TEACHERS' READINESS FOR ARTIFICIAL INTELLIGENCE INTEGRATION IN TEACHING AND LEARNING

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Abstract

This study explored the readiness of teachers to integrate Artificial Intelligence (AI) technologies into their teaching and learning practices. It focused on assessing teachers' levels of awareness, skills, attitudes, and access to resources needed for effective AI adoption in the classroom. The research was conducted at Southern Luzon Technological College Foundation Pio Duran Inc. (SLTCFI Pio Duran) and involved twelve teacher-participants. Using a qualitative approach, specifically a Focus Group Discussion (FGD) supplemented by surveys, the study aimed to gather in-depth insights into the preparedness of teachers for AI integration, including their training needs and the institutional supports necessary for successful implementation. The scope was delimited to examining AI use from a pedagogical perspective, excluding technical software development or administrative applications.

The findings revealed that while most teachers recognized the potential benefits of AI in enhancing student engagement and instructional delivery, their readiness levels varied due to disparities in professional training, access to devices, internet connectivity, and familiarity with AI tools. Common challenges cited included limited technical support, ethical concerns such as academic integrity and data privacy, and the complexity of some AI applications. Despite these, participants expressed a willingness to learn and engage with AI, provided that appropriate resources, continuous training, and institutional guidance are available.

From these findings, it was concluded that teachers' readiness for AI integration is not solely determined by individual motivation but also by the availability of institutional support systems. Professional development emerged as a key factor influencing their confidence and competence in adopting AI tools. The study confirmed the need for a structured, ongoing professional development program that addresses both the technical and ethical dimensions of AI use in education, while also fostering a culture of collaboration among educators.

Based on the conclusions, it is recommended that educational institutions invest in comprehensive training programs focused on AI literacy, tool application, and

ethical guidelines. Schools should also strengthen infrastructure by ensuring access to updated devices and stable internet connections. Furthermore, clear policies must be developed to guide AI integration and protect academic integrity. Lastly, fostering communities of practice among educators can support the sharing of best practices and peer mentorship in AI-enhanced teaching and learning.

Keywords: Aemilianum College, Inc. Artificial Intelligence (AI), Teacher Readiness, AI Integration, Educational Technology, Professional Development, Teaching and Learning, AI in Education, 21st Century Skills, Instructional Innovation, Pedagogical Adaptation

Introduction

The integration of Artificial Intelligence (AI) in education is reshaping teaching and learning worldwide. AI-powered tools, such as intelligent tutoring systems, automated grading software, and adaptive learning platforms, enhance personalized learning experiences and reduce teachers' workload (Luckin et al., 2018). Studies indicate that AI can support differentiated instruction by analyzing student data to provide tailored feedback and intervention strategies (Holmes et al., 2019). However, educators' readiness to adopt AI-driven innovations remains a critical factor in its successful implementation. According to Zawacki-Richter et al. (2019), many teachers lack sufficient knowledge and training in AI, raising concerns about their preparedness to utilize these technologies effectively. Given the rapid evolution of AI in global education, it is essential to assess teachers' readiness to integrate AI into their pedagogical practices.

AI adoption in education is gradually gaining attention as schools and universities explore AI-based teaching tools. The Department of Education (DepEd) and the Commission on Higher Education (CHED) have initiated programs to promote digital transformation in learning, yet challenges remain in terms of infrastructure, teacher training, and accessibility (David et al., 2022). Recent research suggests that Filipino educators exhibit varying levels of awareness and preparedness regarding AI integration, with some expressing enthusiasm while others highlight concerns about technical competence and institutional support (Pascua & Reyes, 2023). As the country shifts toward Education 4.0, assessing teachers' readiness for AI integration is necessary to bridge gaps in technological adoption and enhance educational quality.

The increasing use of technology in education necessitates a closer examination of teachers' readiness for AI integration. Schools in urban areas like Legazpi City have started adopting digital learning platforms, but rural institutions still face challenges in connectivity and technological infrastructure. Local studies indicate that while teachers recognize the potential of AI in improving student engagement and learning outcomes, they require more training and support to utilize AI-driven tools effectively (Bicol University Research Center, 2023). Addressing these gaps will be crucial in ensuring equitable access to AI-enhanced education across Albay.

This study is significant as it provides insights into the readiness of teachers for AI integration in teaching and learning. Understanding teachers' preparedness can help educational institutions and policymakers develop targeted training programs, address barriers to AI adoption, and create policies that support seamless AI integration. Furthermore, the findings will contribute to the broader discourse on AI in education by offering localized perspectives that can inform national and global strategies for effective AI-driven teaching and learning.

Statement of the Problem

This study aims to assess teachers' readiness for artificial intelligence (AI) integration in teaching and learning. Specifically, it seeks to answer the following questions:

1. What is the level of teachers' knowledge and experience regarding AI technologies and their applications in education?

2. What factors influence teachers' willingness and readiness to integrate AI in their teaching practices?

3. What challenges do teachers face in adopting AI-powered tools in the classroom?

4. What training and resources do teachers need to effectively implement AI in teaching and learning?

Scope and Delimitations

This study focuses on assessing teachers' readiness for artificial intelligence (AI) integration in teaching and learning. Specifically, it seeks to determine the level of teachers' knowledge and experience with AI technologies, the factors influencing their willingness to adopt AI, the challenges they face in implementing AI-powered tools, and the training and resources they need for effective AI integration. The study will involve 12 teachers from Southern Luzon Technological College Foundation, Inc. (SLTCFI) in Pio Duran, Albay, who will participate in a focus group discussion (FGD) to provide insights into their experiences, perceptions, and challenges related to AI in education. The research will explore their familiarity with AI-driven educational tools, institutional support, and the specific barriers they encounter in utilizing AI for teaching and learning.

The study is delimited to teachers from SLTCFI in Pio Duran, Albay, which means that findings may not be generalizable to teachers from other institutions or regions. It focuses only on AI integration in teaching and learning and does not cover other aspects of AI, such as administrative applications or AI-driven institutional decision-making. Additionally, while the study identifies challenges and resource needs, it does not include the actual implementation of AI training programs or interventions. The study relies on qualitative data from FGDs, which may be influenced by participants' subjective experiences and perspectives, limiting its ability to measure AI readiness on a broader, quantitative scale.

Research Focus

This study aimed to assess the readiness of teachers at SLTCFI Pio Duran in integrating Artificial Intelligence (AI) into their teaching and learning practices. It examined the extent of preparedness in terms of technological infrastructure, availability of training programs, institutional policies, and teachers' attitudes and perceptions toward AI integration. Furthermore, the study explored the challenges that educators encountered in adopting AI-driven teaching methodologies and identified the necessary interventions that could have enhanced their readiness for effective AI implementation in the classroom.

AI EmpowerED: A Professional Development Framework for Enhancing Teachers' Readiness in AI Integration

I. Rationale

As artificial intelligence (AI) becomes increasingly influential in shaping modern education, it is imperative that educators are equipped with the knowledge, skills, and confidence to effectively integrate AI technologies into their teaching practices. This professional development framework is grounded in the findings of the study, which highlighted varying levels of readiness among teachers due to differences in training, institutional support, resource access, and ethical concerns. To bridge these gaps, a structured, inclusive, and sustainable development program is necessary. The framework aims to support teachers in embracing AI as a pedagogical ally, enhancing both teaching efficiency and student learning outcomes while upholding ethical standards and educational integrity

II. Objectives

1. To build foundational knowledge of AI concepts, tools, and applications in education.

2. To develop practical competencies in using AI tools for lesson planning, assessment, content creation, and classroom engagement.

3. To cultivate awareness of the ethical, technical, and pedagogical implications of AI in teaching.

4. To provide ongoing support and collaborative opportunities for teachers in AI integration.

5. To align AI integration practices with institutional policies and curricular goals.

III. Goals

1. Strengthen teachers' confidence and competence in AI use.

2. Promote responsible, effective, and student-centered AI adoption in classrooms.

3. Foster a culture of innovation, adaptability, and continuous learning among educators.

4. Ensure the equitable distribution of AI-related resources and training across all academic departments.

5. Establish clear institutional policies and support systems for sustained AI integration.

IV. Key Strategies

1. **AI Literacy Workshops**
Introductory sessions on what AI is, how it works, and how it applies to education.

2. **Hands-On Training Modules**
Practical, tool-specific sessions on platforms like ChatGPT, Quizlet, and automated grading systems.

3. **Ethics and Policy Forums**
Discussions and training on data privacy, academic integrity, bias, and responsible use.

4. **Mentorship and Peer Coaching**
Creating a community of practice for knowledge sharing and classroom-based coaching.

5. **Continuous Professional Learning**
Webinars, online certifications, and access to curated AI learning materials.

6. **Institutional Collaboration**
Partnering with ICT departments, administrators, and tech providers to ensure access to infrastructure and tech support.

V. Expected Outcomes

1. Teachers will demonstrate improved understanding and confidence in AI tools.

2. AI will be integrated meaningfully into lesson delivery, assessment, and student support.

3. Schools will have updated AI-use policies, including ethical guidelines and implementation plans.

4. A support system will be established for ongoing AI-related professional growth.

5. Students will benefit from enhanced engagement, personalized learning, and more responsive instruction.

Findings

Based on the results of the study, the following key findings were identified and formulated:

1. Teachers generally have a moderate level of knowledge and experience with AI technologies, recognizing their potential

benefits but often limited by access to training and resources.

2. Teachers' willingness and readiness to integrate AI are influenced by their confidence, prior experience, perceived usefulness, institutional support, and access to clear guidelines and resources.

3. Teachers face challenges such as unreliable internet connectivity,

lack of technical support, ethical concerns, and limited familiarity with AI tools in adopting AI-powered technologies.

4. Teachers need comprehensive, hands-on training, ongoing technical support, access to reliable devices and internet, and clear institutional policies to effectively implement AI in teaching and learning

Conclusions

Based on the findings of this study the following conclusions were formulated:

1. Teachers' moderate knowledge and experience with AI highlight the need for targeted training and resource provision to maximize AI's educational potential.

2. The integration of AI in teaching is contingent upon fostering teacher confidence, providing institutional support, and ensuring access to clear

guidelines and practical resources.

3. Addressing technical, ethical, and familiarity challenges is essential to overcoming barriers to effective AI adoption in classrooms.

4. Comprehensive professional development, continuous support, and adequate infrastructure are critical for successful AI implementation in education.

Recommendations

Based on the conclusions drawn from this study, the following recommendations were formulated:

1. Implement targeted training programs and provide easily accessible AI resources to enhance teachers' knowledge and practical skills in using AI technologies.

2. Develop clear institutional policies, offer ongoing support,

and create confidence-building initiatives to encourage teachers' willingness and readiness to integrate AI.

3. Invest in reliable technical infrastructure, establish ethical guidelines, and conduct awareness sessions to address challenges and promote responsible AI use.

4. Ensure continuous professional development, maintain technical

support systems, and upgrade infrastructure to sustain effective AI integration in teaching and learning.

5. Foster collaborative communities of practice where teachers can share experiences, strategies, and challenges related to AI integration, enhancing peer learning and support.

6. Engage stakeholders - including school leaders, policymakers, and technology providers - in developing comprehensive AI adoption plans to ensure alignment with educational goals and sustainability.

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