ENHANCING PROBLEM-SOLVING SKILLS IN PRIMARY SCHOOL STUDENTS THROUGH INQUIRY-BASED LEARNING

Tursunova Marjona Ismatillayevna
Shahrisabz State Pedagogical Institute

Abstract: *This article examines how inquiry-based learning (IBL) can be used to develop problem-solving skills in primary school students. In an age where knowledge is easily accessible, it is crucial for learners to think critically, ask meaningful questions, and explore solutions independently. Inquiry-based learning empowers students to take an active role in their learning by investigating real-world problems, conducting simple research, and engaging in reflective thinking. The paper highlights key stages of IBL, the teacher's facilitative role, and examples of classroom application. Results from educational research indicate that IBL significantly enhances learners' problem-solving abilities, motivation, and confidence.*

Keywords: *Problem-solving, inquiry-based learning, primary education, critical thinking, student inquiry, independent learning, classroom engagement.*

In today's rapidly changing world, the ability to solve problems creatively and independently has become a core competency for success—not only in education but also in life. Primary education plays a crucial role in shaping these foundational thinking skills. While traditional instruction often emphasizes memorization and following fixed procedures, modern educational approaches focus on helping students learn *how* to think, not just *what* to think.

Inquiry-Based Learning (IBL) is one such approach that places students at the center of the learning process. Rather than receiving answers from the teacher, students are encouraged to ask their own questions, explore ideas, investigate possible solutions, and reflect on outcomes. This process mirrors how scientists, researchers, and innovators approach real-world challenges.

IBL is particularly effective in primary education because it builds on children's natural curiosity and desire to explore the world around them. Whether through science experiments, project-based activities, or guided discovery, inquiry helps young learners develop persistence, reasoning, and problem-solving strategies from an early age.

This article aims to explore how IBL fosters problem-solving skills in primary students, what practical strategies can be implemented in the classroom, and how teachers can support learners in becoming independent and thoughtful problem solvers.

Problem-solving is a cognitive process that enables individuals to identify challenges, evaluate options, and implement solutions effectively. For primary school students, developing this skill is vital not only for academic success but also for building independence, confidence, and adaptability. Traditional teaching methods often provide students with predetermined problems and guided answers, limiting opportunities for

exploration and independent thinking. In contrast, inquiry-based learning (IBL) allows students to become active participants in their learning process by encouraging them to ask questions, investigate ideas, and draw conclusions based on evidence.

Inquiry-based learning is rooted in constructivist theory, which suggests that learners construct knowledge through experience and reflection. It encourages students to engage in meaningful, authentic tasks that mirror real-life problem-solving situations. The inquiry cycle typically involves several stages: posing questions, planning investigations, gathering information, analyzing data, and communicating findings. These stages can be adapted to suit different age groups and subject areas, making IBL a versatile tool for primary education.

One of the key benefits of IBL is that it fosters critical and creative thinking. Rather than memorizing isolated facts, students must evaluate sources, make decisions, and justify their reasoning. For example, in a science lesson about environmental pollution, students might be asked to investigate the causes of litter in their schoolyard and propose solutions. This task not only integrates science content but also promotes observation, collaboration, and action planning—essential components of problem-solving.

Another important feature of inquiry-based learning is its student-centered nature. In traditional classrooms, the teacher is often the sole source of knowledge, while students passively absorb information. In an inquiry-based classroom, however, the teacher acts as a facilitator, guiding students through their inquiries and supporting them as they take ownership of their learning. This shift in roles empowers students to think independently and engage with content more deeply.

Effective problem-solving also requires perseverance and resilience—traits that are nurtured through IBL. As students work through complex tasks, they encounter obstacles, make mistakes, and revise their approaches. These experiences teach them that failure is a natural part of learning and encourage a growth mindset. Teachers can support this process by creating a safe classroom environment where students feel comfortable taking risks and sharing ideas.

Collaboration is another critical aspect of IBL that supports problem-solving development. Group work allows students to pool their knowledge, debate solutions, and build on each other's ideas. This collaborative process mirrors real-world problem-solving, where teamwork and communication are essential. When students engage in discussions with their peers, they learn to articulate their thoughts clearly, listen actively, and consider multiple perspectives.

In addition to fostering interpersonal skills, inquiry-based learning helps students make connections between different subjects. Cross-curricular inquiries enable students to apply knowledge from various disciplines to solve a single problem. For instance, a project about designing a school garden can incorporate science (plant biology), mathematics (measuring plots), art (designing layouts), and language (writing reports). These interdisciplinary tasks make learning more engaging and show students the relevance of their education to everyday life.

Assessment in an inquiry-based classroom also differs from traditional methods. Rather than focusing solely on right or wrong answers, assessment in IBL emphasizes the thinking process, creativity, and collaboration. Teachers may use rubrics, portfolios, self-assessments, and peer evaluations to gain a holistic view of student learning. Reflective practices such as learning journals and group discussions also help students internalize the problem-solving strategies they have used.

Technology can enhance inquiry-based learning by providing access to information, facilitating collaboration, and enabling students to present their findings in creative ways. Digital tools such as tablets, educational apps, and online research platforms allow students to investigate topics in depth. Teachers can also use interactive platforms like Padlet or Google Workspace to support collaborative inquiry projects, where students can co-create documents, share resources, and comment on each other's work.

Despite its benefits, implementing IBL in primary classrooms comes with challenges. Teachers need adequate training to design meaningful inquiries, manage open-ended tasks, and balance curriculum requirements with student-led learning. Time constraints, large class sizes, and limited resources can also hinder effective implementation. However, these challenges can be addressed through professional development, collaborative planning, and school-wide support for inquiry-based pedagogy.

Moreover, inquiry-based learning aligns well with the natural curiosity of young learners. Children are innately inquisitive and enjoy exploring the world around them. By tapping into this curiosity, teachers can motivate students to engage deeply with their learning. Encouraging students to ask "why," "how," and "what if" questions nurtures their investigative spirit and drives meaningful exploration.

Cultural and linguistic diversity in the classroom can be an asset in inquiry-based learning. When students from different backgrounds work together, they bring unique perspectives and ideas to the table. This diversity enriches the inquiry process and promotes inclusive problem-solving. Teachers should encourage students to draw on their personal experiences and cultural knowledge when approaching problems, fostering a sense of belonging and validation.

The role of questioning in IBL cannot be overstated. Good inquiry begins with good questions. Teachers can model effective questioning techniques and teach students how to formulate open-ended, thought-provoking questions. "How might we reduce food waste in our school?" is a much richer starting point than "What is food waste?" Encouraging deep questioning helps students frame problems in meaningful ways and leads to more sustained investigations.

Parents and the broader community can also be involved in inquiry-based learning. Inviting guest speakers, organizing field trips, or conducting community-based projects allows students to see the relevance of their learning and connect classroom activities to real-world issues. For example, students might investigate water usage in their homes and propose conservation strategies. These experiences not only build problem-solving skills but also promote civic responsibility.

In summary, inquiry-based learning provides a powerful framework for developing problem-solving skills in primary school students. It encourages curiosity, independence, and resilience, while promoting collaboration, communication, and creativity. By placing students at the center of their learning and supporting them through real-world investigations, teachers can prepare young learners to become thoughtful, capable, and confident problem solvers. Integrating inquiry into the classroom requires intentional planning, supportive leadership, and a commitment to student-centered teaching—but the benefits for learners are well worth the effort.

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