21st Century Learning: A Research Analysis of Numeracy Literacy Trends among Students

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Sections Info	ABSTRACT
Article history: Submitted: November 26, 2024 Final Revised: January 25, 2025 Accepted: January 26, 2025 Published: January 31, 2025 *Keywords:* 21st Century Learning; Educational Innovation; Numeracy Literacy; Primary Education; Technology Integration.	**Objective:** This study analyzes recent trends in numeracy literacy among primary school students in Kediri District and identifies the challenges, opportunities, and steps to improve students' numeracy achievement in the 21st century. **Method:** A qualitative approach was used in this study, including interviews with teachers, classroom observations, and documentation of numeracy assessment results. The study involved 200 grade 4 and 5 students from 10 partner primary schools in the Campus on Duty (CoD) program. **Results:** The findings indicate that numeracy literacy trends are influenced by the integration of technology, including game-based learning applications and online platforms. Despite limited resources and insufficient teacher training, technology provides significant opportunities for enhancing numeracy learning. Project-based learning and collaboration with local technology communities were found to be effective in improving numeracy understanding by allowing students to apply concepts in real-world contexts. **Novelty:** This study emphasizes the unique role of project-based learning and collaboration with local technology communities as strategies for improving numeracy literacy. By integrating real-world contexts and technology, the findings offer new insights into bridging traditional teaching methods with innovative approaches, addressing the evolving demands of 21st-century education.

INTRODUCTION

In the 21st century, numeracy literacy has become an essential skill for students, reflecting the demands of a world increasingly driven by data and technological advancements. Despite this, numerous studies have pointed out considerable gaps in students' numeracy abilities, especially in developing countries like Indonesia. Integrating technology and innovative teaching methods has been suggested to bridge these gaps. However, challenges such as limited access to resources, inadequate teacher training, and varying levels of technological adoption continue to persist (Suryani & Nugroho, 2021; Ahmed & Khan, 2022; Beauchamp & Kennewell, 2013). Understanding the trends and factors influencing numeracy literacy is crucial for developing effective interventions. This study aims to explore these trends, focusing on integrating technology, project-based learning, and contextualized approaches in numeracy education, especially for primary school students in Kediri District. By examining these elements, the research addresses the urgent need for innovative and adaptable strategies to improve numeracy literacy in 21st-century learning environments.

Numeracy literacy is a crucial component of education in the 21st century (Fischer & Neumann, 2016; Moyo & Ndhlovu, 2021; Schleppegrell, 2018; Simons & de Vries, 2019). Amidst rapid technological advancements and socio-economic changes, numeracy literacy equips students with the necessary skills to tackle future challenges. It

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