Exploring University Pre-Service Teachers' Perceptions of using Interactive Powerpoint Presentations as Instructional Materials to Enhance Class Engagement and Student Motivation

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ABSTRACT

This research investigates the perceptions of pre-service teachers at Central Bicol State University of Agriculture – Sipocot Campus regarding the integration of Interactive PowerPoint Presentations (IPPs) as modern instructional materials. Utilizing a quantitative, descriptive-evaluative research design, the study gathered data from 60 participants through purposive sampling to assess how these digital tools impact student motivation and classroom engagement. The findings reveal a highly positive perception among pre-service teachers, who strongly agree that IPPs are essential for fostering active student participation (mean = 3.78) and enhancing their own instructional creativity (mean = 3.75). Despite these pedagogical benefits, the study identifies a significant gap between technological awareness and actual implementation due to various barriers. The most critical challenges identified include a pressing need for specialized tutorials and training (mean = 3.27), frequent technical interruptions during lessons (mean = 3.23), and the unavailability of functioning classroom equipment (mean = 3.17). To mitigate these obstacles, pre-service teachers predominantly rely on proactive technical strategies, such as testing presentations before class sessions and utilizing offline versions to bypass unreliable internet connectivity (mean = 3.65). The study concludes that while IPPs are recognized as effective tools for 21st-century pedagogy, their full potential remains hindered by limited technological competence and inadequate infrastructure. Consequently, it is recommended that educational institutions prioritize continuous professional development and improve school facilities to ensure that future educators can effectively transition toward more interactive, technology-driven teaching environments.

Keywords: Interactive PowerPoint, Pre-service Teachers, Instructional Materials, Technology Integration, Student Engagement, Multimedia Learning, Pedagogical Strategies.

INTRODUCTION

In the evolving landscape of modern education, technology plays a pivotal role in transforming traditional teaching methods to foster greater student engagement and motivation. As educators continue to shift from conventional chalk-and-talk approaches to more dynamic and technology-assisted instructional materials, the integration of digital tools such as Interactive PowerPoint presentations represents a significant step toward modernizing the learning environment. This transition allows teachers to design lessons that are more interactive, student-centered, and responsive to the diverse learning preferences of today's learners. Interactive PowerPoint presentations, which incorporate multimedia elements like animations, hyperlinks, and interactive quizzes, have emerged as a versatile tool for educators. The use of interactive PowerPoint presentations is a highly effective strategy due to students' ability to engage multiple senses and learning styles simultaneously(Nasr,). By incorporating elements such as audio, video, animated images, interactive quizzes and activities, these capture student's attention, improve their motivation and retention of lessons through multisensory stimulation(Mansor & Halim, 2020). This makes the learning process more participatory as students are actively involved in exploring the materials. Similarly, a research study by Abdullah & Zainuddin(2020) revealed the integration of interactive multimedia materials in classroom instruction significantly improved students' engagement, focus, and retention of knowledge compared to traditional lecture methods.

Recent studies have also investigated the effectiveness of Interactive PowerPoint presentations and their impact on students' learning outcomes. With its engaging multimedia features, Interactive PowerPoint has been shown to support and enhance students' listening, reading, and speaking skills through interactive slides(Pradana et al., 2025). Moreover, Dewi and Kareviati(2021) found that the use of Interactive PowerPoint in classroom instruction effectively attracts students' interest, attention, participation, and confidence. Similar study of Sukarno et al.(2021) confirmed that Interactive PowerPoint presentations are highly effective in strengthening learners' motivation and sustaining their interest throughout the lesson. In addition, Arsad and Mangindra(2025) demonstrated that this teaching method not only improves learning quality but also helps students develop student's proficiency in using technology. Another study by Wimawa and Sukma Dewi(2020) revealed that integrating Interactive PowerPoint into teaching contributes to higher academic achievement, while Firmansyah et. al(2025) emphasized its role in promoting enthusiasm and active participation among students. Hence, the findings suggests that Interactive Powerpoint Presentation not only enhance students' motivation and outomes but also serve as effective medium for fostering meaningful interaction between teachers and students in the classroom.

The advancement of technology and the increasing complexity of learning demands require teachers not only to use PowerPoint conventionally but also interactively. This has become an innovative teaching strategies that support the teaching and learning process. However, despite its proven effectiveness, there are key challenges in utilizing Interactive Powerpoint Presentations effectively. A systematic review conducted by Akram et. al(2022) on Teacher's Perceptions on Technology Integration found that while teachers generally hold positive attitudes toward these integration, several barriers including limited technological competence, lack of adequate training, insufficient access to resources, and time constraints in preparing interactive materials which continue to hinder its effective use in classrooms. Abdilah et al. (2025) identified similar challenges including limited teaching time, inadequate school facilities, classroom management difficulties, low student motivation, and struggles with lesson preparation, especially in adapting to unfamiliar content or integrating technology. A related study by Chen & Li(2025) on pre-service language teacher's perception and practice reported that although they recognize the benefits of using digital tools such as Interactive PowerPoint, they often struggle with inadequate digital infrastructure, weak administrative support, and low confidence in designing technology-assisted instructional materials. These findings highlights the gap between teachers' awareness of the use of Interactive Powerpoint Presentation as Instructional Materials and their actual ability to implement it effectively.

Despite these obstacles, teachers exercise professional development in choosing pedagogical approaches conducive to effective teaching and the achievement of desired learning outcomes. In line with this, the present study aims to investigate teachers' perceptions, particularly those of pre-service teachers regarding the use of Interactive PowerPoint Presentations as instructional materials, to determine their readiness, confidence, and competency in employing this instructional materials in modern classroom.

Specifically, this study aims to determine the perceptions of pre-service teachers on the use of Interactive PowerPoint Presentations as Instructional Materials and how these can enhance class engagement and student motivation, identify the challenges they encounter in designing and implementing such tools, and determine the strategies they employ to overcome these challenges. As pre-service teachers are prepare to become professional educators, their perceptions and experiences play an important role in shaping their future teaching practices. Yang(2023) pointed out pre-service teachers' beliefs and intentions toward technology strongly predict their readiness to integrate digital tools in future teaching practices, emphasizing that attitudes toward technology play a crucial role in determining effective classroom implementation. This emphasizes the importance of examining pre-service teachers' perceptions as understanding their attitudes and preparedness can provide valuable insights into how they might utilize Interactive PowerPoint Presentations in their future teaching. It is hypothesized that pre-service teachers hold positive perceptions toward the use of Interactive PowerPoint presentations as instructional materials that can enhance class engagement and student motivation. The result of this study are expected to provide insights that will serve as a foundation for promoting more interactive, technology-driven pedagogical approaches and for strengthening technology integration within teacher education programs.

MATERIALS AND METHOD

Research Design

This study utilized a quantitative, descriptive-evaluative research design. Quantitative methods were applied

to gather measurable data about the perceptions of pre-service teachers regarding the use of Interactive PowerPoint Presentations (IPP) as instructional materials. The descriptive-evaluative approach allowed the assessment of how IPP contributes to classroom engagement and student motivation.

Research Locale

The study was conducted at Central Bicol State University of Agriculture – Sipocot Campus, which offers teacher education programs that require pre-service teachers to demonstrate technology-integrated teaching strategies during classroom simulations and practicum activities.

Participants

A total of 60 pre-service teachers enrolled in the Bachelor of Secondary Education (BSED) and Bachelor of Elementary Education (BEED) programs participated in the study. Purposive sampling was employed to ensure that only respondents with actual experience in preparing and using PowerPoint presentations during teaching demonstrations were included.

Research Instrument

A self-constructed questionnaire served as the main data-gathering instrument. It consists of three parts:

1. Respondents' Profile – including age, gender, year level, and major

2. Perceptions on IPP – statements measuring agreement regarding the use of IPP as instructional material

3. Effectiveness of IPP– items assessing its impact on motivation and engagement in class

All items were rated using a four-point Likert scale to encourage more decisive responses from participants.

Prior to the administration of the instrument, a reliability test was conducted using Cronbach's alpha to determine the internal consistency of the questionnaire. The results indicated that the instrument was reliable for data collection.

Data Gathering Procedure

After securing permission to conduct the study, the researcher personally distributed the questionnaires to the respondents. Instructions were clearly explained, and respondents were given ample time to complete and return the survey forms. The collected data were checked, encoded, and prepared for statistical computation.

Data Analysis

To analyze the responses, frequency, percentage, weighted mean, and ranking were utilized. A four-point Likert scale served as the basis for the interpretation of responses:

Weighted Mean | Verbal Interpretation

| 3.50 – 4.00 | Strongly Agree (Very Positive Perception)

| 2.50 – 3.49 | Agree (Positive Perception)

| 1.50 – 2.49 | Disagree (Negative Perception)

| 1.00 – 1.49 | Strongly Disagree (Very Negative Perception)

Ethical Considerations

The participants were informed of the study's purpose and assured that their participation was voluntary. They were guaranteed anonymity and confidentiality of their responses. All gathered information was used exclusively for academic and research purpose

Table 1. Perceptions of Pre-service Teachers on the Use of Interactive PowerPoint

Item	Mean	Standard Deviation	Rank	Interpretation
1. Interactive PowerPoint presentations make my lessons more engaging and enjoyable.	3.73	0.73	3	Strongly Agree
2. The use of animations, images, and videos enhances my students' understanding of the lesson.	3.55	0.79	9.5	Strongly Agree
3. Interactive PowerPoints encourage active participation of my students.	3.78	0.58	1	Strongly Agree
4. Lessons presented through interactive PowerPoint are easier for my students to remember.	3.55	0.70	9.5	Strongly Agree
5. Using interactive PowerPoint motivates my students to learn more.	3.65	0.63	5	Strongly Agree
6. Interactive PowerPoint helps me to organize complex lesson content comprehensively.	3.63	0.64	6.5	Strongly Agree
7. Interactive PowerPoint presentations help develop my creativity as a future teacher.	3.75	0.70	2	Strongly Agree
8. I feel more confident and comfortable when using interactive PowerPoint during my classroom discussion.	3.63	0.74	6.5	Strongly Agree
9. Interactive PowerPoint presentations allow for diverse learning styles of my students (visual, auditory, kinesthetic).	3.67	0.75	4	Strongly Agree
10. I believe preparing interactive PowerPoints are budget-friendly and time-saving.	3.60	0.81	8	Strongly Agree

Presentations

The findings revealed that pre-service teachers demonstrated a positive perception of Interactive PowerPoint Presentations(IPPs) as Instructional Materials, with all ten indicators interpreted as **"Strongly Agree."** This indicates a strong recognition of IPPs as effective tools for facilitating teaching and learning, as it revealed by the high mean score of all the indicators, which range from 3.55-3.78, and the respondents are agreed strongly.

As shown in Table 1, the highest mean score (3.78) was reported for the statement, *"Interactive PowerPoints encourage active participation of my students."* This suggests that IPPs effectively promote student engagement, highlighting the role of interactive elements such as embedded quizzes, multimedia, and hyperlinks in fostering active learning and participation of the students(Alharbi & Ahmad, 2020). The student's active participation is one key factor in effective learning as it promotes cognitive processing, peer interaction, and retention of abstract concepts. The second highest mean score (3.75) was for the statement *"Interactive PowerPoint presentations help develop my creativity as a future teacher."* This reveals that pre-service teachers recognized the pedagogical value of IPPs in classroom instruction. They perceive IPPs not only as a tool for engaging their students but also as a means to enhance their own instructional creativity. It aligns to the study of Hidayah & Rahmawati (2021) showing that designing Interactive Powerpoint Presentations encourages critical thinking in lesson planning, multimedia integration, and content organization, which contribute to the development of their creativity, instructional competence, and professional growth that are essential for effective 21st century skills for teaching. The third highest score (3.73) was for the statement *"Interactive PowerPoint presentations make my lessons more engaging and enjoyable."* Previous research confirms that interactive instructional materials sustain attention, providing visually stimulating content, accommodate different learning styles, and make lessons more enjoyable, which ultimately improving learning outcomes (Fauzi & Zulfahmi, 2020). Thus, integration of interactive features in PowerPoint Presentations allows lessons to be more visually appealing and participatory, thereby providing more concrete student's learning experiences, enhancing their engagement and participation.

In conclusion, the uniform positive responses across these ten indicators found that pre-service teachers hold a highly positive perception of Interactive PowerPoint Presentations (IPPs) as Instructional Materials. The

multifaceted benefits of IPPs have been recognized, including the enchancement of teaching creativity, promotion of active learning, and improvement of student engagement and participation during class simulation and activities. These findings aligns with the theoretical premise of technology-enhanced learning, which state that the use of interactive instructional tools fosters a learner-centered environment, encourages student participation, and supports effective teaching strategies (Arsad & Mangindra, 2025; Al Fajar & Mayar, 2023; Ramos et al., 2025). As technology becomes increasingly embedded in education, by equipping pre-service teachers with skills to design and implement interactive lessons, educational institutions can enhance both teaching practices and student learning outcomes in the contemporary classroom. By incorporating IPPs into teacher education programs, future educators are better to prepare instructional practices that are engaging, innovative, and aligned with 21st-century educational demands, ultimately promoting meaningful and impactful learning experiences for students.

Table 2. Challenges Encountered in Designing and Using Interactive PowerPoint Presentations

Item	Mean	Standard Deviation	Rank	Interpretation
1. I have limited time to prepare interactive PowerPoint presentations.	3.10	0.60	5	Agree
2. I sometimes lack of technological skills to to design good interactive PowerPoints.	3.13	0.75	4	Agree
3. I have poor internet connection which makes it hard for me to prepare.	3.03	0.78	7	Agree
4. Classroom equipment (projector, laptop, speakers) are often unavailable or malfunctioning.	3.17	0.83	3	Agree
5. Managing my students while using interactive presentations can be challenging.	2.93	0.84	8	Agree
6. Some of my students lose focus when too many multimedia elements are used.	3.05	0.83	6	Agree
7. It takes too long for me to edit and finalize a PowerPoint.	2.92	0.87	9	Agree
8. Some of my students are not interested with the interactive slides.	2.68	0.89	10	Agree
9. Technical issues often interrupt the flow of my classroom discussion.	3.23	0.95	2	Agree
10. I need more tutorial to effectively integrate interactive PowerPoints.	3.27	0.76	1	Strongly Agree

The results indicate that teachers generally **"Agree"** that they encounter various challenges in designing and using interactive PowerPoint presentations, as shown by mean scores ranging from **2.68 to 3.27**. The highest mean was recorded for the need for more tutorials and training, suggesting that insufficient knowledge and guidance remain the most significant challenge in effectively integrating interactive PowerPoint presentations. Technical issues, such as frequent interruptions during classroom discussions and the unavailability or malfunctioning of classroom equipment, were also rated highly, indicating that infrastructure-related problems significantly affect lesson delivery. Additionally, time-related concerns, including limited time for preparation and the lengthy process of editing and finalizing presentations, were acknowledged as common difficulties faced by teachers. Challenges related to technological skills and poor internet connectivity further highlight barriers in accessing and developing interactive instructional materials. Student-related concerns, such as difficulty in classroom management, loss of focus due to excessive multimedia elements, and lack of interest in interactive slides, were rated lower but still fell under the "Agree" category, indicating that these issues are present but less severe. Overall, the findings suggest that while teachers recognize the benefits of interactive PowerPoint presentations, multiple technical, instructional, and learner-related challenges continue to hinder their effective implementation.

The findings demonstrate that teachers face interconnected challenges in designing and using interactive PowerPoint presentations, particularly in terms of limited time, insufficient technological skills, unreliable internet connectivity, equipment issues, and frequent technical disruptions. The strongest concern—teachers'

need for additional tutorials—supports recent studies emphasizing that continuous professional development is essential for successful technology integration in classrooms (Tondeur et al., 2021). Furthermore, research by Law et al. (2023) confirms that inadequate infrastructure, lack of technical support, and time constraints remain major barriers that hinder teachers' effective use of digital instructional tools, often leading to classroom interruptions and reduced instructional flow. Student-related challenges such as loss of focus and low interest also align with multimedia learning research, which stresses that poorly designed or overly complex multimedia can negatively affect student engagement (Mayer, 2020). Overall, the results are consistent with recent literature highlighting that effective use of interactive presentations requires not only technological tools but also sufficient training, infrastructure, and pedagogical balance.

The study concludes that teachers experience various challenges in designing and implementing interactive PowerPoint presentations, with the most significant issues related to the need for further training, technical interruptions, limited preparation time, and insufficient infrastructure. While student engagement concerns were rated lower, they remain important considerations in ensuring effective instructional delivery. These findings suggest that strengthening professional development programs, improving technological infrastructure, and promoting effective multimedia design strategies are essential to reducing these challenges and enhancing the instructional value of interactive PowerPoint presentations.

Table 3. Strategies Used to Address Challenges in Using Interactive PowerPoint Presentations

Item	Mean	Standard Deviation	Rank	Interpretation
1. I plan my lesson and design the PowerPoint in advance.	3.48	0.77	7	Strongly Agree
2. I use simple yet meaningful animations so my students don't get distracted.	3.43	0.77	9	Strongly Agree
3. I watch tutorials to improve my skills in preparing interactive PowerPoint.	3.55	0.70	3.5	Strongly Agree
4. I test my PowerPoint presentations before class to ensure they work properly.	3.65	0.73	1.5	Strongly Agree
5. I let my students take part in the discussion (e.g., clicking, answering, or exploring slides).	3.35	0.80	10	Strongly Agree
6. I use offline versions of PowerPoint to avoid internet problems.	3.65	0.66	1.5	Strongly Agree
7. I use feedback from my students or mentors to improve future presentations.	3.55	0.70	3.5	Strongly Agree
8. I make my slides colorful and neat to catch my student's attention.	3.47	0.83	8	Strongly Agree
9. I ask for comments from my classmates, mentors, or students to improve my output.	3.52	0.77	5	Strongly Agree
10. I practice time management to balance technology use and class discussion.	3.50	0.72	6	Strongly Agree

The results shows that student teachers demonstrated a very positive perception of the strategies used in Interactive PowerPoint Presentations (IPP). All ten indicators were verbally interpreted as **"Strongly Agree"** with mean scores ranging from 3.35 to 3.65, indicating that student-teachers perceived these strategies as usefu and effective in facilitating lesson delivery. The finding suggests an acceptance of interactive presentation strategies among Pre-service teachers, particularly in supporting classroom instruction. This result aligns with the principles of Multimedia Learning Theory, which emphasizes that well-designed multimedia materials can enhance understanding and instructional effectiveness (Mayer, 2020). According to Mayer (2020), effective multimedia instruction requires careful planning, appropriate use of visuals and animations, and alignment with learning objectives, elements that are reflected in the high agreement levels across the strategies showed in Table 3.

As shown in the table 3, item 4 ("I *test my PowerPoint presentations before class to ensure they work properly*

") and item 6 *("I use offline versions of PowerPoint to avoid internet problems"*) obtained the highest mean score of 3.65 and ranked first. These strategies highlight the importance of technical preparedness and contingency planning in technology-supported instruction. This finding aligns with Tondeur et al. (2021), who emphasized that pre-service teachers with stronger ICT competencies tend to adopt proactive strategies, such as testing digital materials and preparing alternatives, to ensure smooth lesson implementation. The findings also suggest that student-teachers recognized how preparation and reliability of Technology-aided Instructional Materials contribute to effective classroom management and uninterrupted lesson flow. Additionally, item 3 with the statement of "I watch tutorials to improve my skills in preparing interactive PowerPoint" and item 7 with a statement of "I use feedback from my students or mentors to improve future presentations" shared the next highest mean score of 3.55, placing them among the top-ranked strategies used by pre-service teachers. The top-ranked strategies. These strong agreement reflects Pre-service teacher's perception and recognition of continuous skill development as essential for effective technology use, a finding supported by Hsu (2020), who reported that tutorial-based and targeted training significantly enhance preservice teacher's confidence and competence in integrating Technology-aided Instructional Materials. Similarly, the findings highlighted the importance of goal-oriented instructional planning of Pre-service teachers when using PowerPoint Presentations as a tool. Aligning PowerPoint content with lesson objectives ensures pedagogical coherence and maximizes instructional effectiveness, as emphasized by König et al. (2022), who found that purposeful planning is a key factor in successful technology integration. This posits that student-teachers value preparation, planning, and professional learning as foundational practices for effective use of Interactive PowerPoint Presentations.

In contrast, Item 2 *("I use simple yet meaningful animations so my students don't get distracted")* with a mean of 3.43 and Item 5 *("I let my students take part in the discussion, e.g., clicking, answering, or exploring slides")*nwith a mean of 3.35 ranked lowest among the ten strategies. Although these items were still rated **"Strongly Agree,"** their relatively lower mean scores suggest that these strategies may be more challenging to implement consistently. This finding may reflect the difficulty that student-teachers experience in balancing visual design with instructional clarity or in facilitating active student participation through digital tools. This observation is supported by Law, Sun, and He (2023), who found that while educational technologies offer significant instructional benefits, teachers often face challenges related to pedagogical integration, classroom interaction, and effective use of interactive features. Similarly, Tondeur et al. (2021) noted that Pre-service teachers may require additional support and practice to confidently implement interactive and student-centered ICT strategies, especially those that demand higher levels of classroom facilitation and learner engagement.

In conclusion, the minimal variation in mean scores indicates that student teachers shared largely similar and positive views regarding the strategies for using Interactive PowerPoint Presentations. The findings suggest that while all strategies were perceived as helpful, certain strategies particularly those related to preparation and technical readiness were viewed as more effective than others. This highlights the need for continuous training and guided practice to further enhance student teachers' ability to implement lower-ranked strategies, especially those that promote deeper student interaction and effective use of animations in technology-enhanced lessons.

CONCLUSION

This study examined the perceptions of pre-service teachers on the use of Interactive PowerPoint Presentations (IPPs) as instructional materials, focusing on their effectiveness in enhancing student engagement and motivation, the challenges encountered during their implementation, and the strategies employed to address these challenges. Using a quantitative descriptive-evaluative research design, data were gathered from pre-service teachers enrolled in teacher education programs who had direct experience in designing and using PowerPoint presentations in instructional settings.

The findings revealed that pre-service teachers hold a highly positive perception of Interactive PowerPoint Presentations as instructional materials. All indicators related to engagement, motivation, creativity, lesson organization, and confidence were rated "Strongly Agree," indicating that IPPs are perceived as effective tools for promoting active participation and learner-centered instruction. These results are consistent with previous studies which reported that interactive multimedia presentations significantly enhance student engagement and learning outcomes (Alharbi & Ahmad, 2020; Fauzi & Zulfahmi, 2020; Arsad & Mangindra, 2025). The

findings also support Mayer's (2020) Multimedia Learning Theory, which emphasizes that well-designed multimedia materials can improve understanding and retention when aligned with instructional objectives.

Despite the positive perceptions, the study identified several challenges encountered by pre-service teachers in designing and implementing IPPs. The most prominent challenges include the need for additional training and tutorials, frequent technical interruptions, limited preparation time, inadequate classroom equipment, and unstable internet connectivity. These challenges align with the findings of Tondeur et al. (2021) and Law et al. (2023), who emphasized that insufficient technological competence, lack of infrastructure, and time constraints continue to hinder effective technology integration in educational settings. Although student-related issues such as loss of focus and limited interest were less severe, they highlight the importance of appropriate multimedia design to avoid cognitive overload, as emphasized by Mayer (2020).

In response to these challenges, pre-service teachers reported employing various strategies to ensure effective use of Interactive PowerPoint Presentations. These strategies include advance lesson planning, testing presentations before class, using offline versions of PowerPoint to avoid connectivity issues, watching tutorials to improve technical skills, and seeking feedback from mentors and students. The strong agreement with these strategies indicates a proactive and reflective approach toward instructional improvement. These findings are supported by Hsu (2020) and Tondeur et al. (2021), who stressed that continuous professional development and guided practice enhance teachers' confidence and competence in using technology-assisted instructional materials.

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REFERENCES

1. Al Fajar, B., & Mayar, F. (2023). Interactive PowerPoint media in Grade IV elementary school. Journal of Education Research and Evaluation, 7(3), 391-398. https://ejournal.undiksha.ac.id/index.php/JERE/article/view/66424
2. Alharbi, A., & Ahmad, N. (2020). The impact of interactive PowerPoint presentations on student engagement and learning outcomes. Journal of Educational Technology, 17(2), 45-58.
3. Arsad, H., & Mangindra, A. (2025). Teaching literature using interactive PowerPoint presentation for Grade 8 students at Banisil National High School. International Journal of Arts, Sciences and Education, 6(Special Issue), 155-170. https://ijase.org/index.php/ijase/article/view/485
4. Fauzi, A., & Zulfahmi, I. (2020). Multimedia learning and student motivation in the classroom. International Journal of Instruction, 13(4), 215-230.

5. Hidayah, N., & Rahmawati, F. (2021). Developing pre-service teachers' creativity through interactive instructional media. Journal of Teacher Education, 12(1), 77-88.
6. Law, E. L., Sun, X., & He, Y. (2023). Challenges and impacts of technology adoption in education: A systematic review. International Journal of Research and Innovation in Social Science. Challenges and Impacts of Technology Adoption in Education: A Systematic Literature Review – International Journal of Research and Innovation in Social Science
7. Mayer, R. E. (2020). Multimedia learning (3rd ed.). Cambridge University Press. Multimedia Learning | Cambridge Aspire website
8. Ramos, A., Lee, H., & Mabuan, R. A. (2025). Exploring the relationship among preservice teachers' e-learning readiness, learning engagement, and learning performance in HyFlex learning environments. The International Review of Research in Open and Distributed Learning, 26(2), 89-110. https://www.irrodl.org/index.php/irrodl/article/view/8165
9. Tondeur, J., Scherer, R., Siddiq, F., & Baran, E. (2021). A comprehensive analysis of preservice teachers' ICT competencies. Computers & Education, 157, 103968. Measuring digital literacy across three age cohorts: Exploring test dimensionality and performance differences - ScienceDirect