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Rethinking Teacher Education: Inquiry Based Learning for Effective Teaching and Learning.

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A B S T R A C T:

Inquiry-Based Learning (IBL) has emerged as a powerful pedagogical approach that positions students at the center of the learning process by encouraging them to explore real-world problems, pose questions, and construct knowledge through investigation and collaboration. This paper examines the integration of IBL into teacher education, emphasizing its potential to equip future educators with critical thinking, problem-solving, creativity, and collaborative skills essential for effective teaching in the 21st century. Grounded in the constructivist theories of Jean Piaget, Lev Vygotsky, and John Dewey, IBL fosters deep, meaningful learning through active engagement and social interaction. The paper outlines the five key phases of the IBL process which are Orientation, Conceptualization, Investigation, Discussion, and Conclusion and highlights the evolving role of teachers as facilitators of learning. By adopting IBL, teacher education programs can develop reflective, innovative, and student-centered educators who are capable of nurturing inquiry and lifelong learning in diverse classroom contexts. The study concludes with practical recommendations for embedding IBL in teacher training and enhancing its implementation across educational settings. To make the most of this innovative student-centered approach, it is essential that IBL be integrated into Teacher Training Curricula and school curricula for every level and discipline to ensure an interactive learning journey that calls for student questioning, deep learning, and engaged, motivated learners.

Keywords: Inquiry based learning, Inquiry, Teacher education, Constructivist theory, Student centered learning

Introduction

The quality of a nation's human capital largely depends on the quality of its teachers because teachers play a vital role in the improvement of the quality of education and no education system can rise above the quality of its teachers. Teacher education is a programme that is related to the development of teacher proficiency and competence that would enable and empower the teacher to meet the requirements of the profession and face the challenges therein (Ugwoke et ál, 2012 in Usman 2020).

In recent years, the landscape of education has undergone significant transformation, influenced by advancements in technology, a deeper understanding of cognitive development, and the evolving needs of teachers and students in a rapidly changing society. Education systems around the world, including Nigeria, are being called upon to rethink and restructure teacher education in order to foster active learning, critical thinking, creativity, and collaboration. For Nigerian teachers at all levels to be appropriately repositioned to play a pivotal role in this new educational advancement, the following measures are advocated as noted by (Asuru 2013 in Asuru 2019):

- Improvement in the service condition of teachers
- Improvement in the pre-service training of teachers
- Provision of in-service training of teachers; and
- Professionalization of teaching , particularly at the primary and secondary school levels

Frequent calls have been made for increased student-centered learning in schools and higher education institutions. Student-centered learning is a learning strategy employed in the classroom that leans heavily on relationships, collaboration and personalization. The main goal of student centered learning is to build individuals who are motivated to lead and be successful in their learning. Traditional teaching methodologies, which often involve direct instruction and rote memorization, are increasingly being replaced by more dynamic, student-centered approaches. At the forefront of this educational reform is Inquiry-Based Learning (IBL) a pedagogical approach that emphasizes student-centered learning through questioning, investigation, and problem-solving. And it has gained prominence as a 21st century teaching methodology. IBL can be implemented at different levels (Duran & Dökme, 2016). Inquiry-based learning offers pre-service teachers (PST) the opportunity to develop skills appropriate to the teaching profession (Niamh, 2024)

Inquiry-Based Learning challenges students to engage actively in their learning process, promoting critical thinking, problem-solving, and collaboration. As education continues to evolve, it is vital that teacher education programs embrace IBL to equip future educators with the necessary skills to foster these competencies in students.

This paper explores the importance of IBL in teacher education programs, highlighting its theoretical foundations, key phases, and the vital role teachers play in facilitating inquiry. It looked into the idea of embracing IBL in teacher training program and how essential it is to prepare teachers to

adopt this innovative approach for the 21st century classroom in order to produce educators who can inspire and prepare students for lifelong learning in an increasingly complex and dynamic world.

Theoretical Foundations of Inquiry-Based Learning

Inquiry-based learning (IBL) is deeply rooted in the constructivist theories of education, which posit that knowledge is actively constructed by learners rather than passively received from external sources (Ajda, 2022). IBL encourages students to take ownership of their learning through exploration, questioning, and investigation, rather than passively absorbing information. The theoretical foundation of IBL is deeply rooted in the ideas of key educational theorists, particularly Jean Piaget, Lev Vygotsky, and John Dewey.

Constructivism and Learning

Constructivism is a philosophy of learning founded on the premise that, by reflecting on our experiences, we construct our own understanding of the world we live in.

Tsulaia (2023) describes Constructivism as a learning theory with the premise that individuals construct new knowledge based on prior knowledge and experiences. This process of knowledge acquisition contradicts the conventional practice of mere seizing information from others.

Constructivism, as championed by Jean Piaget is known as the Cognitive constructivism which is rooted in his theory of cognitive development (Piaget, 1936) and it represents an individualistic perspective. Contrary to the behavioral learning theory which asserts that learning is achieved by behavioral reinforcements and only observable performance is possible to measure, cognitive constructivism refers to learning as an active process of knowledge building by learners, where measuring concerns cognitive abilities. Piaget (1936) described how children construct their knowledge about the world. He identified four stages in the cognitive development of a person from birth to adulthood: sensorimotor, pre-operational, concrete operational and formal operational. According to him, cognitive structures go through two major processes: organization and adaptation. Adaptation is of two kinds: assimilation and accommodation. Piaget's theory of cognitive development suggests that knowledge is constructed through assimilation (integrating new information into existing cognitive structures) and accommodation (modifying cognitive structures in response to new experiences).

Lev Vygotsky's concept of constructivism is the, social constructivism, which is based on his sociocultural theory of cognitive development (Vygotsky, 1978). A sociocultural approach to cognitive development implies that the cognitive development of an individual is largely determined by the social and cultural context he is in. Vygotsky (1978), states that "Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (interpsychological), and then inside the child (intrapsychological)". He later extends that children learn from social interactions with family and community members. McLeod (2020) analyzes two major points in Vygotsky's theory of cognitive development. The first point deals with the More Knowledgeable Other. It refers to someone who is more knowledgeable, skillful, or experienced than the learner. It can be a teacher, a family member, an older person or a peer. The learner gains knowledge from social interaction with him. The second point is related to the Zone of Proximal Development. Vygotsky (1978) defines the zone of proximal development as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" Vygotsky's concept of the Zone of Proximal Development (ZPD) further enhances IBL, emphasizing the importance of social interaction in learning. In IBL, students work collaboratively with peers and teachers, engaging in discussions and sharing insights, which enhances their cognitive development. Through such interactions, students move beyond their current understanding, guided by the support of more knowledgeable others.

John Dewey, one of the most influential figures in the development of educational theory, has immensely contributed to the evolvement of constructivism. He introduced the idea of learning by doing. Dewey (1938), in his well-known work. "Experience and Education" discussed the importance of experience in the learning process, which directly relates to the principles of Inquiry-Based Learning.

According to John Dewey's theory of learning, students learn best through hands-on learning. His theory promoted experiential learning. For Dewey, learning was a process of intellectual growth based on personal experience. Dewey's theory also highlights the importance of the social aspect of learning. In an IBL environment, collaboration and dialogue are central, fostering critical thinking and problem-solving among students. Through inquiry, students develop essential skills such as communication, creativity, and critical thinking, which are vital for success in the 21st century.

His model of the classroom was quite revolutionary offering more freedom to students to act, regulated by the teacher. Dewey advocated embodying complex tasks in learning that would promote independent inquiry as well as cooperative activities. In Dewey's views on education, the teacher's function is to create a real-world context for students and guide them to "pursue their interests and construct their own paths for acquiring and applying knowledge" (Sikandar, 2016). John Dewey's proposals paved the way for problem-based, project-based and inquiry-based methods of learning.

In summary, the theoretical foundations of IBL are grounded in constructivist theories of education, emphasizing active learning, social interaction, and critical thinking. The historical development of IBL reflects the contributions of educational theorists such as John Dewey, Jean Piaget, and Lev Vygotsky, whose ideas continue to influence contemporary educational practices.

Inquiry as a Pedagogical Approach

Inquiry is defined as a learning process of formulating questions and hypotheses, developing procedures to answer questions, gathering data by doing experiments or making observations, reaching a conclusion and communicating this conclusion (NRC, 2011 in Yıldız Feyzioğlu & Demirci, 2021). Güneş (2014) defines inquiry as a means of creating changes in the mental structure and mental skills of individuals and enabling students to develop their thinking and decision-making skills, understanding and using information, and not just directly transferring information. Based on these definitions, it can be stated that the competency of inquiry is an important skill that student's at all educational levels should acquire. Dewey argued

that education should not merely prepare students for future experiences but should actively engage them in the learning process. He believed that inquiry a process of problem-solving is at the heart of meaningful learning. Dewey's emphasis on reflection and authentic tasks directly aligns with IBL, where students investigate real-world problems and reflect on their findings (Barron & Darling-Hammond, 2010). IBL, inspired by Dewey's educational philosophy, encourages students to engage in authentic tasks that require them to question, explore, investigate, and reflect. Inquiry provides a learning environment in which the students can decide independently what is to be learned according to their viewpoints, and in which students can encounter different outcomes at the end of the study (Levy et al, 2009). The process is iterative, moving through cycles of questioning, investigation, collaboration, and reflection, much like Dewey's experiential learning cycle. IBL moves beyond the passive acquisition of knowledge, allowing students to actively construct meaning from their experiences.

What is Inquiry-Based Learning?

Inquiry-Based Learning (IBL) is an unorthodox method of learning which incorporates active participation of students by involving them in posing questions, making investigations and bringing real life experiences to them.

Inquiry-Based Learning (IBL) is a pedagogical approach that centers on the process of asking questions, investigating solutions, and constructing knowledge through exploration and reflection. The inquiry process adopts a scientific methodology, beginning with the formulation of questions about scientific phenomena and seeking answers to these queries. This approach enables learners to develop various skills, including scientific skills like critical thinking and problem-solving, as well as communication skills encompassing collaboration and idea sharing (Qablan et al, 2024).

Inquiry-based learning is a process in which learners construct knowledge by discovering new casual relations, formulating hypotheses and testing them through experiments, and making observations (Pedaste et al. 2015).

Rather than simply receiving information from teachers, students in IBL classrooms engage in active, hands-on learning experiences that encourage them to ask questions, conduct research, and seek solutions to real-world problems. During this process, students use problem solving skills and critical thinking to draw conclusions.

The core of IBL lies in its emphasis on the learner's curiosity and intrinsic motivation. Curiosity drives learners to search for what they don't know. IBL embraces curiosity, as it takes into consideration students' questions. When students are asked to find answers to their posed inquiries, they become engaged in the learning process and motivated to reach conclusions (Gholam, 2019).

The basis of this method is to nurture the thought process of the students through queries and help them in "how to think" instead of "what to think". By guiding students to ask their own questions and solve problems independently or collaboratively, IBL encourages deep learning and fosters critical thinking.

Critical thinking is the ability to ask and/or answer insightful questions in a most productive way in order to reach on a comprehensive understanding (Hilsdon, 2010 in Wale & Bishaw, 2020). It consists of interpretation, analysis, evaluation, synthesize explanation, inference, and self-regulation. Empowering critical thinking skills among students in higher education especially in academic writing through the integration of critical thinking into the teaching learning process is essential in order to develop students' problem solving, decision making and communication skills (Adege, 2016). This approach helps students connect new knowledge to prior experiences and apply what they have learned in meaningful, authentic contexts. Inquiry-based learning develops students' critical thinking skills because it helps students to develop interpreting, analyzing, evaluating, inferring, explaining, and self-regulation skills which are the core critical thinking skills (Facione, 2015).

Key Phases of Inquiry-Based Learning

There are five main phases of IBL that guide students through the inquiry process: Orientation, Conceptualization, Investigation, Discussion, and Conclusion. These phases offer a structured approach that supports students in developing their inquiry skills.

Orientation Phase

The Orientation Phase sets the stage for inquiry. During this phase, students are introduced to the problem or question they will explore. The focus is on developing curiosity and encouraging students to generate their own questions. Teachers act as facilitators, guiding students to identify areas of interest and formulating initial hypotheses.

This phase should take about 5 minutes of the class session. In this phase, questions are asked around observations that students would have made in their daily activities that relates to the topic of the day. The goal of this phase is to adequately capture the interest of the students and use their curiosity as a tool to guide them into a state of active learning.

The key to this phase is creative questioning. Asking questions that will cause the students to think.

Conceptualization Phase

In the Conceptualization Phase, students begin to conceptualize the problem by drawing on prior knowledge and connecting it with the new inquiry. They develop frameworks for understanding the topic and begin formulating more specific research questions. Teachers' help students refine these questions and provide guidance on potential methodologies for investigation.

The conceptualization phase is the second phase. It takes the next 5-7 minutes of the class session. At this point of the learning process, the students are asked questions with the aim of guiding them into thinking and formulating their own answers.

The difference between the orientation and conceptualization phase is that the questions asked in the conceptualization phase are questions that spur critical thinking and promote problem solving skills. The questions asked in this phase can be linked to those asked in the orientation phase, however, the students are expected to write down the answers they came up with.

Investigation Phase

The Investigation Phase is the heart of IBL. During this phase, students engage in research, experimentation, or data collection to explore their questions. This phase encourages hands-on learning, critical thinking, and problem-solving as students seek out information and test their hypotheses. Teachers support students by providing resources, tools, and guidance without dictating the learning process.

The investigation phase begins immediately after the conceptualization phase. It takes the next 20-25 minutes of the class session. At this point of the learning process, students are presented with activities/experiments aimed at guiding them into an investigative spree, where they will carry out research, make observations and discover answers for themselves.

The investigation phase utilizes the initial curiosity which was harnessed and guided in the orientation and conceptualization phase and then seeks to create new information. This activity can be carried out using images, videos, easy to get materials at home, the laboratory, digital laboratories and other digital simulations. The goal is that students make discoveries and learn while using these resources.

Discussion Phase

The Discussion Phase involves sharing findings with peers, engaging in collaborative analysis, and interpreting data.

After the investigation phase comes the discussion phase. It usually takes about 10-15 minutes of the class session depending on the length of the period.

Of all the phases of the inquiry based learning, discussion phase is one of the most engaging for the students. This is because, at this phase students share their discovery from the orientation, conceptualization and investigation phase as well as listening to the discoveries of other students.

The most important thing for the teacher to do in any discussion is to listen. This phase promotes dialogue and peer review, where students critique each other's work, refine their conclusions, and offer new insights. It helps students develop communication skills and learn to defend their ideas through reasoned argument. The goal is to hear what others have to say and learn from it, even as you share your own opinions.

Conclusion Phase

In the Conclusion Phase, students synthesize their findings and reflect on the inquiry process. They evaluate the results of their investigation, identify any limitations, and suggest areas for further exploration. This phase also encourages students to connect their findings to broader real-world issues, reinforcing the relevance of their inquiry.

Through these phases, students engage as scientists by planning investigations, critically analyzing data, discussing findings with peers, and developing evidence-based explanations to address the initial questions posed (Pedaste et al, 2015)

The Role of Teachers in Inquiry-Based Learning

The instructions of IBL are fundamentally based on the paradigm of the constructivist views of learning in which learners develop their ideas and concept, under the supervision and guidance of the teacher (Bako, 2025). Well-designed IBL places the teacher as a guide or facilitator and will forefront student voice, initiative, innovation, debate and creativity (Wang 2021).

In an IBL environment, the role of the teacher shifts from that of a traditional knowledge provider to a facilitator of learning. The teachers acts as facilitators to deliver lesson by triggering the curiosity of students. As a facilitator of learning, this learning approach focuses on helping students get from the curiosity stage into critical thinking and deeper levels of understanding. They guide students through an investigation process, encouraging them to ask questions through structured inquiry activities. Instead of delivering lectures or giving direct answers, teachers create opportunities for students to engage in meaningful inquiry. They ask guiding questions, offer resources, encourage collaboration, and provide feedback, all while allowing students to take ownership of their learning process.

This shift requires teachers to be flexible, adaptive, and responsive to the needs of their students. Teachers must also be skilled in creating learning environments that support inquiry, whether through group work, hands-on activities, or the use of technology to access information and connect with experts. Moreover, teachers must be comfortable with ambiguity, as inquiry-based classrooms often involve open-ended questions and problems that do not have a single correct answer.

For Teachers to effectively play this role, they must be skilled in scaffolding, questioning, and facilitating feedback/reflective practices to ensure students can successfully navigate the inquiry process (Pedaste et al., 2015).

- **Scaffolding:** Scaffolding, a modern widely employed teaching approach which is very useful in IBL has its origin in Vygotsky's model of providing guidance to learners to support their construction of higher levels of understanding.

  Jan et al (2025), Scaffolding plays a crucial role in aiding learners by guiding them through incremental steps to master new skills and strategy, ultimately fostering inquiry and independence. This scaffolding process entails the systematic arrangement of guided activities relevant to both teachers and providing the right level of support to students as they navigate the inquiry process. The teachers need to guide, scaffold each student based on their individual zone of proximal development and facilitate them throughout these learning activities (Anis et al, 2021). This support is gradually removed as students become more independent.
- **Questioning:** Encouraging students to ask meaningful questions that stimulate further investigation and critical thinking. DeWitt (2012) mentioned in his TED Talk, that students have a better chance of understanding information when it is more fun and engaging, and the language is put into simpler form. The IBL Approach with its student centered learning environment, encourages deeper engagement, motivation and understanding of the subject matter ultimately leading to more positive perception and attitude towards critical thinking skills (Ay & Daghan, 2023).

  Teachers' role is crucial in IBL since they need to promote the students' exploration, listen to students, scaffold their ideas and guide the students to make conclusion from their explorations (Cigdemoglu & Köseoğlu, 2019).

- **Feedback and Reflection:** studies shows that learning is more effective when students are guided in their exploration: this is where feedback plays a fundamental role (Mandina 2024). Offering constructive feedback to help students refine their inquiries and reflect on their learning experiences. This is crucial to provide adequate support during inquiry-based learning.
  In research on teacher education, it is argued that active learning influences teachers' professional competencies and teachers and teacher education are considered key promoters of active learning (Niemi, Nevgi, & Aksit, 2016). As teachers are responsible for student active learning, researchers have argued that teachers must themselves experience active learning during their education (Borte & Lillejord, 2024).

Why Teacher Education Needs to Embrace Inquiry-Based Learning

The success of the inquiry based approaches tends to be highly dependent on the knowledge and skills of those implementing them (Barron and Darling-Harmond, 2010).
Traditional teaching methods fail to equip students with the critical thinking skills necessary for today's world (Kuhlthau, Maniotes, & Caspari, 2015). Teacher education programs must adapt to the changing demands of the 21st-century classroom by embracing IBL. Traditional teaching methods, which often prioritize rote memorization and passive learning, fail to equip students with the critical thinking and problem-solving skills necessary for success in today's world. By adopting IBL, teacher education can better prepare future educators to:
1. Promote Active Learning: IBL shifts the focus from teacher-centered to student-centered learning. Teacher education programs must equip teachers with the skills to foster a classroom environment where students are encouraged to explore, question, and reflect on their learning thereby improving their academic achievement. Another positive attribute to inquiry based learning is that students' academic achievement regarding content knowledge increases (Wheatley, 2018).
2. Develop Critical Thinking Skills: IBL promotes deeper cognitive engagement by encouraging students to analyze, synthesize, and evaluate information. Most teachers need a more transparent and adequate understanding of critical thinking or the requirements to develop students' critical thinking skills and competencies (Arifin et al. 2025). Teachers trained in IBL can create learning experiences that help students develop essential critical thinking skills that are vital for navigating an increasingly complex world. One potential of inquiry-based learning is that its implementation has the ability to increase student's critical thinking skills (Wheatley, 2018)
3. Develop Creativity: Developing creativity in the classroom applies the most current theory and research on creativity to support the design of teaching and learning (Todd et al. 2021). IBL helps to develop creative and problem solving which is at the heart of learning and application as students prepare for innovative-driven careers.
4. Support Collaboration: IBL emphasizes collaboration among students. Teachers must be trained to foster collaborative learning environments where students work together to solve problems, share insights, and develop social and communication skills.
5. Encourage Lifelong Learning: IBL encourages students to take ownership of their learning, fostering a mindset of inquiry that extends beyond the classroom. Teachers trained in IBL are better prepared to instill a passion for lifelong learning in their students.

Key Principles of Effective Inquiry-Based Teaching and Learning

To effectively implement Inquiry-Based Learning in the classroom, teachers need to understand and apply several key principles:
1. Curiosity-Driven Learning: IBL thrives when students' natural curiosity is nurtured. Teachers must create environments that stimulate students' interest, allowing them to ask meaningful questions and investigate topics of personal relevance.
2. Collaboration and Communication: Learning through inquiry is often a social process. Encouraging collaboration between students through group projects, discussions, or peer feedback helps them learn from one another and develop essential communication skills.
3. Real-World Relevance: Inquiry-Based Learning is most effective when students explore real-world problems or situations. Connecting academic content to tangible, real-world issues helps students see the relevance of what they are learning and motivates them to engage more deeply.
4. Reflection and Metacognition: Within inquiry-based learning, students are analyzing results and coming up with their own conclusions in order to answer a research question (Bell et al, 2005). Students are encouraged to reflect on their learning process, helping them become more aware of how they think and learn. This metacognitive aspect is essential for developing lifelong learners who are capable of applying knowledge in various contexts.
5. Assessment as Learning: Growing success (2010) in Asuru (2019), describes assessment as learning as the use of task or activity to allow students the opportunity to use assessment to further their own learning. In IBL, assessment is not simply a way to measure student success but a tool for learning itself. Teachers use formative assessments, such as ongoing feedback and self-assessments, to guide students' inquiry and help them refine their thinking.
The key principles of IBL underscore the importance of student-centred learning, active engagement, questioning and exploration, collaboration, scaffolding, and reflective thinking, all of which contribute to the development of deeper and more meaningful learning experiences.

Preparing Teachers for the 21st Century Classroom

Teacher education is foundational to the success of the entire education system. Well-trained teachers are essential for creating effective learning environments and achieving positive student outcomes. As the classroom evolves, so must the preparation of those who teach. Proper training of our teachers at all levels is very important. If the nation will advance educationally and otherwise, the teachers who are at the centre between knowledge and learning in our educational system should be trained and retrained on a continuous basis, in order to meet the societal needs (Usman, 2020). Pre-service Teacher Training: IBL should be introduced into the Initial training programs to develop the foundational knowledge and skills required for 21st century teaching. Ongoing professional development through digital courses, webinars, and virtual communities should be incorporated for In-service Teachers Development.

Incorporating Inquiry-Based Learning into teacher education programs is essential for preparing educators to meet the demands of the modern classroom. Future teachers need to be equipped not only with content knowledge but also with pedagogical strategies that foster creativity, critical thinking, and problem-solving skills. Teacher preparation programs must provide opportunities for preservice teachers to practice inquiry-based methods, reflect on their teaching practices, and develop the skills necessary to support their students' inquiry.

Moreover, teacher education programs should foster a culture of continuous learning and professional development. As new educational tools and methodologies emerge, teachers must be able to adapt and incorporate these innovations into their practice. Providing opportunities for teachers to collaborate with colleagues, share best practices, and engage in professional learning communities can support ongoing growth and improvement. Despite some challenges such as the need for a structured guidance to prevent cognitive overload. Using IBL in education yield satisfactory results therefore stakeholders in education should consider integrating IBL into various educational contexts to enhance critical thinking skills and support the development of independent and analytical learners who are prepared for complex problem solving in the real world (Wan et al, 2024).

Conclusion

Inquiry-Based Learning (IBL) offers a transformative approach to teaching and learning. The type that empowers students to take ownership of their educational journey and develop essential skills such as critical thinking, creativity, and collaboration. For teacher education programs, adopting IBL is not just an option but a necessity in today's educational climate. By aligning with the instructions in constructivist theories and embracing a student-centered approach, future teachers can be prepared to create dynamic, engaging, and reflective classroom environments. The success of IBL depends on well-trained educators who are capable of guiding students through inquiry processes and encouraging them to think deeply and independently. As education continues to evolve, integrating IBL into teacher education ensures that the next generation of teachers will be equipped to meet the diverse and ever-changing needs of their students, fostering a culture of inquiry, innovation, and lifelong learning.

Recommendations

This paper recommends as follows:

1. Integrate IBL into Teacher Training Curricula: Universities and teacher training institutions should embed IBL principles and methodologies into the core of pre-service teacher education programs. This includes coursework, practicum experiences, and assessments that emphasize inquiry and reflection.
2. Provide Continuous Professional Development: In-service teachers should have access to ongoing training on IBL through workshops, webinars, and collaborative learning communities. This will help them refine their practice and stay updated with innovative teaching methods.
3. Use Technology to Support Inquiry: Incorporate digital tools and resources that can facilitate research, virtual simulations, and collaborative platforms for inquiry-based activities.
4. Policy Support and Incentives: Educational policymakers should support the integration of IBL in schools through curriculum reforms and the provision of adequate resources and infrastructure.
5. Conduct Further Research: Institutions should invest in further studies on the impact of IBL on student achievement and teacher effectiveness to continuously refine best practices.

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