Using Inquiry-Based Learning for Developing University Students' Digital Skills

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In recent years, the development of digital skills has been encouraged at all levels of education. For this purpose, innovative pedagogies and approaches aimed at fostering learners' active participation, critical skills, and autonomy have been proposed. In this paper, we focus on the benefits of using the inquiry-based approach (IBL) for developing education students' digital skills. A design-based study was conducted with a group of students ($n = 38$) in the primary education study programme with a view to identifying students' attitudes towards IBL as well as their experiences and challenges encountered in the process. The design-based scenario followed the 5E inquiry-based instructional model (engagement, exploration, explanation, elaboration, and evaluation). Data for this study was gathered through an online survey, a focus group discussion, and through an in-depth analysis of the IBL scenario. The results indicate that students hold positive attitudes towards IBL. The most significant challenge identified was the application of critical thinking skills to locate and evaluate relevant research sources.

Keywords: digital skills, inquiry-based learning, pre-service primary school teachers, critical thinking

https://doi.org/10.26493/978-961-293-467-5.9

Introduction

In the rapidly evolving society of the 21st century, skills such as cooperation, communication, ICT literacy, and social or cultural competencies are increasingly recognized as essential for success. These competencies, along with creativity, critical thinking, and problem-solving abilities, form the foundation of what are commonly referred to as '21st-century skills.' (Geisinger, 2016). As the world becomes more interconnected and reliant on technology, the importance of developing digital skills – particularly the ability to navigate and utilize digital tools effectively – has become critical. Digital literacy is thus no longer seen as optional but rather a fundamental skill set that supports both personal and professional development (Chu et al., 2017).

Klančar, A., Štemberger, T., Prosen, M., & Ličen, S. (Eds.). (2025). *International Perspectives on Effective Teaching and Learning in Digital Education*. University of Primorska Press.

In response to these educational demands, innovative pedagogical approaches have been explored to enhance digital literacy in a meaningful and sustainable way. Inquiry-based learning (IBL), which emphasizes student-driven exploration, active problem-solving, and hands-on engagement with learning materials, has long been recognized as an effective strategy in science education (Bybee et al., 2006). Recently, however, it has gained increasing attention across various disciplines, including digital literacy, due to its potential to cultivate deeper understanding and foster independent learning. By encouraging students to formulate questions, investigate problems, and seek solutions through exploration, IBL not only facilitates the acquisition of technical skills but also enhances cognitive abilities such as critical thinking, creativity, and the capacity to evaluate digital resources. Through this approach, students learn to engage with technology in a reflective and purposeful way, developing competencies that go beyond mere tool proficiency to include ethical considerations, digital communication strategies, and responsible information management.

Given the growing importance of digital literacy and the potential of IBL in fostering meaningful learning experiences, this paper explores the intersection of these educational priorities. Specifically, it examines students' perspectives on the effectiveness of an IBL approach in developing their digital skills. A design-based research framework was adopted to implement and evaluate a structured IBL scenario tailored to pre-service primary school teachers. By analyzing students' attitudes, experiences, and the challenges they encountered, this study aims to provide insights into the role of inquiry-based methods in fostering digital competencies and promoting deeper engagement with digital technologies in educational contexts.

Theoretical Framework

Inquiry-based learning is a pedagogical approach that emphasizes the active engagement of the learners in the learning process thus shifting the focus from traditional teacher-led instruction to a more student-centred model (Pedaste et al., 2015). According to Keselman (2003), IBL encourages students to gather knowledge by following all the stages of scientific research, such as formulating research questions or hypotheses, conducting research and deriving conclusions based on their findings. A significant contribution to understanding IBL was made by Dewey through his advocacy for experiential learning, reflective thinking, and student-centred education (Dimova & Kamarska, 2015). His ideas laid the foundation for IBL by emphasizing active engagement, problem-solving, and learning through experience.

In an IBL task, learners play the role of active researchers, they solve problems, try to find answers to research questions, etc., while the teacher 's role is that of facilitator (Ivanuš Grmek et al., 2009). Another important feature of the IBL approach is that the focus is on the research process itself and not, or to a lesser extent, on the final result or product. In the process, learners also develop different social skills as they all strive towards a common goal. In this way, IBL contributes to knowledge that is more functional or applicable (Rems Arzenšek, 2006) and develops academic thinking skills (e.g. predicting, observing, comparing, analysing, inferring, etc.), intellectual abilities, resourcefulness, critical thinking, problem-solving skills, etc. (Petek, 2012).

IBL is grounded in several educational theories and principles that emphasize active, student-centred learning. The primary theoretical foundation of IBL is the constructivist theory which posits that learners actively construct their own understanding and knowledge of the world through experiences and reflection (Hyslop-Margison & Strobel, 2007). Rather than passively receiving information, students in IBL environments engage with content by exploring, questioning, and problem-solving, thus constructing their own understanding based on previous knowledge and new discoveries. While IBL promotes independence in learning, it often relies on scaffolding, i.e. support or guidance to students as they engage in inquiry, gradually removing that support as they gain confidence and skills. According to Aparicio-Ting et al. (2019, p. 1): 'Effective IBL curricula must provide students with the foundational knowledge, resources and skills required, and, as needed, at each point during the inquiry cycle.' The constructivist learning theory acted as a source for the development of several student-centred approaches which were commonly described as opposed to traditional instruction methods based on the teacher transferring knowledge to passive students (Baeten et al., 2010). Another theoretical framework which is closely linked to IBL is experiential learning (Dewey, 2007; Seaman et al., 2017) according to which students learn best by doing and reflecting on their experiences. In IBL, students actively participate in the learning process by engaging in investigations, experiments, or projects that mimic real-world scenarios.

We can speak of several inquiry-based approaches, which actively engage learners in the process of exploration, questioning, and problem-solving. Project-based learning (Thomas & Mergendoller, 2000; Thomas et al., 1999) involves students working on extended projects aimed at creating presentations or products, which promotes collaboration and critical thinking. Problem-based learning (Barrows, 1996) focuses on solving complex, authentic problems without prior preparation, thus fostering deep understanding, critical thinking and problem-solving skills. Design-based learning (Hmelo et al., 2000) integrates design and engineering practices to design and create prototypes, which encourages creativity and practical application of knowledge in real-world contexts. Challenge-based learning (Johnson & Adams, 2011) centres around addressing real-life challenges, promoting interdisciplinary learning and practical application. These approaches share a common foundation in inquiry, supporting active learning and the development of critical thinking skills.

IBL has been articulated through various models, each proposing distinct but overlapping phases in the learning process. Pedaste et al. (2015) outline a five-phase model, comprising orientation, conceptualization, investigation, conclusion, and discussion, which emphasizes the cyclical and iterative nature of inquiry. Banerjee (2010) identifies a sequence beginning with investigating scientifically oriented questions, followed by prioritizing evidence, formulating explanations, connecting them to scientific knowledge, and finally communicating and justifying the results. Bell et al. (2010) propose a more detailed process, including phases like orientation, hypothesis generation, planning, investigation, analysis, model, conclusion, communication, and prediction which emphasize both the investigative and communicative aspects of learning. Bevevino et al. (1999) take a more simplified approach with exploration, presentation of new content, and application. Similarly, other models (Conole et al., 2010; Çorlu & Çorlu, 2012; Etkina et al., 2010; Steinke & Fitch, 2011) also emphasize cyclical inquiry processes, involving phases such as questioning, investigating, collecting evidence, developing explanations, and engaging in reflective or argumentative practices to deepen understanding and foster critical thinking.

Another framework designed to promote active, inquiry-based learning and deepen students' understanding through a structured process of exploration and reflection is the 'BSCS 5E Instructional Model'. The model, developed by the Biological Sciences Curriculum Study is widely used in science education but is also applicable to various other disciplines.[1] The essence of the 5E model lies in its five phases, which are intended to guide students through the process of learning by engaging them with concepts, exploring them through investigation, and developing deeper understanding through application and reflection. Each phase builds on the previous one, helping to scaffold learning effectively. The five phases of the BSCS 5E Instructional

[1] https://bscs.org/reports/the-bscs-5e-instructional-model-origins-and-effectiveness/.

Model are Engagement, Exploration, Explanation, Elaboration, and Evaluation (Bybee et al., 2006).

The main purpose of the *engagement* phase is to capture students' interest and stimulate their curiosity. The teacher introduces a topic, often through a thought-provoking question, demonstration, or scenario that connects to students' prior knowledge. This phase aims to elicit students' preconceptions and encourage them to ask questions or express predictions about the concept they will explore. In the *exploration* phase, students actively investigate the concept or problem through hands-on activities or experimentation. This is where inquiry-based learning occurs, as students experiment, collect data, and build a foundation of understanding based on their observations. The teacher acts as a facilitator, guiding students as they explore but allowing them to investigate freely and make discoveries on their own. The *explanation* stage involves direct instruction and reflection, where students articulate their findings and teachers introduce formal concepts and terminology. This phase allows students to clarify their understanding by connecting their exploratory experiences to scientific principles or subject-specific content. Students may present their results, discuss their findings, and begin to understand how the concepts fit into a broader framework of knowledge. During the *elaboration* stage, students extend and deepen their understanding by applying their newly learned concepts to new situations or more complex problems. This helps solidify their knowledge and reinforces the relevance of the material. Teachers may present additional scenarios, problems, or challenges that require students to apply their learning in different or more advanced contexts. The last stage, *evaluation*, focuses on assessing students' understanding and learning progress. Both teachers and students engage in reflection on what has been learnt, and teachers use assessments – formal or informal – to gauge comprehension. Students may also self-assess their learning or demonstrate their understanding through projects, presentations, or discussions (Bybee et al., 2006).

The 5E model allows students to construct their understanding by making connections between their prior knowledge and new experiences. By guiding learners through a systematic process of inquiry, the 5E model not only helps build deep, conceptual understanding but also fosters critical thinking, problem-solving, and the ability to apply knowledge in various contexts.

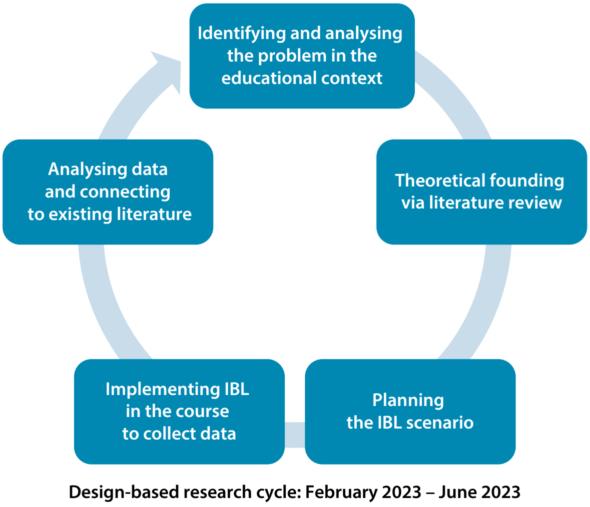


Figure 1 Overview of Activities in the Design–Based Research Cycle

Methodology

This study was guided by the following research questions:

1. How effective is the IBL approach in developing students' digital skills?
2. What are students' attitudes towards and perceptions of IBL?
3. What challenges do students perceive in developing digital skills through IBL?

Research Design

To investigate the effectiveness of using the IBL approach for developing pre-service teachers' digital skills we employed a design-based research (DBR) approach. As outlined by Wang and Hannafin (2005), DBR is a flexible, iterative methodology that aims to improve educational practices through ongoing cycles of analysis, design, implementation, and refinement in real-world settings, with collaboration between researchers and practitioners. The present study represents one DBR cycle conducted over one semester (Figure 1) focused on the implementation and evaluation of an IBL scenario aimed at enhancing students' digital competencies.

IBL Scenario and Data Collection

The IBL scenario was designed on the basis of the 5E instructional model (Bybee et al., 2006). The scenario served as a framework for developing students' digital skills through a series of structured, inquiry-driven activities. Data col-

Table 1 Steps in the Scenario

Step	Description
Step 1 (Engagement)	Group work and research question formulation: classroom discussion in which students were encouraged to reflect on their digital competences and ways of improving their learning experiences using digital technology. Students worked in groups to formulate a research question which would address an improvement in their studies by employing digital technology.
Step 2 (Exploration)	Exploration of relevant resources: students engaged in exploring the available resources (digital tools and apps) and examined their relevance for their research focus. The teacher played the role of facilitator, answering their questions and guiding them through the data collection process.
Step 3 (Explanation)	Reflection and presentation of observations: the instructor led the students through the process of finding and reviewing relevant literature and sources aimed at evaluating the suitability of the selected digital tools. Students presented their findings and observations to the instructor and other groups.
Step 4 (Elaboration)	Peer–to–peer workshop design: students were given the task to use the evidence and information collected through their research to design and carry out workshops for their peers and thus apply their learning in a different context.
Step 5 (Evaluation)	Workshop evaluation: students first engaged in self– and peer–assessment based on jointly designed evaluation criteria. This was followed by a final evaluation discussion with their instructor.

lection took place at the conclusion of the scenario through an online questionnaire and a focus group discussion, complemented by an in-depth analysis of the scenario implementation.
The IBL scenario was implemented in the study course English for Education Studies at the Faculty of Education, University of Primorska. Its primary aim was to enhance students' digital skills in educational contexts, encouraging them to design and lead peer workshops on the use of various digital tools and applications. The scenario followed five distinct steps, corresponding to the phases of the 5E instructional model (Table 1):

Upon completing the scenario, students participated in an online questionnaire and a focus group discussion, where they shared their experiences, attitudes, and perceived challenges related to the IBL approach.

Context and Participants

The study is related to the project *Green, Digital and Inclusive University of Primorska* whose main objective is to enhance university teachers' and students' digital skills. The needs analysis conducted within the project revealed an increased need to develop both teachers' and students' digital skills. This led to a search for new and innovative approaches which would not only actively engage students in developing their digital skills but also give them the opportunity to reflect upon and critically appraise the use of different digital sources.

The participxants in the study were first-year students enrolled in the Primary Education study program ($N=38$). After the course, the students voluntarily completed an online questionnaire, and 10 participated in a focus group discussion (June 2023), providing qualitative insights into their experiences with IBL and the challenges they faced.

Data Analysis

The analysis was conducted in two stages. First, we systematically evaluated the IBL scenario using the 5E ILPv2 scoring instrument (Goldston et al., 2013), which assesses each phase of the IBL process across 21 items (4 items for Engagement, 4 items for Exploration, 6 items for Explanation, 3 items for Elaboration and 4 items for Evaluation). The scoring system ranged from 0 to 4 points (0 = 'unacceptable', 1 = 'poor', 2 = 'average', 3 = 'good', and 4 = 'excellent'). This allowed us to identify strengths and areas for improvement across the phases of the IBL scenario.

Second, data from the online questionnaire and the focus group discussion were analysed to explore students' attitudes toward IBL, their experiences with digital skill development, and the challenges they encountered. This qualitative data provided deeper insights into the students' perceptions and highlighted areas for refining the IBL approach to better meet their needs. The results of the study are presented in the following section.

Results

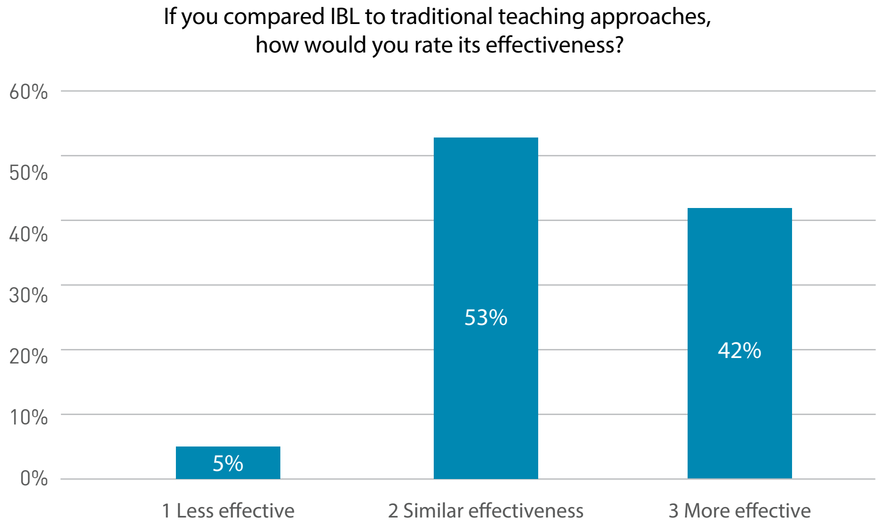
To address the first research question aimed at analysing the effectiveness of the IBL scenario, we conducted a detailed analysis utilizing the 5E ILPv2 scoring instrument. The findings are summarized in Table 2, which outlines the scores for each phase, highlighting the overall effectiveness of the IBL scenario in enhancing student learning outcomes.

As we can see from Table 4, the IBL scenario demonstrated strong effectiveness across most phases, with high scores in several areas. The *engagement* phase was particularly successful, with the teacher effectively eliciting students' prior knowledge, fostering motivation, and leading engaging discussions. During the *exploration* phase, students were provided with clear instructions and engaging hands-on activities. However, the need for greater emphasis on formative assessment during this phase was identified as an area for improvement. The *explanation* phase showed notable weaknesses. It

Table 2 Evaluation of the IBL Scenario According to the 5E Scoring Instrument

5E ILPv2	Item description	Scoring (0–4)
Engage item 1	The engage phase elicits students' prior knowledge (based upon the objectives).	4
Engage item 2	The engage phase raises student interest/motivation to learn.	4
Engage item 3	The engage phase provides opportunities for student discussion/ questions (or invites student questions).	4
Engage item 4	The engage phase leads to the exploration phase.	3
Explore item 1	During the exploration phase, teacher presents instructions.	4
Explore item 2	Learning activities in the exploration phase involve hands–on/minds–on activities.	4
Explore item 3	Learning activities in the exploration phase are student–centred.	4
Explore item 4	The inquiry activities of the exploration phase show evidence of student learning (formative authentic assessment).	2
Explain item 1	There is a logical transition from the exploration phase to the explanation phase.	3
Explain item 2	The explanation phase includes teacher questions that lead to the development of concepts and skills.	3
Explain item 3	The explanation phase includes mixed divergent and convergent questions for interactive discussion facilitated by teacher and/or students to develop concepts or skills.	2
Explain item 4	The explanation phase includes a complete explanation of the concept(s) and/or skill(s) taught.	1
Explain item 5	The explanation phase provides a variety of approaches to explain and illustrate concept or skill.	2
Explain item 6	The discussion or activity during the explanation phase allows the teacher to assess students' present understanding of concept(s) or skill(s).	3
Elaborate item 1	There is a logical transition from the explanation phase to the elaboration phase.	3
Elaborate item 2	The elaboration activities provide students with the opportunity to apply the newly acquired concepts and skills into new areas.	2
Elaborate item 3	The elaboration activities encourage students to find real–life connections with the newly acquired concepts or skills.	4
Evaluate item 1	The lesson includes summative evaluation, which can consist of a variety of forms and approaches.	3
Evaluate item 2	The evaluation matches the objectives.	4
Evaluate item 3	The evaluation criteria are clear and appropriate.	4
Evaluate item 4	The evaluation criteria are measurable (i.e. using rubrics).	4

became clear that students required more comprehensive guidance on the process of reviewing scientific literature, along with more opportunities to practice critically reading and interpreting academic texts, as well as extracting essential information. The results of the scoring for the *elaboration* and

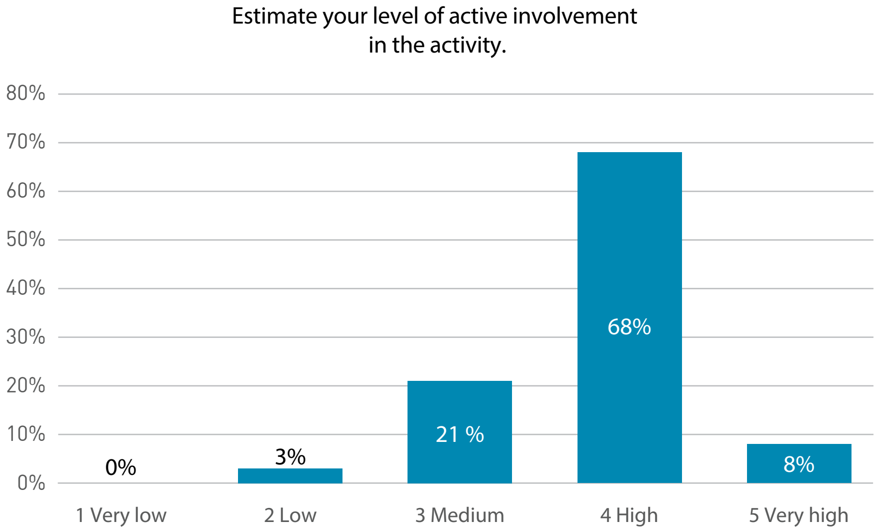


Graph 1 Effectiveness of IBL Compared to Traditional Teaching Approaches as Perceived by the Students

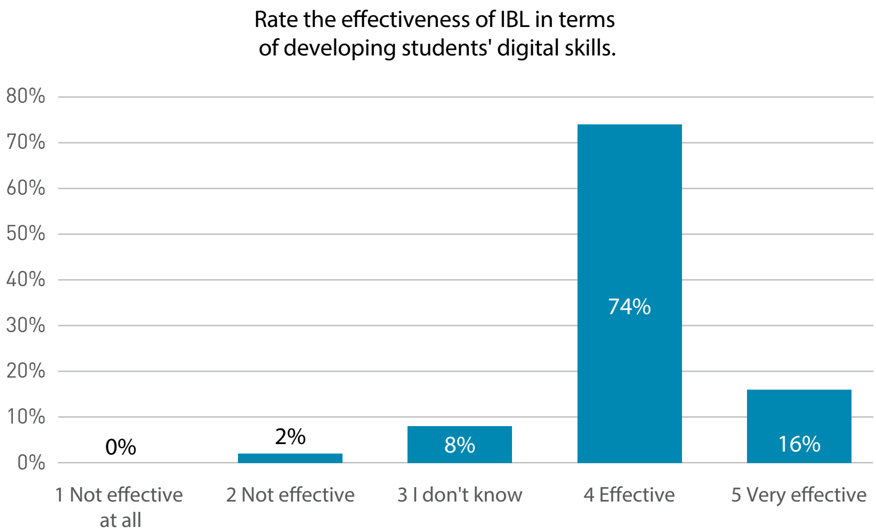
evaluation suggest that both phases were perceived as efficient. The *elaboration* phase allowed students to apply their newly acquired skills in practical contexts and make real-life connections, while the *evaluation* phase aligned well with the objectives, using clear, appropriate, and measurable criteria to assess students' performance.

With respect to the second research question aimed at identifying students' attitudes towards IBL, the data gained through the survey revealed that students generally hold positive attitudes toward IBL and independent research. When comparing IBL to traditional learning methods such as lectures, 53% rated the two methods similarly (see Graph 1). At the same time, 42% of respondents found IBL more effective, and only 5% considered IBL less effective.

In the survey and the focus group discussion, students noted several advantages of IBL. They reported that active involvement in their own research helped them retain more information, engage more deeply with the material, and take responsibility for their learning. They also indicated increased motivation while participating in the IBL scenario. Additionally, they appreciated the opportunity to collaborate and learn from their peers. However, they acknowledged that IBL was more time-consuming and demanding, requiring more effort compared to traditional methods. This was reflected



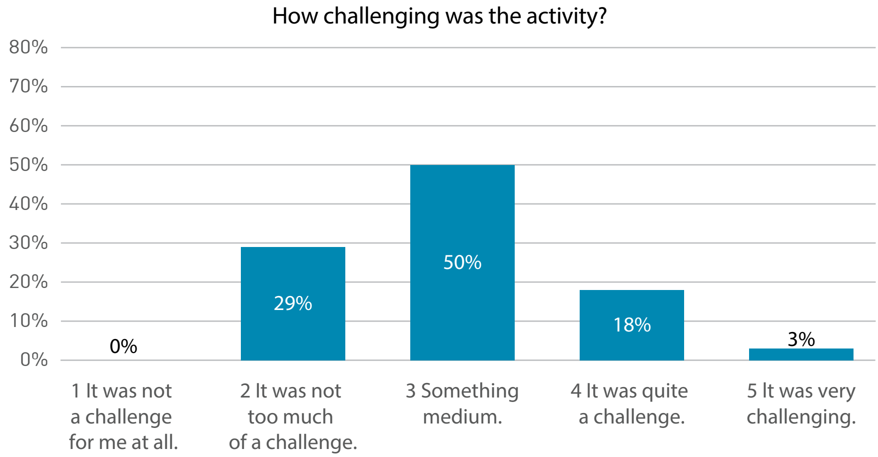
Graph 2 Students' Self–Reported Involvement Levels in the IBL Activities



Graph 3 Students' Perceptions of the Effectiveness of IBL in Enhancing their Digital Skills

in their self-reported involvement levels, where 68% of students rated their involvement in the activity as high and 8% as very high (see Graph 2).

As we can see from Graph 3, 74% of respondents felt that IBL was effective and 16% very effective in enhancing their digital competencies.



Graph 4 Students' Perceptions of the Difficulty of the IBL Activities

Students reported improvements in using online resources like Google Scholar, learning new apps, and using technology for presentations and collaborative work. A minority of students felt they had not developed significant digital skills, as they were already proficient in this area; however, they noted improvements in critical thinking and collaboration skills. Finally, 68% of students agreed that the IBL experience made the use of digital tools and applications easier, while 21% were undecided and the remaining students felt their pre-existing digital competence was already advanced.

The third research question was aimed at identifying the challenges of the participants in implementing the IBL approach. As we can see from Graph 4, the IBL scenario posed varying levels of difficulty for the students: 29% found it not too challenging, 50% perceived it as moderately challenging, 18% found it quite challenging, and 3% considered it very challenging.

The most significant challenge reported was the application of critical thinking skills to locate and evaluate relevant academic literature. Both the questionnaire and focus group discussions highlighted that students struggled with identifying appropriate sources, understanding the literature, and extracting key information. Other challenges included coordinating group work and structuring their workshops effectively.

Discussion

The results from this study suggest that the IBL scenario effectively engages students in active, self-directed learning, particularly in the phases of engagement, exploration, elaboration, and evaluation. Students demonstrated a strong appreciation for the active learning components of IBL, citing deeper engagement, increased retention, and greater responsibility for their learning outcomes. This finding is in line with previous studies that demonstrated the effectiveness of inquiry-based learning with undergraduate students in different subject areas (Apedoe et al., 2006; Levy & Petrulis, 2012). At the same time, the results show that the *explanation* phase surfaced as a critical area for improvement, particularly in equipping students with the skills necessary for conducting scientific literature reviews and critically evaluating academic sources. Addressing this gap through more targeted instruction and practice could further strengthen the overall effectiveness of IBL.

The positive student attitudes toward IBL, combined with their feedback on the challenges they faced, provide valuable insights into the balance between active learning and the demands it places on students. Students reported greater motivation and satisfaction with their learning, which is consistent with the findings of earlier studies which concluded that IBL approaches promote student motivation (Bayram et al., 2013; Tuan et al., 2005). At the same time, the participants in our study also acknowledged the increased time and effort required. This points to the need for carefully structured scaffolding to support students through more demanding tasks, such as literature review and group coordination. In terms of skill development, IBL was largely seen as beneficial, particularly in enhancing digital competencies and fostering collaboration. However, for students already proficient in digital tools, the gains were more aligned with critical thinking and teamwork, suggesting that differentiation may be necessary to cater to varying skill levels. Overall, while challenges remain, especially regarding critical thinking and information literacy, the positive impact of IBL on student engagement, motivation, and skill development is evident.

The data from the study revealed also several challenges faced by the students during the activity, such as identifying appropriate sources and coordinating group work. This aligns with the findings of Levy and Petrulis (2012) which suggest that in IBL teaching settings students need extensive guidance and formative feedback.

Conclusion

A key aspect of 21st-century education is the emphasis on developing critical thinking. The ability to analyze, evaluate, and synthesize information is vital for individuals to effectively engage with the vast array of information available in the digital age. Beyond technical proficiency, digital literacy requires the ability to discern reliable sources, critically interpret information, and utilize digital tools effectively for problem-solving and collaboration. One pedagogical approach that has proven highly effective in fostering these essential skills is inquiry-based learning. Originally well-established in science education, inquiry-based learning is now gaining importance across various disciplines. By placing students in active learning roles, prompting them to explore problems, formulate questions, and actively engage in the process of discovery, this approach not only promotes deeper understanding but also cultivates problem-solving skills and intellectual autonomy, and adaptability - skills that are indispensable in the modern educational and professional landscape.

This study underscores the effectiveness of inquiry-based learning (IBL) as a pedagogical approach that significantly enhances student engagement, motivation, and skill development. The analysis of the IBL scenario revealed that while students thrived in most phases, there is a critical need for improvement in the explanation phase to better equip learners with the skills necessary for conducting scientific literature reviews and critically evaluating academic texts. Students expressed strong positive attitudes toward IBL, highlighting its advantages over traditional teaching methods. However, they also acknowledged the heightened demands that IBL placed on their time and effort, suggesting that structured scaffolding is essential for supporting students through these challenging tasks.

Although we remain cautious about drawing too-strong inferences about the direct impact of IBL on students' digital competences based on this study alone, the findings stronglyindicate that IBL contributes positively to the development of digital skills and collaboration, while fostering critical thinking abilities. Although many students initially perceived themselves as already proficient in digital literacy, they recognized the importance of IBL in enhancing their analytical and cooperative skills. Furthermore, the study highlights the importance of balancing student autonomy with structured guidance to maximize learning outcomes. Finally, the outcomes of this study suggest several avenues for further research. In the area of education, a particularly valuable research focus would be different ways in which IBL fosters collaborative competences through group projects, peer discussions, and the use of digital collaboration tools. Further research could explore how digital tools facilitate inquiry-based group tasks and how students negotiate roles, communicate, and share knowledge in virtual environments.

As educational institutions continue to integrate digital technologies into learning environments, it is crucial to adopt pedagogical approaches that do more than teach students how to use digital tools – they must also empower them to think critically, collaborate effectively, and navigate an increasingly complex digital world. This study reinforces the idea that IBL, when thoughtfully implemented, offers a promising pathway for achieving these objectives.

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Uporaba raziskovalnega učenja za razvoj digitalnih kompetenc univerzitetnih študentov

V zadnjih letih smo bili priča vse močnejšemu spodbujanju razvijanja digitalnih kompetenc na vseh ravneh izobraževanja, zaradi česar so bili razviti številni inovativni pedagoški pristopi, katerih glavni cilj je razvijanje digitalnih kompetenc s poudarkom na spodbujanju aktivne participacije in avtonomije učencev ter razvoju kritičnega mišljenja. V pričujočem prispevku se osredotočamo na prednosti uporabe raziskovalnega pristopa k učenju (angl. *inquiry-based learning* – IBL) za razvijanje digitalnih kompetenc študentov pedagoških smeri. V ta namen smo izvedli raziskavo načrtovanih novosti (angl. *design-based study*) s študenti študijskega programa Razredni pouk (N = 38). Glavni cilj je bil raziskati stališča študentov do raziskovalnega pristopa k učenju ter preučiti njihove izkušnje in izzive, s katerimi so se srečali v procesu izvajanja raziskave. Izvedba načrtovane novosti je temeljila na petstopenjskem modelu raziskovalnega učenja (vključevanje, raziskovanje, razlaga, poglabljanje in vrednotenje; angl. *engagement, exploration, explanation, elaboration, evaluation*). Podatki so bili zbrani s pomočjo spletne ankete, fokusne skupine in poglobljene analize izvedenega učnega scenarija po modelu raziskovalnega učenja. Rezultati kažejo, da študenti izkazujejo pozitivna stališča do raziskovalnega pristopa k učenju, največji izziv, ki so ga zaznali, pa je bila uporaba kritičnega mišljenja pri iskanju in vrednotenju ustreznih raziskovalnih virov.

Ključne besede: digitalne kompetence, raziskovalno učenje, raziskava načrtovanih novosti, študenti razrednega pouka, kritično mišljenje