Annual Methodological Archive Research Review
http://amresearchreview.com/index.php/Journal/about
Volume 4, Issue 3 (2026)

Online ISSN 3007-3197
Print ISSN 3007-3189

http://amresearchreview.com/index.php/Journal/a

Barriers to Inquiry-Based Learning in Primary Classrooms: Teacher-Specific and Student-Centered Challenges in Implementation

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Abstract

Inquiry-based learning (IBL) is a teaching method that has been encouraged for critical thinking and 21st-century skills in primary education. However, it is still difficult to implement particularly in low-income contexts. This is a qualitative study that examined the obstacles encountered by primary school teachers in the implementation of IBL in Government schools of Chakdara, Lower Dir, and Pakistan. Semi-structured written interviews were used to gather data with 20 purposively selected Grades 1 to 5 primary teachers. Thematic analysis was used to analyses the data and identify patterns. Three levels of difficulties were identified. Some teacher specific barriers were incomplete conceptualization of IBL and inadequate professional development. Student level, low readiness, confusion, disengagement, and resistance to inquiry activities were frequently reported. At the institutional level, there were problems of overcrowding in classrooms, inadequate resources, an examination-driven curriculum, and inadequate administrative support. The study results indicate that there are significant systemic barriers that far exceed the efforts of individual teachers and that consequently very little IBL is implemented in these schools. Teachers were open to the IBL approach, but emphasized the need for structural support. This research gives context to the different aspects and suggests continued practical training, curriculum changes and availability of inexpensive materials to connect the aspirations of IBL policy with classroom practice.

Key Words: inquiry-based learning, primary education, implementation challenges, teacher professional development, Pakistan, qualitative research.

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Introduction

Inquiry-based learning (IBL) is a student-centered pedagogy that has been gaining increasing popularity that encourages students to be curious, think critically, and problem solve; it is also an active construction of knowledge. In this model, students ask questions, explore phenomena, gather and analyze evidence, and develop their own understanding, while the role of the teacher is mainly that of a facilitator and not a mere transmitter of information (Edelson et al., 1999; Gholam, 2019). This method is based on the constructivist theories of learning that believe that knowledge is an active process of building, and that it is not something that is imparted. The IBL approach is strongly recommended for primary education because it can foster skills considered essential for the 21st century.IBL is recommended in primary education as it can build skills which are deemed as very useful for the 21st century, such as: creativity, collaboration, self-regulation, and deepening the concept. It seeks to increase student engagement and to equip young learners to be lifelong learners who can solve real world problems and issues that are complex (Quigley et al., 2011; Pandey, 2025). Even with the above-mentioned advantages, it is challenging for many teachers to successfully implement the IBL in primary classrooms. There are many complex issues, both at the teacher and student level, that limit the potential for implementing IBL in the classroom. As teachers embark on the journey of open-ended inquiry, they encounter obstacles such as the lack of professional development opportunities, pedagogical gaps in handling open-ended inquiry, and the resistance that often comes from entrenched perspectives of traditional, teacher-led instruction (Gholam, 2019; Gonzales, 2025). Other concerns involve classroom management of inquiry, ensuring coverage of the required curriculum and high-stakes tests, and feeling unprepared to work with diverse learners (Quigley et al., 2011; Pandey, 2025). Systematic pressures like time constraints, lack of resources and support at a later stage in time often compound these teacher-specific problems. In addition, student-centered challenges are important. Prior knowledge, the ability to self-regulate, motivation and readiness to explore independently are variable among primary school children. There are students who perform well in open inquiry contexts, and students who may feel frustrated, disaffirmative, or overwhelmed in open inquiry without proper scaffolding, particularly students who have high levels of structure in their previous teaching or students with a variety of learning needs (Edelson et al., 1999; Gholam, 2019). The interwoven barriers illustrate an ongoing disconnect between the theory and practice of inquiry learning in primary classrooms. In order to design effective interventions, such as more effective professional learning programs, curriculum materials that better support instruction, and specific classroom strategies, it is important to have a deeper understanding of the challenges. These realities need to be addressed if the transformative power of IBL is to be wholly realized in educating the curious, capable and confident lifelong learner in primary education.

Literature Review

Inquiry-based learning (IBL) is learning that is student-centered and allows

Online ISSN 3007-3197
Print ISSN 3007-3189

students to use questioning, investigation, gathering evidence, analysis, and reflection to build knowledge. IQA has its origin in constructivist theory, which is based on the premise that students should immerse themselves in real-world problems, cultivating critical thinking, creativity, and self-learning abilities (Edelson et al., 1999; Gholam, 2019). Theoretical foundations and advantages of IBL in the primary education. The ideas of constructivism, specifically Piaget and Vygotsky, form the basis of IBL, which highlights the importance of learners' active exploration and social interaction in meaningful learning. IBL is encouraged in primary education for the ability to develop deeper conceptual understanding, improved engagement, and develop 21st century skills like collaborative learning, communication, problem-solving, and flexibility (Quigley et al., 2011). Effectively implemented IBL has been shown to be related to positive attitudes toward learning and increased motivation, particularly in science and social studies.

Some teacher-specific challenges with implementing IBL

Although the theory is appealing, there are numerous challenges in the actual implementation of IBL in the primary classroom. One of the primary classes of barriers has to do with teachers. Many primary teachers complain of not having received adequate training and professional development to be able to confidently facilitate open ended inquiry. This frequently leads to an experience of lack of readiness in class management in inquiry, alternative assessment, and balancing inquiry with curriculum demands (Gholam, 2019; Pandey, 2025; Quigley et al., 2011). There are still misconceptions about IBL. For some teachers, inquiry is a free-for-all or anarchy that results from not being able to let go of control. Often, resistance to pedagogical innovation is rooted in entrenched beliefs that are more conducive to direct, content-focused instruction that is more efficient at covering content and preparing for standardized tests (Gonzales, 2025; Edutopia, n.d.). This resistance is further exacerbated by systemic factors like large class sizes, limited resources, time constraints and high-stakes accountability, which make sustaining implementation difficult, especially in under-resourced primary schools (Pandey, 2025; Photo, 2025).

Student-Centered Challenges

Challenges are not only those facing teachers but there are also big challenges facing the students. The prior knowledge, self-regulatory skills, motivation and readiness for self-directed learning of primary school children are quite diverse. Some students may perform well on open inquiry tasks, whereas others may become frustrated or lose interest or feel "overwhelmed" by the uncertainty of open-ended tasks in the absence of adequate scaffolding (Edelson et al., 1999; Gholam, 2019). Learners who have been used to teacher-directed learning may not have the metacognitive ability and self-motivation needed to engage in sustained enquiry. Equity concerns are raised because teachers may feel a lack of preparation to support students with diverse backgrounds or learning abilities with differentiated instruction, while in the classroom (Alison Yang, 2024; Kotsis, 2024). These student-related factors compound the teacher challenges, making

Online ISSN 3007-3197
Print ISSN 3007-3189

them a complex set of implementation barriers.

The relationship between challenges and the need for further research

Teacher and student challenges have been consistently demonstrated in the literature to be related. For example, when teachers lack confidence, their scaffolding will be restricted and this will be reflected in students' readiness and engagement. Although many studies have explored teacher-specific (professional learning, conceptual understanding, resistance) and student-centered (variability in capacities, readiness, and motivation) barriers to IBL in secondary/higher education settings, fewer have specifically examined these barriers in primary school classrooms (Pandey, 2025; Photo, 2025). Existing studies have laid the groundwork for this research by looking at the various aspects of these challenges within the primary school setting; the aim of this study is to offer a more detailed perspective from which to inform the design of better professional development, policy support, and classroom practice for successful implementation of IBL.

Research Objectives

The main purpose of this study is to explore the challenges faced by primary school teachers in implementing inquiry-based learning (IBL) in classroom settings. Specifically, the study aims:

1. To identify and analyze teacher-specific barriers to the implementation of inquiry-based learning, including deficiencies in professional development, conceptual misunderstandings of IBL, and resistance to pedagogical change.
2. To examine student-centered challenges that influence the implementation of inquiry-based learning, particularly variability in students' learning capacities, readiness for self-directed exploration, and levels of motivation.
3. To understand how institutional and contextual factors (such as resource availability, curriculum demands, school leadership, and policy environment) shape or constrain the effective delivery of inquiry-based learning in primary classrooms.

Research Questions

1. What are the major challenges faced by primary school teachers in implementing inquiry-based learning in their classrooms?
2. What teacher-level barriers (related to professional learning, conceptual understanding, and pedagogical resistance) hinder the effective implementation of inquiry-based learning in primary education?
3. How do differences in students' abilities, preparedness, and motivation influence the implementation and effectiveness of inquiry-based learning?
4. In what ways do institutional and contextual factors, such as resource availability, curriculum design, time constraints, and school support, shape the delivery and sustainability of inquiry-based learning practices in primary schools?

Research Design

The research design of this study was a qualitative research method aimed at investigating the problems faced by primary school teachers in implementing inquiry-based learning (IBL) in their classroom. A qualitative approach was found to be most suitable since teachers' lived experiences, perceptions and contextual

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influences that affect their teaching practices could be understood in depth (Creswell & Creswell, 2018). The study will be descriptive and exploratory, aimed at gaining a better understanding of the actual challenges to the implementation of IBL without intervening in the variables and without testing a priori hypotheses.

Population and Sampling

The study was carried out in Government primary schools of Chakdara, Lower Dir District, K.P, Pakistan. The population consisted of primary school teachers (Grades 1-5) in these public school system. To get rich and relevant information from primary school teachers, 20 primary school teachers were selected using purposive sampling technique. The following inclusion criteria were used for the participants: Currently working in Government Primary Schools in grades 1-5. Experience of teaching for a minimum of two years. • To share their knowledge and experience of using inquiry learning. The sampling strategy ensured diversity in teaching contexts and experiences, and focused on information rich cases.

Data Collection Instrument and Procedure

Semi-structured written interviews with a set of 11 open ended questions were used to gather data. The questions focused on the conceptual understanding of IBL, implementation experiences, specific issues that were encountered, observations of students' reactions and suggestions for improvement. The researcher went to the selected schools personally to seek approbation from the school administrators and distribute the interview protocols to them. Participants had enough time to respond to written questions in a comfortable setting and confidentiality was assured. The researcher was open to clarifying issues and at the same time promoted free and independent expression of views.

Data Analysis

Thematic analysis method described by Braun and Clarke (2006) was used to analyse the collected data. This included a process of systematic data familiarization, initial coding, searching for themes, review and refinement of themes, definition and naming of themes, and the final report. For this reason, themed analysis was selected as it can be flexible and offer the opportunity to discover patterns and salient themes straight from the participants' accounts.

Findings

Participants Overview

A total of 20 primary school teachers (T1–T20) from government primary schools of Chakdara, Lower Dir, KP, Pakistan were selected for data collection. The participants were teachers working with grades 1-5 in different low-resourced school settings who provided a variety of perspectives on the challenges of implementation of inquiry-based learning (IBL).

Thematic Findings

The results from thematic analysis revealed six overall themes: those barriers that were teacher specific, student specific, institutional or contextual.

Theme 1: Incomplete Understanding of Inquiry-Based Learning (Teacher-Specific)

The majority of teachers had a superficial or partial understanding of IBL. They

Online ISSN 3007-3197
Print ISSN 3007-3189
http://amresearchreview.com/index.php/Journal/a

knew it was student-centered and involved questioning and discovery, but their understanding was conceptual and was often theoretical.

"Students are able to ask their own questions about their topic and look for answers on their own." (T10)

"IBL encourages students to learn on their own with some teachers' support." (T13)

Theme 2: Lack of Professional Development and Training (Teacher-Specific)

Only a few teachers had been trained, most of which had been in a theoretical format with little practical application.

"We had one day training, but nothing happened after that." (T6)

"Not enough time and support to prepare inquiry lessons - it's a two-hour task." (T1)

Theme 3: Student Confusion, Disengagement, and Resistance (Student-Centered)

Some students were not ready for self-directed learning and used traditional learning that they knew.

"Noise and confusion complaints made by students; they don't know why they are doing these activities." (T11)

"It's a question of "some students say it's a distraction from actual learning. (T20)

Theme 4: Resource Constraints and Overcrowded Classrooms (Institutional/Contextual)

There was a constant problem of shortness of materials and overcrowded classrooms (sometimes with more than 50 students), as well as a lack of time.

"It's difficult to conduct group tasks in my class (T17, more than 50 students).

Theme 5: Rigid Curriculum and Examination-Oriented School Culture (Institutional/Contextual)

The current curriculum and school culture focused strongly on lectures and examination with limited room for inquiry.

"All of this is exam oriented, no opportunity for discussion." (T4)

"We are expected to follow a strict daily lesson plan, there's no freedom to explore." (T14)

Theme 6: Desired for practical and continuous support, although teachers were hesitant to embrace IBL without the support of hands-on training, contextual resources, peer collaboration, and administrative support.

Summary of Findings

The findings, overall, indicate that the implementation of inquiry-based learning in the primary classrooms is heavily limited, due to teachers having a limited conception of inquiry, little professional training, lower students' readiness, and low motivation for inquiry, as well as the lack of supportive institutional conditions, which are still characterized by lack of resources, the high density of students, and examination-oriented curriculum.

Discussion

This research reveals some serious issues in the application of inquiry based learning (IBL) in government primary schools of Pakistan. The challenges exist at three levels, viz. teacher, student and institutional levels, which largely correspond to the international literature, yet offer glimpses of context-specific realities in resource-constrained contexts. As in prior research (Gholam, 2019; Quigley et al., 2011), most teachers in this study exhibited very limited

Online ISSN 3007-3197
Print ISSN 3007-3189

knowledge of IBL and poor professional development. Much of the current training programs were theoretical and were unable to be used in the classroom. Low pedagogical change resistance and low confidence were a result of this poor concept development and limited support. Student-Centered Challenges Teachers reported the students' confusion, lack of engagement and even preference for traditional teaching methods. This was also indicative of the fact that many of the primary students, especially those from conventional schools, typically do not have the necessary self-regulation skills and readiness for effective inquiry (Edelson et al., 1999; Pandey, 2025). If not properly scaffolded, IBL can be frustrating to young learners. The most significant barriers arose from the institutional context: Syllabi and curricula were very exam-focused and classroom space was limited, as were resources, and administrative support was minimal, all of which was a negative environment for inquiry-based approaches. The structural constraints are especially strong in low-resource public schools in developing contexts, and frequently outweigh teacher willingness (Pandey, 2025). These barriers have been brought together by the interactions they have, which is the reason many teachers are generally open to IBL but it is not a reality. The results confirm that although training teachers is essential for successful inquiry-based teaching, it is not enough to bring about changes in curriculum policy, class size, and resource allocation. This research indicates that training should shift away from the traditional workshop format and into ongoing, practice-centered mentoring in similar settings. Moreover, the policy makers must establish the enabling conditions by minimizing curriculum overload and allocating IBL resources that are contextualized to fit large primary classrooms that teach multiple grades.

Conclusion

The findings of this study demonstrate that the use of inquiry based learning (IBL) seems to be a very limited phenomenon in government primary schools of Chakdara, Lower Dir, Pakistan. The challenges faced by primary teachers are complex and multifaceted, ranging from a lack of a comprehensive understanding of IBL to the lack of practical professional development, as well as from students' low readiness and resistance to using inquiry approaches to a curriculum that is oriented towards examinations and is highly unsupportive. The results show that while teachers for the most part see the merit of using IBL, systemic and contextual factors easily outnumber their motivation and personal diligence. The findings are similar to those found in international literature (Gholam, 2019; Quigley et al., 2011), and further emphasize the heightened challenges faced in low-income public schools. The bottom line of this study is that the utilization of inquiry learning in primary education is not only dependent on the motivation of the individual teacher. It requires systematic support such as continuous practical training, curriculum changes, smaller class size and contextual teaching-learning materials. Pedagogical awareness is only a first step in the transformation of primary education through inquiry-based learning, and policy commitment and structural changes are required. The

Online ISSN 3007-3197
Print ISSN 3007-3189

disparity between the theory and real classroom application of IBL will remain until these conditions are met.

Recommendations

The following actions are recommended to improve the implementation of IBL:

Curriculum and Policy Level: Decrease curriculum overload, create policies that formally embed inquiry learning practices into national and provincial primary education policy.

Teacher Professional Development: Make the transition from theoretical workshops to long-term school-based, hands-on, mentored and peer supported training.

School and Resource Support: offer low-cost, locally relevant IBL resource kits, and discuss ways to work with large classes during inquiry.

Future recommendation

Run intervention studies, test practical models of IBL implementation and incorporate students' voices in future investigations.

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