowledge is paramount. Future job prospects will heavily rely on proficiency in technology, problem-solving abilities, and creativity (Ahsan & Khan, 2023). In addition, the demand for technology and data-related skills is surging, as they are fundamental for business in the digital age. This will cause the demand for workers proficient in these areas to rise. (Ates, 2020). The Pakistan government and educational institutions must invest in the education and training of both youth and teachers, many of whom are currently using outdated curricula. Such investment is necessary to equip individuals with the right competencies to thrive in the future economy (Hanushek et al., 2018). However, many Pakistani teachers may not be really familiar with PBL and on how to implement it effectively (Ali, 2018). Lack of training and support can make it difficult for teachers to use PBL in their classrooms. Moreover, Pakistani curriculum does not always adhere to the principles of PBL. This can make it difficult for teachers to implement PBL in their classrooms without making significant changes to their teaching strategies and curriculum delivery to their students (Quratulain, et al., 2021).

METHODOLOGY

The primary objective of this research is to assess the practices of teachers in integrating PBL in lesson and how can it impact student engagement. In addition, the study aims to investigate the factors that contribute to the efficacy of PBL among teachers at elementary schools. The study delves into an in-depth analysis of the implementation of PBL, level of student participation, and particularly explore the effects of PBL in enhancing learning outcomes. To achieve these objectives, a qualitative method as proposed by LaPrad & Hyde (2017) and Ahmad et al., (2017) are adopted. The qualitative data was obtained through interviews of purposive samples in the form of 10 experienced senior teachers and classroom observations of their lesson sessions. The semi-structured interviews were carried out at a

private primary school in an urban area within the capital city of Pakistan. This school runs the national curriculum, incorporated with innovative 21st century approaches such as PBL. Interviews and class observation were carried out with teachers from the humanities department at different grade levels and subject areas to assess the effectiveness, outcomes, and student engagement when implementing the PBL.

The interview questions also focused on teachers' perspectives on PBL planning, implementation challenges, and perceived student learning outcomes. All interviews were audio-recorded and transcribed verbatim. All the interviews were transcribed, and the interview transcripts were coded thematically to identify recurring patterns and categories in teacher experiences. This data was analyzed and leveraged to pinpoint areas of effectiveness and areas in need of improvement. Data triangulation was employed to ensure the validity and reliability of the findings as per qualitative study by Ahmad et al. (2017).

FINDINGS AND DISCUSSION

The findings highlight key themes around the challenges and benefits of PBL as perceived by teachers, along with observed student participation and collaboration during project activities. The first notable observation on PBL implementation is on the different roles that the teachers get to play and their need to shift from the traditional approaches. Many of the teachers responded that they realize that their main role in PBL is to facilitate student learning and to provide guidance and support as needed. This finding on shift of teacher's roles is similarly reported in a number of studies such as by Almulla (2020). As PBL is a student-centered approach to learning teachers need to be comfortable in giving students the autonomy to choose their own projects and to design their own learning plans. It could be difficult for certain teachers to fully implement PBL in their classrooms without gradually making significant changes to their existing teaching strategies and curriculum delivery to their students (Quratulain et al., 2021). Teachers also need to be able to create a supportive learning environment where students feel comfortable in asking questions and taking risks. One of the teachers responded as follows on their PBL implementation experience;

> *"PBL project in my opinion should be flexible and adaptable to accommodate students' different personalities and style of learning… this is important to motivate them…and also by giving on-going feedback and encouragement'" (Teacher A)*

PBL projects can be challenging, so it is important for teachers to be there to provide encouragement and support to students when needed (Almulla, 2020). Some of the specific roles that the teachers mentioned in the interviews that they feel they have played play during PBL implementation are as follows, 1) Project designers: Teachers work with students to design PBL projects that are challenging, relevant, and engaging; 2) Facilitator: The teacher provides guidance and support to students as they work on the project. This may include providing feedback, helping students solve problems, and providing resources to students; 3) Evaluator: Teacher evaluates student learning throughout the PBL process. This may include assessing students' knowledge and skills as well as their ability to collaborate and communicate effectively. The second main visible finding was on enhanced student engagement. All the teachers responded that they could observe the increase in participation and interest in the learners, together with more active interactions. Student engagement is a crucial element in the process of learning. A teacher responded on this by highlighting the following;

> *"As a teacher using PBL, I can create lessons which are dynamic, and students find it engaging for them to be in such a learning environment and I believe this will gradually prepare them to make decisions on class activities, to participate and to take risks" (Teacher B)*

When students are actively involved and are invested in their learning, they become more inclined to remain attentive, comprehend the subject matter, and retain the acquired knowledge (Ismail, et al., 2022). A few of the teachers also responded that their students who participated in PBL activities exhibited higher levels of engagement in their learning and achieved better academic scores.

> *"I personally feel that assessing through tasks in PBL is essential to monitor students' growth in the learning process and the on- going improvement that could be done to them as the they gradually develop confidence in their own learning" (Teacher C)*

The teachers also pointed out on the PBL elements that they feel were pivotal in enhancing the learning engagement among the students. Here is the summary of the specific ways that emerged in the themes analyzed from the interview responses: a) Relevance-the projects are relevant to students' lives and interests. This makes them become motivated to participate and learn; b) Autonomy-the project gives students some autonomy in choosing and planning the projects with their friends. This allows them to develop ownership of their learning and become more engaged in the process; c) Collaboration-the projects always require students to work collaboratively. This type of learning enables students to learn from each other and to support each other's learning.

Authenticity-the projects are authentic and meaningful with real-world applications. They are not just mere academic exercise. Many of the above elements were also reported in a number of studies such as by Ali (2018), Quratulain, et al. (2021) and Almulla (2020). This helps students to see the value of their learning and become more engaged in the process. The observed PBL lessons reveal that the students engaged in PBL tend to exhibit the following positive outcomes; 1) Increased engagement in their learning; 2) Enhanced comprehension of subject matter; 3) Improved ability to apply knowledge to novel situations; 4) Development of essential 21st-century skills, including critical thinking, problem-solving, communication, and collaboration. A teacher responded as follows when highlighting positive changes in students in her classes;

> *"I could observe that students become more adept at discussing problems and working on the solution and they are working more effectively in groups. They are communicating many different ideas and could to a certain extent be creative by thinking outside of the box. I have seen signs of many of them reflecting on their own learning as they responded to end of class questions by me on the concluded lesson session" (Teacher D)*

In addition, the teachers interviewed in this study acknowledged the challenges associated with PBL implementation. Concerns regarding limited time for project completion emerged as a recurring theme, echoing findings by Ferrero, et al. (2020). In their study on elementary school PBL implementation, they found that some teachers do struggle with time constraints when integrating PBL projects into their lessons. However, teachers have also expressed enthusiasm for PBL's potential, citing benefits such as increased student motivation and fostering critical thinking skills. One teacher stated,

> *"the real challenge I face is time factor where at times I need to properly control the lesson as some students are sometimes too engrossed at doing certain tasks given to them "* *(Teacher E)*

This excerpt highlights the practical concerns on certain factors like time that some teachers might have to mitigate in implementing PBL. Likewise, another teacher responded by also emphasizing the positive impact of PBL,

> *"the PBL tasks foster interaction among students and this indirectly increases their motivation to accomplish the given task and during the process, their understanding increases and their participation generally improved." (Teacher F)*

These contrasting perspectives demonstrate the multifaceted nature of teacher experiences with PBL, aligning with the work of Lenz and Larmer (2020) who found similar variations in teacher perceptions. The classroom observations conducted have focused on student behavior during various stages of the PBL projects. Evidence of student engagement was observed through active participation in discussions, asking thoughtful questions, and demonstrating enthusiasm for project tasks. For example, one teacher remarked,

> *"I had accounts where some students approached me and expressed their hope that PBL activities like the ones done on that day could finish a bit later because they say that they want to explore more on the topics and on the tasks" (Teacher G)*

This response showcased students' excitement and invested interest in the PBL projects. Additionally, the class observations also revealed strong collaborative learning practices as students worked effectively in teams, shared resources, and provided constructive feedback to peers as similarly reported in the study by Shah (2019) at schools in Pakistan. One the teachers responded that some students gave feedback as follow;

> *"A number of students at the end of the week's lesson did voluntarily shared feedback such as by saying-I really like it when I can pretend to be a teacher to help my group members and my classmates during the project tasks " (Teacher H)*

The above response exemplifies the collaborative spirit fostered by PBL activities. These observations suggest that PBL can create a learning environment that encourages active participation, collaboration, and positive student engagement, supporting the research of Budiarti et al. (2021) who found PBL to be effective in promoting student engagement and collaboration. These findings provide a preliminary understanding of teacher experiences and student engagement within PBL settings.

In summary, PBL proves to be a highly efficient method for fostering student involvement. Its student-centric approach to education enables students to engage in real-world projects aligned with their interests. The autonomy granted to students in project selection and planning empowers them to assume responsibility for their learning and enhance their engagement in the educational process.

CONCLUSION

In conclusion, insights from this study have shown that PBL can be a challenging approach to learning, but it can also be rewarding. Implementing PBL effectively can help students develop the skills and knowledge they need to succeed at school and the future work-place. The body of research on PBL in elementary schools has thus far indicated its promise as an effective educational approach with potential to facilitate the development of both academic knowledge and crucial 21st-century skills necessary for success**.** It is important to note that the research on PBL in Pakistan is still in its early stages and more research is needed to understand the long-term impact of PBL on student achievement. Additionally, it is important to note that the findings of PBL research may vary depending on the quality of the PBL implementation. PBL should be implemented in a way that is aligned with state standards and that provides students with opportunities to develop their academic knowledge and skills.

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