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Exploring Primary School Teachers' Perceptions of Higher Order Thinking Skills in Sialkot: A Qualitative Case Study

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ABSTRACT

Higher Order Thinking Skills (HOTS) play a significant role in developing students' ability to think critically, solve problems, and make the right choice in the 21st century. Especially at the classroom level, these skills are fundamental for students' development. It is at the primary stage where the foundation of students is laid regarding their thinking abilities, problem-solving, and decision-making in their classrooms. It was a qualitative study with a multiple case study research design. Nine public primary school teachers were selected through purposive sampling. Data were collected through semi-structured interviews. All interviews were audio-recorded with the consent of the participants. Reflexive thematic analysis was used for data analysis. Themes derived from the data were 1) Teachers' conceptions of HOTS, 2) Classroom practices for promoting HOTS, and 3) Barriers and enablers of HOTS implementation. The findings revealed that teachers generally held positive perceptions of HOTS and believed that these skills enhance students' engagement in analytical thinking and learning outcomes. They used different teaching methods for developing HOTS, including open-ended questions, collaborative learning, activity-based and low-cost instructional practices. They also reported different challenges during implementation, including limited professional training, examination-oriented teaching practice, inadequate resources, and lack of institutional support. The study recommends sustained, practice-oriented teacher professional development, assessment reforms aligned with HOTS, improved classroom conditions, institutional support, and stronger school-community partnerships to promote effective HOTS implementation in primary schools.



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Introduction

In the twenty-first century, Higher-Order Thinking Skills (HOTS) have become an essential component of modern education. Contemporary education emphasizes not only the acquisition of knowledge but also the development of students' ability to analyse, evaluate, and apply it in different contexts (Jihannita et al., 2023; Wijnen et al., 2023). The concept of HOTS is commonly explained through Bloom's Revised Taxonomy, developed by Anderson and Krathwohl (2001), which classifies learning into different cognitive levels. The higher levels of Bloom's Taxonomy—analysing, evaluating, and creating—are associated with critical thinking, problem-solving, creativity, and decision-making (Ichsan et al., 2021). These cognitive processes encourage learners to think independently, solve authentic problems, and prepare them to face academic, professional, and social challenges (Gunawardena & Wilson, 2021). However, many educational systems emphasize the development of HOTS, consequently for educational outcome purposes and future readiness (Wijnen et al., 2021).

In primary education, these skills play a very crucial role because the early years of schooling provide the foundation for children's cognitive development, learning habits, and higher-order thinking abilities (Kosasih et al., 2022). The development of these skills at an early age contributes to students' future academic and professional success (Wah et al., 2024). At this stage, teachers play a central role in promoting HOTS skills in their classroom through classroom practices (Musa & Yamat, 2021). Teachers promote HOTS by designing meaningful learning activities, using appropriate teaching strategies, asking thought-provoking questions, and assessing students' understanding. Through these practices, teachers can encourage students to participate actively, think critically, learn independently, and solve problems effectively (Hartini et al., 2021; Kosasih et al., 2022).

Several studies have highlighted the importance of HOTS for students to achieve educational purposes, with the results that students who engage with these skills demonstrate deeper understanding skills, problem-solving abilities, and greater creativity (Pratama & Pramesti, 2018; Tyas & Naibaho, 2021). It is also indicated that

teachers generally have a positive perception of HOTS and accept their importance to prepare students for future challenges. Teachers also face different challenges in classrooms, like lack of resources, curriculum pressure, inadequate training, time constraints, lack of knowledge about HOTS, and reliance on traditional teaching methods (Ragab et al., 2024). Many teachers continue to face these challenges by focusing on memorization and rote learning methods.

The current study highlighted the gap about the need for an in-depth understanding of teachers' perceptions, their beliefs and experiences related to HOTS that directly influence classroom practices in their educational context. This understanding can help to identify existing challenges and inform future educational improvements (Widana et al., 2019).

The purpose of this study is to explore primary school teachers' perspectives regarding HOTS to narrate their efforts to promote and integrate HOTS within their classroom practices and to identify the factors that primary school teachers perceive as challenges. By exploring these perceptions and challenges, the study aims to contribute to the existing literature and provide recommendations for teacher development and educational policy related to HOTS in the primary educational context in the city of Sialkot, Pakistan.

Research Objectives

1. To explore primary school teachers' conceptual understanding and perceptions of higher-order thinking skills (HOTS) in Sialkot.
2. To examine how primary school teachers, describe their efforts to promote and integrate higher-order thinking skills within their classroom teaching practices.
3. To identify the contextual factors that primary school teachers perceive as facilitating or hindering the development of higher-order thinking skills in primary schools in Sialkot.

Literature Review

Concept of Higher Order Thinking Skills (HOTS)

Higher-order thinking skills HOTS mean decision-making abilities in which a person develops critical, creative, problem-solving, and analytical abilities (Hamzah et al., 2022). These skills

involve complex cognitive processes that go beyond memorization and recall. According to Brookhart (2010), HOTs basically enable learning to transfer knowledge to new situations and think critically, analyse their problems, and solve their learning problems. Through these HOTs skills, learners can develop strong higher-order thinking abilities and be capable of analysing situations, evaluating information and evidence, and driving innovative solutions.

In a modern educational context, students are expected to deal with complex problems because of rapidly changing information for school need to move beyond traditional methods like memorization and recall-based approaches and instead encourage students to think critically and creatively (Driana & Ernawati, 2019; Hamzah et al., 2022).

Primary years of education provide the foundation for developing higher-order thinking because students' cognitive abilities, learning habits, and reasoning skills develop rapidly during this stage (Kosasih et al., 2022). From this perspective, the primary school teacher plays a vital role in fostering these skills in their students (Musa & Yamat, 2021). Teachers are responsible for integrating HOTs in their classroom practices and instructions (Hartini et al., 2021).

Importance of HOTs

These skills have become an essential component in contemporary education worldwide for the development of students' critical thinking, creativity, problem-solving, analytical thinking, and decision-making abilities. In the 21st century, education is no longer limited to memorizing facts and reproducing information because students are expected to think critically, understand concepts deeply, apply knowledge in new situations, and solve real-life problems. Therefore, the educational system emphasizes the integration of HOTs into the teaching and learning processes (Hamzah et al., 2022; Wijnen et al., 2021; Yulianto et al., 2019). HOTs should be developed in the early years of education (Kosasih et al., 2022; Wijnen et al., 2021). The early years of education are the foundation of students' intellectual growth and future academic success.

The research (Wah et al., 2024) has shown that HOTs positively influence learning outcomes and

students' abilities. Students who engage in these skills demonstrate a better understanding of the concept, improves its damage achievement, and strong problem-solving abilities. Furthermore, the HOTs enhance higher-order thinking abilities in students and independent decision-making in uncertain situations (Wah et al., 2024; Wijnen et al., 2021).

Researchers also highlight that HOTs help students in long-term academic and professional development (OECD, 2023; Wijnen et al., 2021). If students learn how to think critically, evaluate and create knowledge, and problem-solve, they become better prepared for future challenges and workplace demands.

Teachers' Perception of Higher Order Thinking Skills

Research indicates that most teachers recognize the educational value of the skills and believe that these skills promote meaningful learning, critical thinking, and active student engagement (OECD, 2023; Wijnen et al., 2021). Mahanani et al. (2020) found that teachers generally believed that HOTs improve students' abilities, as they knew the significance of creativity, critical thinking, evaluation, and problem-solving learning outcomes. Teachers were aware of HOTs and their importance for students for educational purposes to face future social challenges. Wijnen et al. (2021) reported that a positive attitude towards HOTs skills was used to promote critical thinking activities in their classroom environment. Kosasih et al. (2022) also found that HOTs are important for students because these skills improve learners' analytical and creative abilities and encourage a deeper understanding of subject content.

HOTs in the Pakistan Context

Educational reforms have emphasized critical thinking and student-centred approaches in Pakistan context. Single National Curriculum (SNC) and other educational initiatives encourage teachers to adopt additional methods in their classrooms (Haider, 2022; Halai & Durrani, 2021) to develop HOTs abilities among students. Despite these policy reforms, the same challenges remain in practical implementation due to teachers' reliance on traditional teaching methods (Musa & Yamat, 2021; Seman et al., 2017).

Critical thinking has been emphasized as a twenty-first-century skill in literature (Jamil & Muhammad, 2019; Jamil et al., 2024; Jamil & Rizvi, 2025; Naseer et al., 2022).

Nabi and Shaheen (2025) found in their study that pre-service teachers recognized the importance of HOTS but were not sufficiently prepared to implement these skills in their practices. These findings suggest a need for a strong teacher education program and ongoing professional development of HOTS. The same findings are consistent with Batool et al. (2026), who emphasized the importance of continuous teacher professional development in improving educational quality, although their study focused on Total Quality Management rather than HOTS.

Research Methodology

Research Design

This study adopted a qualitative research approach (Creswell & Poth, 2016) and a multiple case study research design to explore primary school teachers' perceptions regarding Higher-Order Thinking Skills (HOTS) in Sialkot. A qualitative approach was appropriate for this study because it allowed the researcher to explore the participants' lived experiences, beliefs, perceptions, and practices within their natural educational settings (Tisdell et al., 2025). This approach enabled the researchers to gain a deeper understanding of the phenomenon being studied within its real-life context (Tisdell et al., 2025; Yin, 2018). The case study design provided an in-depth exploration of teachers' views and experiences regarding HOTS within primary schools in Sialkot, which enabled researchers to develop a comprehensive understanding of how Higher-Order Thinking Skills were perceived and inculcated during classroom practices.

Research Setting

The research setting was located in Sialkot, Punjab, for public primary school teachers. This setting addressed the identified research gap found during the literature review because limited research has explored primary school teachers within their local educational context (Halai & Durrani, 2021). So, this setting provided insights into primary school teachers' experiences and challenges in implementing HOTS in their practices.

Participants

The participants in this study consisted of 9 primary school teachers working in public schools, as they played a central role in developing Higher-Order Thinking Skills (HOTS) among young learners through classroom instruction, learning activities, and assessment practices (Brookhart, 2010). Purposive sampling was used to select participants for data collection. This sampling technique helped in selecting participants who could provide rich and relevant information related to the research topic (Campbell et al., 2020). The participants had experience of teaching at the primary level and were familiar with classroom practices related to teaching and learning. Their professional experiences enabled them to provide rich and meaningful information about the implementation of HOTS in primary classrooms (Tisdell et al., 2025).

Data Collection Method

Data were collected through semi-structured interviews. Semi-structured interviews were selected because they provided detailed information about the experiences and perceptions of primary school teachers. A self-developed interview guide was developed based on the objectives of the study and relevant literature (Kallio et al., 2016). Each interview was conducted in a convenient setting that lasted for 35-50 minutes. With the participants' consent, the interviews were audio-recorded to ensure accurate data collection and transcription.

Data Analysis

The data were analysed using reflexive thematic analysis. Thematic analysis provided researcher to identify, organize, and interpret meaningful patterns. This analysis followed the six steps suggested by Braun & Clarke (2006). The analysis aimed to identify common themes based on participants' responses, perceptions, experiences, and challenges regarding HOTS among primary school teachers.

Ensuring Trustworthiness

To ensure the credibility and trustworthiness of the findings, several strategies were employed. Participant recordings were carefully transcribed to maintain the accuracy of participants'

responses. During data analysis, the researchers carefully reviewed the transcripts several times to ensure that the original meanings of participants' experiences and perceptions regarding Higher-Order Thinking Skills HOTS were retained. Dependability was ensured by following the same interview guide and data collection procedures for all participants. Confirmability was strengthened by ensuring that the findings were based on the participants' responses rather than the researchers' personal opinions or assumptions. The original meanings of participants' responses were preserved, and consistent procedures were followed throughout the data analysis process. Detailed descriptions of the research processes were maintained to enhance the transparency and trustworthiness of the study.

Ethical Considerations

Ethical considerations were followed in the study. Permission and informed consent were obtained from all participants before data collection. All participants were informed about the purpose, procedures, and objectives of the study before the interviews were conducted. Participation was completely voluntary, and had the right to withdraw from the study at any stage without any penalty or negative consequences.

Participants' confidentiality was strictly maintained. Participants' names and school identity were not mentioned in the results. To ensure participants' data were not used for any purpose other than academic purposes and were not shared with unauthorized individuals. Teachers' data were used for research purposes only. All study information was stored securely, and no harm, pressure, or discomfort was caused to any participant of the study. The privacy of all participants was also ensured.

Findings of the Study

The findings of the study are presented below based on the following themes and sub-themes.

Theme 1: Teachers' Conceptions of HOTS

All participants strongly highlighted that HOTS was about helping students move away from rote learning towards independent, analytical and creative thinking. However, these understandings were not uniform nor equally sophisticated. For example, some teachers provided a clear

framework related to Bloom's Taxonomy, whereas others explained HOTS more intuitively through practical classroom examples. Furthermore, the following are subthemes.

Subtheme 1.1: HOTS as Deep and Independent Thinking

The most common theme among participants was the definition of HOTS as the opposite of rote learning and memorization. Teachers defined HOTS as teaching students to think independently, analyze situations, and relate their learning to real-life situations.

Participant 1 described HOTS as giving children 'an intellectual toolkit' so that they are 'dynamic, self-governing thinkers who can navigate a changing world' rather than students who are just good at examinations. Participant 3 exemplified the idea with a real-life example: *"When we teach children about a farmer, we should not just tell them that a farmer grows crops."* Children should also know that even one grain of wheat goes through many stages before it reaches us and involves the hard work of many people.

Participant 4 narrated:

The purpose is to make children think instead of just memorizing answers. Children should first think, understand, research, analyze, and then give their answers. As the name itself shows, HOTS means Higher-Order Thinking Skills. The child should think independently instead of giving a rote-learned answer.

Participant 9 stated that:

In my class, there are about 35 students whom I teach. The meaning of Higher-Order Thinking Skills to develop expertise in thinking skills. It is not just about knitting a rope. It is about learning new experiences and new ideas. It is about making new decisions. Psychologically, it encourages the children's brains to think. This increases the ability to solve problems.

Subtheme 1.2: Limited Classroom Application of Bloom's Taxonomy Many teachers had heard of Bloom's Taxonomy in training, but few mentioned using it systematically in lesson

planning. For many, the framework was a theoretical reference, not a pedagogical tool for classroom use.

Participant 1 described Bloom's Taxonomy as a *"real-world roadmap"* that informed planning of daily lessons and encouraged students to move beyond memorization. Participant 3 described all six levels in detail and mentioned that at the primary level, story analysis, such as the hare and tortoise, could be used to develop analysis and evaluation skills. Participant 2 said, *"I read it in the training. Now it is on the side, indicating that the training had not translated into sustained pedagogical application."*

Teachers across the group consistently used open-ended questioning and connections to daily life as the core of their HOTS instruction. These strategies were accessible, required no special materials, and generated visible engagement from students. Participant 5 described a lesson on salt and minerals where they asked the children open-ended questions about the importance of salt and minerals in the body. The students made connections to their own family experiences and demonstrated a high level of analytical engagement with examples from everyday life, *'from salads and eggs to medical treatment and drips'*.

Participant 4 stated, *"I ask open-ended questions to the children, I do group discussions, I let students solve problems by themselves. This builds up their thinking habit."* Participant 6 said that inquiry-based learning was central to their practice: *"Inquiry-based learning moves us towards Higher-Order Thinking Skills where children think and ask questions and then try to find answers to those questions."*

Subtheme 1.3: HOTS are Appropriate for Primary Education

All participants, including those who faced resource and workload constraints, agreed that HOTS was appropriate and important for primary-aged children. Several participants emphasized that early childhood is the most effective time to begin developing analytical thinking habits.

Participant 3 argued, *"Children start thinking from an early age, and if they begin analyzing and understanding things in childhood, their level of thinking becomes higher and stronger as they*

grow up."

Participant 6 stated, *"Only in early ages, if we take children towards Higher-Order Thinking Skills, their thinking paradigm will change. If we keep teaching limited things to children, they will remain in the same paradigm."* Participant 9 said that teaching critical thinking from childhood helps children believe in themselves and make better decisions when facing real-life problems.

Subtheme 1.4: Teaching Experience Shapes HOTS Pedagogy

According to the participants, teaching experiences shaped HOTS pedagogy. Participant 6 reflected, *"In these 9 years, I have felt that the traditional method was based on rote learning. Now it is necessary that we teach children in a new way in which they play and learn more — go towards learning by doing."*

Participant 9 noted that in the past they gave lectures, but now *"the children speak more and I speak less. Interaction has become two-sided. I keep asking new questions. What is your opinion? If this was not the case, what would have happened?"*

Participant 5 highlighted that HOTS also changed teachers' own preparation: *"First of all, we should know about what we are teaching the children. If we think and understand that topic, we will be able to implement it."*

Theme 2: Classroom Practices for Promoting HOTS

The second theme shows that primary school teachers have developed a meaningful range of instructional strategies to foster Higher-Order Thinking Skills in their classrooms. These strategies include open-ended questioning, group work, storytelling, debate, project-based activities, differentiated tasks, and real-life connections. However, implementation was uneven; most teacher described HOTS promotion as occasional rather than systematic, and many felt their practices only partially met the cognitive demands of genuine HOTS instruction.

Subtheme 2.1: Open-ended Questioning and Real-Life Learning

Teachers throughout the group consistently used open-ended questioning and connections to daily life as the core of their HOTS instruction. These

strategies were accessible to students, required no special materials, and generated visible engagement.–

Participant 5 described a lesson on salt and minerals where they asked children open-ended questions about their importance in the body. Students connected with the topic to their own family experiences and gave examples from daily life, such as *"from salads and eggs to medical treatment and drips,"* demonstrating strong analytical engagement.–

Participant 4 said,

According to teaching strategies, I give children real-life problems and allow them to find solutions on their own. For example, while teaching science, I gave students a project about polluted water and asked them how dirty water could be cleaned. The students discussed the problem in groups and then found possible solutions together.

Participant 6 said inquiry-based learning was central to their practice: *"Inquiry-based learning takes us towards Higher-Order Thinking Skills in which children think, ask questions, and then try to find solutions to those problems."*–

Subtheme 2.2: Collaborative Strategies for Higher-Order Thinking

Teachers also described using storytelling, group activities, and classroom debate as structured vehicles for analysis and evaluation, particularly because they required no additional resources and engaged young learners naturally.–

Participant 3 stated,

When we tell a story to the children, they start talking to each other. We ask them: What do you think about the characters and their actions? What is the lesson to learn? In this way, children learn how to analyze, evaluate, and create.

Participant 3 also used the story of the hare and the tortoise to teach moral reasoning, *"What did the hare do, why did the tortoise win, and what does this teach us about consistency?"* Participant 4 said that when teaching science, they organized students into groups to discuss solutions to the problem of water shortage, and each group analyzed and presented their reasoning.

Subtheme 2.3: Activity-based and Low-Cost Instructional Practices

Many teachers talked about how they differentiated tasks and questions so that students at different cognitive levels were not left behind by high-level thinking demands.

Participant 5 stated that the differentiation was clear:

We give the most capable students a sentence, but we start with one word for the ones below. First, I have to see whether children understand one alphabet or not. If they don't, begin there. Then a word. Then two words. Likewise, if we sharpen their skills, they will move towards betterment.

Participant 4 said, *"If resources are limited, I use low-cost activities. If the class is large, I divide students into groups or arrange debates."* Participant 9 said they address weaker students by giving them questions slightly below their challenge level first, then gradually increasing complexity so they build confidence before engaging with deeper thinking tasks.

Subtheme 2.4: Partial Implementation of HOTS

Despite their efforts, most participants said their teaching fell short of full HOTS integration. Although they were able to initiate analytical discussions, they often struggled to sustain them. Furthermore, both classroom and home environments limited the extent to which students could develop these skills. They could initiate analytical discussions but could not sustain them, and classroom and home environments limited how deeply students could develop these skills.

Participant 7 said, *"About 50% of the class gives a good response. In school, the students do the practice. But at home, the students are completely blank. The reason is that the parents don't show interest in their children's future."*

Participant 6 said HOTS activities *"can achieve their full effectiveness only when they are properly implemented and when adequate facilities, resources, and support are available."* Participant 6 said HOTS activities can achieve their full effectiveness only when they are properly implemented and when adequate facilities, resources, and support are available.

Participant 1 noted that the examination system pulled teaching *"away from reasoning and directed it toward test-drill preparation"* because students quickly learned that success depended on remembering sentences, rather than thinking creatively away from reasoning and directed toward test drill preparation" because students quickly learned that results depended on remembering sentences, not on thinking creatively.

Theme 3: Barriers and Enablers of HOTS Implementation

The third theme deals with the contextual factors that are the basis of the actual practice of HOTS in primary classrooms in Sialkot. Implementation was hindered by institutional (recall-based exam systems, syllabus pressure, teacher overload), sociocultural (parental indifference, community expectations that prioritize basic literacy over thinking), and structural (crowded classrooms, lack of materials, sharing resources). For teachers to change this, they say, they need hands-on training, time to plan lessons, support with administrative tasks, and access to activity-based materials.

Participant 4 said that:

These are the basic things that are used in any study if the environment of the class is not good. If we have many students in one class. The class is very big, and the students are very small. There is a shortage of furniture and resources, but the students don't take interest. If the students get a proper environment and guidelines, then only the students show their interest.

Subtheme 3.1: Inadequate Professional Development

All those who received HOTS training found it useful but short, generic, and not sustained. Without ongoing support, teachers went back to their old ways just weeks after training.

Participant 2 noted, *"When we apply activity-based learning given in our training, the results are wonderful; children do things we never thought they could do. But there is no time."* Participant 8 mentioned that their exposure to HOTS frameworks came through online training

modules, and they had not yet deeply connected this training to systematic daily practice.

Subtheme 3.2: Curriculum and Examination Pressures

The examination system was identified as one of the most powerful structural barriers to HOTS. Because tests reward recall, both teachers and students were drawn back toward memorization-based teaching even when teachers personally valued higher-order approaches.

Participant 1 stated,

The existing examination scheme severely limits my ability to focus on higher-order thinking. Because our school's term exams are almost completely on whether a child can replicate facts from the textbook, my daily coaching is dragged toward test drill preparation.

Participant 6 noted that although HOTS activities help cover curriculum content, *"their full effectiveness depends on proper implementation and availability of necessary educational resources."* Participant 6 had a partial counterview as: *"Honestly, I think that in a government school, just to provide children with knowledge of things or make them remember things is enough"*.

Subtheme 3.3: Classroom and Resource Constraints

The physical and logistical nature of the primary classroom posed challenges to consistently engaging in HOTS activities. Big classes, responsibility for teaching several grades, no furniture, materials not available, and time pressure meant a limited space for analytical and creative learning.

Participant 3 stated that teaching materials, class size, time management, and administrative issues are important in promoting HOTS. To promote HOTS successfully, all these aspects are to be taken care of by the teachers. *"We have so many students,"* participants 7 and 8 explained. *"We have two or three classes. We must teach them honestly in a simple way so that they become capable of reading and writing."*

Participant 9 stated:

Resources are very important. Students cannot do research properly if they do not have apps, internet, and books. The size of the class is important as well – group work is most effective with 30 to 35 students, but it can be difficult with larger classes.

Subtheme 3.4: Family and Community Support

Another interesting finding was the active neutralization of gains made in school by the home environment. Most of the participants said they did not know and did not care what their children had learned analytically. This suggests that the HOTS practice did not translate outside the class.

Participants 7 and 8 said that the students in school do practice HOTS, but at home the students are blank as the parents do not show interest in their children's future. Participant 6 also noted that about 50% of the class is receptive to HOTS activities in school, but there is no follow-up at home because of the "lack of awareness" of parents.

Participant 7 added, *"If teachers are supported with facilities and resources, they will be better able to apply HOTS strategies."* This emphasizes that teacher readiness and institutional conditions were preconditions before substantive community engagement.

Subtheme 3.5: Institutional Support

Despite the many barriers mentioned, participants also provided clear practical suggestions of what would help them to implement HOTS more effectively. The focus was on workload reduction, access to materials, support for lesson planning, and permission to use technology.

Participant 6 suggested that *"Teachers should prepare a weekly plan for the lesson. The problem is that they are so burdened that they don't get time for it. HOTS do not need expensive tools,"* Participant 3 said. *"These skills are developed through simple classroom activities. Storytelling to children creates a situation for discussion, asking questions, and for the development of skills of analysis, evaluation, and creation"*.

Discussion

The present study results found that primary school teachers of Sialkot have a positive attitude towards HOTS and are aware of the significance of HOTS for the cognitive development of their students. This finding supports previous research conducted by Wijnen et al. (2021), who reported that teachers who have a positive attitude towards HOTS are more likely to promote critical thinking activities in their classrooms. However, the data indicate that there is an ongoing gap between teachers' conceptual understanding of HOTS and its implementation in the classroom (Brookhart, 2010; Musa & Yamat, 2021; Seman et al., 2017). But the gap is not due to teachers' unwillingness, but to structural conditions including examination pressures, teacher overload, and insufficient follow-up to training and inadequate infrastructure. These results directly support the argument that implementation is often challenged by insufficient professional development. Participants also highlighted institutional barriers such as limited professional support and inadequate educational resources. Similar organizational challenges were reported by Batoool et al. (2026) in teacher education institutions.

The present study contributes to the existing literature by providing localized evidence from primary schools of Sialkot on the active influence of the culture of examination with its preference for recall-based assessment that pulls teachers away from HOTS despite training. This finding is relevant to the theoretical basis of Bloom's Taxonomy in the study; the majority of teachers were able to recognize or explain the higher cognitive levels, analysis, evaluation and creation, but few had the time, resources or institutional support to create lessons that systematically met these levels. The short, one-off design of the HOTS training was particularly important; participants consistently reported that skills and strategies learned in the training had faded within months, due to lack of follow-up support and pressure to return to routines (Seman et al., 2017). It is worth noting the finding on parental disengagement as a barrier. The finding shows that even if teachers are successful in stimulating HOTS in the classroom, the home environment can erase the gains if community awareness is not high.

Conclusion

This study's results show that Sialkot primary school teachers are well aware of HOTS as an important educational goal, and they are sincerely committed to develop analytical, creative, and problem-solving skills in their students. The teachers had understood the meaning of HOTS in a significant way, had referred to Bloom's Taxonomy as a framework, and had chalked out practical low-cost strategies like storytelling, open-ended questions, group discussion, and real-life connections to foster HOTS in their classrooms. However, the study also reveals that this commitment is severely constrained by a combination of structural, institutional, and socio-cultural barriers such as overcrowded classrooms, heavy workload, examination systems that promote rote learning, short and unsustainable professional training, scarce materials, and poor parental involvement in learning at home. The results reveal that HOTS cannot be practiced in primary education in Sialkot without the simultaneous reform in the quality of teacher training, assessment systems, class size, administrative expectations and community awareness.

Recommendations

The following are some recommendations based on the study findings.

- Professional development in HOTS should be a continuous process in schools and not a one-off workshop, with follow-up in the classroom, peer observation, mentoring and structured

reflection sessions so that the skills are retained after the training is over.

- Review the examination and assessment system at primary level to include open-ended questions, project work and problem-solving tasks that reward analysis, evaluation and creation, rather than recall-based answers.
- Release primary school teachers from administrative burdens and additional duties so they can allocate weekly time for lesson planning, including the design of HOTS-aligned activities suitable to their subject and grade level.
- Provide schools with low-cost HOTS activity kits for specific subjects (including charts, manipulatives, story cards, debate prompts and grouped task sheets) so that teachers can lead analytical activities without the need for technology or expensive resources.
- Tackle the issue of overcrowded classrooms and ensure workable class sizes, adequate furniture and space are available for group work, discussions and activity-based HOTS teaching to be feasible in practice.
- Start parent and community awareness programs that inform families about the importance of HOTS, demonstrate how analytical thinking can be implemented at home, and encourage parents to ask children open-ended questions and engage with their learning beyond the school setting.

Conflict of Interest

The authors showed no conflict of interest.

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