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Overcoming Barriers to Inquiry-Based Learning in Primary Schools: Institutional Constraints and Strategies for Effective Implementation



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Abstract: *Inquiry-based learning (IBL) is a learning method that is widely promoted as a means of developing critical thinking and problem solving skills in primary education. It can be difficult, however, to implement this successfully, especially in resource-poor environments, due to institutional and environmental constraints. The second phase of this study that focused on IBL challenges was a qualitative study that explored institutional and environmental challenges facing the implementation of IBL in government primary schools and suggested practical solutions to overcome them. The data was collected by conducting semi-structured written interviews with 20 primary school teachers in Grades (1-5) of Government schools from Chakdara, Lower Dir, Pakistan. Themes emerged from the data through thematic analysis focusing on institutional influences and teachers' recommendations for solutions. The results indicated four main institutional problems: extreme lack of teaching learning materials, overcrowding problems, curricula that are examination-oriented and lack administrative and policy support. Notwithstanding these limitations, teachers indicated their readiness for IBL and suggested some practical steps such as ensuring availability of affordable locally available resources, flexibility regarding the curriculum, allowing sustained hands-on professional development, offering mentoring support in the school, and changing school policy that favors inquiry skills. The study ends by stating that systemic and institutional changes are needed for meaningful implementation of IBL. Structural conditions are necessary, individual teacher efforts are not enough. The results have practical implications for policymakers, curriculum designers, and teacher educators in similar low-resource primary school settings who want to foster learning spaces for inquiry learning.*

Keywords: inquiry based learning, institutional barriers, primary education, resource constraints, curriculum reform, Pakistan, qualitative research.

Introduction

For young learners, inquiry-based learning (IBL) has become a widely embraced student-

centered pedagogical method that fosters critical thinking, creativity, problem-solving, and substantial conceptual understanding (Sam,

2024; Seprie, 2025). IBL emphasizes the acquisition of knowledge through the exploration of phenomena, asking questions, and is a method that meets the needs of the 21st century and has the potential to transform primary education.

Although IBL has been proven to be beneficial, its practical application of IBL in the primary classroom is still limited especially in developing contexts. Earlier studies have identified serious issues at both the teacher and student levels that are barriers to effective implementation. Yet, institutional and environmental issues like extreme resource constraints, overcrowding, rigid curricula, examination-oriented systems, policy weaknesses and the lack of policy support are often the biggest challenges to meaningful implementation (Pandey, 2025; Gholam, 2019).

This is particularly the case in low-resource public primary schools. High-stakes testing and content-focused curricula will limit opportunities to engage in exploratory learning. Teachers often work in classes with high student numbers, a lack of teaching-learning resources, inadequate infrastructure, and poor administrative and system support (Seprie, 2025; Sam, 2024). These conditions can limit pedagogical innovation, as well as teachers' tendency to go beyond teacher-directed activities. It is important to recognise these challenges but it is also just as important to recognize practical and contextually appropriate solutions. Increasingly, moving from documenting barriers to developing targeted, actionable solutions to empower teachers and establish enabling conditions for IBL is a need (Alison Yang, 2024; Edelson et al., 1999). This involves redesigning professional development, curriculum flexibility, access to low-cost resources and supportive school cultures.

This study is grounded on the previous studies of implementation issues, and specifically examines institutional and environmental factors that impact the implementation of the inquiry-based learning in government primary schools, such as resource constraints and curricular inflexibility. It also intends to suggest specific and actionable steps for teacher

empowerment to address these systemic issues and thereby increase the effectiveness of inquiry-based teaching. The findings from this research are anticipated to be both theoretical and practical by providing feasible approaches to the intersection of the idealism and the realism of IBL in the context of a challenging educational environment.

Literature Review

Institutional and Environmental Barriers to Inquiry-Based Learning

The obstacles that have been consistently cited in implementing successful inquiry-based learning (IBL) in primary education related to institutional factors and environmental factors. Rigid curricula, high-stakes examination systems, overcrowded classrooms and acute resource limitations can often make it difficult to provide an open-ended, student-centred environment that facilitates student enquiry (Seprie, 2025; Fitzgerald et al., 2017). In almost all the developing nations, particularly in Pakistan, the curricula are still highly content oriented and examination focused. This curricular rigidity is not giving teachers sufficient time and space to allow for extended processes of inquiry with students (Akhter & Saleem, 2024). Teachers often times report the pressure they feel to finish up a lot of syllabus and prepare students for standardized tests as a reason why they do not use innovative pedagogy like IBL (Gonzales, 2025; Pandey, 2025).

These challenges are further exacerbated by the scarcity of resources. The large class size (more than 50 students), the lack of teaching/learning resources, poor access to technology and poor infrastructure are common scenarios in many government primary schools. This makes for very poor group investigations, experiments, or project activities to be done, which is a key part of IBL (Edelson et al., 1999; Seprie, 2025). These constraints are especially pronounced in rural and resource-poor areas where even fundamental materials for hands-on learning are scarce, according to studies.

The Need for Systemic Support and Teacher Empowerment

One-off teacher initiatives are inadequate to overcome institutional barriers, research suggests. However, it is important to acknowledge that IBL implementation needs support in the school's structures, flexibility in scheduling and support from the administration (Alison Yang, 2024; Fitzgerald et al., 2017). Motivated teachers tend to fall back into the old pattern of "telling" when such conditions are lacking. Recent literature highlights the value of moving beyond the identification of barriers to creating solutions that are practical and specific to each context. Ongoing professional development, mentoring, peer collaboration and classroom support are all effective strategies, not just a one-off workshop (Gholam, 2019; Alison Yang, 2024). Further, it is recommended that low-cost, locally relevant teaching materials and assessment systems that promote inquiry skills, not just rote memorization, be undertaken as essential actions (Seprie, 2025; Edelson et al., 1999). Research indicates that school-level activities like professional learning communities, teachers' autonomy in lesson design and embedding IBL in school improvement planning processes can also greatly improve successful implementation (Gonzales, 2025).

Conceptual Framework

This study is based on a notion that institutional and environmental conditions can mediate between the intentions of teachers and what is actually taking place in the classroom. The present research is an attempt to close the gap between the policy aspirations and on the ground implementation of IBL by analyzing such systemic influences and proposing targeted strategies.

Main Objective

To examine institutional and environmental barriers to inquiry based learning in primary schools and propose practical strategies for it effective implementation

Specific Objectives

1. To analyze the key institutional and

environmental factors such as resources constraints, curricular inflexibility, overcrowded classrooms, and policy limitations that hinder the effective implementations of inquiry based learning in government schools

2. To recommend targeted, contextually relevant strategies for empowering primary school teachers to overcome these institutional barriers and improve the overall quality and sustainability of inquiry-based instruction.

Main Research Question:

What are the major institutional and environmental barriers to implementing inquiry-based learning in primary schools, and how can these barriers be effectively addressed?

Specific Research Questions:

1. How do institutional and environmental factors, such as resource constraints, curricular rigidity, large class sizes, and examination-oriented systems, influence the implementation of inquiry-based learning in government primary schools?
2. What practical and contextually appropriate strategies can be adopted to empower primary school teachers and create enabling conditions for the successful and sustainable implementation of inquiry-based learning?

Research Design

This research used qualitative research design to explore the problems that are faced by primary school teachers in implementing inquiry based learning (IBL) in the classroom. Given that teachers' experiences, perceptions, and the contexts in which they teach are central to understanding, a qualitative approach was deemed most appropriate as it enables an in-depth understanding of these lived experiences (Creswell & Creswell, 2018). The study is descriptive in nature and exploratory in scope that draws a conclusion about the real-life barriers encountered in the implementation of

IBL without intervening with variables and testing any hypothesis in advance.

Participants and Sampling

The study was carried out in government primary schools of Chakdara, Lower Dir District of KPK, Pakistan. The target population was primary school teachers (Grades 1 – 5) in these public schools. Twenty primary school teachers were selected using purposive sampling to generate rich and relevant data to the study. The following inclusion criteria were used for the participants:

Purposive sampling was used to select 20 primary school teachers who could provide rich, participants met the following inclusion criteria:

- Currently teaching grade 1 to 5 in government primary schools.
- Having at least two year of teaching experience.
- Willingness to share insights regarding their understanding and implementation of inquiry based learning.

This sampling strategy ensured diversity in teaching contexts and experiences while focusing on information rich cases.

Data Collection Instrument and Procedure

Semi-structured written interviews with 11 open ended questions were used to gather data. The questions addressed conceptual understanding by teachers, their experiences implementing IBL, specific challenges that they faced while implementing IBL, observations of student response to IBL, and suggestions for improving IBL. The researcher has personally visited the selected schools to seek permission from the school administrators and handed out interview schedules. The participants were provided with sufficient time to write their responses in a relaxed setting and had their responses kept confidential. The researcher was on hand to answer clarifications, and ensured that views were expressed freely and independently.

Data Analysis

Thematic analysis (Braun and Clarke, 2006) was used to analyze the collected data. This included

a structured coding process of data familiarization, development of initial codes, seeking themes, re-viewing and re-patterning themes, defining and naming themes, and generating a report. For descriptive purpose, a thematic analysis was selected because it was flexible and able to capture the key themes and patterns directly from the participants' accounts.

Findings

Participants Overview

The data was collected using 20 primary school teachers (T1 to T20) of Grades 1-5 in government schools of Chakdara, Lower Dir, Pakistan. The participants included low-resourced school contexts and shared specific experiences of the influence of institutions on inquiry-based learning (IBL).

Thematic Findings

On the basis of the thematic analysis, the four institutional and environmental barriers were found, and the teachers' proposed strategies.

Theme 1: Extreme resource limitations

The shortage of teaching-learning materials was regularly mentioned as a basic impediment.

“We have no charts, models or even some of the basic science kits, how are you going to do your inquiry activities?” (T5)

Theme 2: Overcrowded Classrooms

Students-centered inquiry proved to be very difficult to organize and manage due to the large size of classes (45-60 students).

“My class has more than 50 learners, group work can be loud and chaotic.” (T17)

Theme 3: The pressure of a rigid curriculum and examination

The curriculum was very constrained, rigid and exam-driven, with little room for inquiry.

“Here it's all exam orientated, there's no time for open discussion and exploration.” (T4)

“The syllabus should be finished in time, Inquiry takes too long” (T14).

Theme 4: Lack of Administrative and Policy Support

Teachers indicated that there was little support from school authorities and school leadership.

“School administrators are only interested in the completion of the syllabus and exam grades.” (T9)

Theme 5: Teacher's Suggested Strategies

Several practical solutions were recommended, such as:

Delivery of low cost, locally appropriate activity kits and materials.

- Content of curriculum was reduced and time was allocated for IBL.

Continuous practical training and mentoring in the school.

Administrative flexibility, incentives for innovative teaching.

- Policy changes to promote inquiry rather than just exam grades.

Summary

The primary obstacles that arose to IBL implementation were institutional and environmental factors, including resource scarcity, overcrowded classrooms, rigid curriculum, and a lack of systematic support. Teachers were enthusiastic about implementing inquiry-based learning, but emphasized that changes in the structure of teaching and learning were necessary for this approach to be effective.

Discussion

The results obtained from this study emphasize that the factors that most determine the implementation of inquiry-based learning (IBL) in government primary schools are institutional and environmental factors. Overall, teachers indicated a general interest in implementing IBL, but limited their use of IBL because of resource issues, class size, curriculum design, and administrative difficulties.

Resource Constraints as a Foundational Barrier

The need for teaching learning materials was one of the basic challenges that arose. Teachers

indicated that they were missing even basic materials like charts, models and science kits, and that they were unable to run hands-on, inquiry-based activities. This is found to be consistent with the earlier studies conducted in low resource settings which indicate that lack of material supports puts teachers in a tight bind to do more than textbook-based teaching (Pandey, 2025; Seprie, 2025). If there are no accessible and low cost resources, IBL is not practical, but only aspirational.

Overcrowded Classrooms and Management Challenges

Another challenge was that classes were large, with 45-60 students per class. Working in groups was described by teachers as being noisy and difficult to manage, and as not providing enough opportunities for guided exploration or support. Other contexts in the developing world have also identified challenges of low teacher student ratios and the lack of affordances for inquiry pedagogy (Gonzales, 2025; Fitzgerald et al., 2017).

Rigid Curriculum and Examination Pressure

The curriculum was too rigid and the pressure of exams did not allow for too much room for inquiry that required open-ended responses. Pressure to teach the syllabus and to test students at the end of every term was consistently reported by teachers to detain them from deviating from traditional teaching methods. This is in line with the literature that has emphasized that examination-driven examination systems and content-oriented curriculum limit pedagogical innovation (Akhter & Saleem, 2024; Seprie, 2025). Using assessment to encourage recall over process skills will not give teachers an incentive to take time with inquiry.

Lack of Administrative and Policy Support

School leadership and education authorities offered little support, further perpetuating the status quo. Among the key findings, teachers observed that the prime concern of the school heads was with syllabus completion and examination results, with little recognition and flexibility for innovation. Without policies and

administrative support, individual teachers' initiatives are fragmented and are not easily maintained (Alison Yang, 2024; Gholam, 2019).

Teachers' Suggested Strategies and Implications

Participants came up with specific and relevant solutions under these restrictions. These included the use of locally invented activity kits which were low cost, less curriculum and more time for IBL, continuous practical training and mentoring in schools, more flexibility in administration, and policy changes that placed high priority on inquiry skills. The following suggestions support the argument that a coordinated effort at the school, district and policy level is necessary to implement IBL sustainably, not just teacher motivation (Edelson et al., 1999; Sam, 2024). The results suggest that institutional and environmental challenges are not peripheral but central to the lack of uptake of IBL in these primary schools. In order to make inquiry a reality in the classroom and not just policy talk, the issue of resource scarcity, the class size, curriculum rigidity and systemic support must be addressed.

Conclusion

This research aimed to analyze the problem of government primary schools implementing IBL and its analysis was followed by the discussion of the problem. This research was designed to analyze the problem of government primary schools implementing IBL and the discussion of the problem followed the analysis. The results indicate that the difficulties that hinder the effective implementation of IBL are severe resource limitations, overcrowded classrooms, examination-oriented curricula, and lack of administrative/policy support. The teachers showed a positive attitude to implementing inquiry-based approaches, however, in the context of the system, it did not allow for the actual implementation of such approaches in the classroom. The findings suggest that solely individual teachers' motivation is not enough; structural and institutional changes are needed to establish an enabling environment for IBL. Several practical solutions were suggested by teachers, such as providing curriculum resources

that are within teachers' reach and accessible to them, reducing the overloading of curriculum, allowing teachers time for inquiry activities, continuous hands-on professional development, school-based mentoring and policy changes that promote inquiry skills and take into account students' performance in examinations. Recommendations emphasize the importance of coordinated action on the school, district, and policy levels. Finally, the successful and sustainable implementation of inquiry-based learning in resource-poor primary schools calls for more than pedagogical awareness. It requires institutional support, flexibility of the curriculum, and sufficient resources. Otherwise, the chasm between the potential and the reality of IBL might continue to exist.

Recommendations

The results of this research indicate that the following recommendations can be made to overcome the obstacles of implementing IBL in primary schools:

1. Provision of Low-Cost and Locally Relevant Resources

Education authorities should create low-cost context-specific activity kits, charts, models, and teaching materials that allow the teachers to do hands-on investigations even in resource-limited classrooms.

2. Curriculum Flexibility and Dedicated Time for IBL

All the primary curriculum should be reviewed to minimise overloading and provide for specific time allocations for the purpose of inquiry based activities. Assessment systems also need to be adjusted to give more emphasis to process skills and inquiry skills as well as to examination marks.

3. Sustained Hands-on Professional Development and Mentoring

One-off theoretical workshops should be replaced by regular school-based professional development, peer mentoring and professional learning communities, to assist teachers with planning, managing, and evaluating IBL activities, especially in larger classes.

4. Administrative and Policy-Level Support

School leaders and education departments should give more flexibility in instruction, more credit to innovative teaching and make school environments more conducive for teachers to teach in a way that is not cautious about the content in the syllabus, as IBL is implemented.

Recommendations for Future Research

1. Intervention-Based Studies

Future studies should focus on creating and testing practical intervention programs (e.g., resource kits and mentoring) to assess their real-world effectiveness in supporting teachers in implementing IBL in low-resource environments with too many students.

2. Comparative Studies Across Contexts

Comparative studies between schools in rural areas and those in urban areas or between the various provinces would provide insights into what institutional challenges are the worst and what approaches are more effective in different settings.

3. Inclusion of Multiple Stakeholder Perspectives

School leaders, education officers and students should be actively engaged in future studies, to better understand their institutional constraints and potential solutions.

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