

The Effect of Digital Media Training on Computational Thinking and Information and Communication Technology Skills of Elementary School Teachers in Kawunganten District

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ABSTRACT

The rapid digital transformation has fundamentally reshaped teaching and learning processes. Today, teachers must focus not only on their existing competencies but also on mastering additional skills related to technology, critical thinking, creativity, and innovation. The Center for Curriculum Redesign (CCR) provides a robust framework for implementing 21st-century education, encompassing four essential dimensions: knowledge, skills, character, and metacognitive capabilities. Among these, computational thinking is a vital skill that supports numerous aspects of modern education. In Kawunganten District, a significant gap exists between the demand for digital competencies and the actual skills of teachers. If this challenge is not addressed immediately, we risk a decline in education quality and student skill levels, which will negatively impact human resource development in the region. It is crucial to recognize this relationship to identify and implement effective strategies for enhancing teachers' competencies in the digital era. This research employs a quantitative approach using a pre-experimental method that features a one-group pre-test and post-test design. The data analysis aims to assess the impact of digital media training on computational thinking and information and communication technology skills, ensuring that our educational strategies are both impactful and effective.

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1. INTRODUCTION

The digital transformation in education requires teachers to not only master teaching materials but also adapt to technological skills. Computational thinking is a key 21st-century competency, and ICT skills form the foundation for creating digital-based learning. However, teachers in Kawunganten District still face limitations in applying ICT skills and computational thinking. This study aims to determine the extent to which digital media training can improve these two important aspects.

2. METHODOLOGY

This study uses a quantitative approach with a pre-experimental method. The design used is a one-group pre-test and post-test. The research subjects consist of 32 elementary school teachers randomly selected from several elementary schools in Kawunganten District. The instruments used were questionnaires (for the variables

of digital training and ICT skills) and essay tests (to measure computational thinking ability). Data analysis techniques used a paired sample t-test to examine differences between pre- and post-test results.

3. RESULTS AND DISCUSSIONS

Data analysis results indicate a significant increase in CT and ICT test scores after teachers participated in digital media training. In terms of CT, improvements were observed in the dimensions of decomposition, abstraction, pattern recognition, and algorithms. Teachers began to systematically identify learning problems and develop solutions based on computational logic. Meanwhile, teachers' ICT skills improved, particularly in the use of Microsoft Office software, Canva, and other digital platforms to support online and offline learning. The training had a positive impact on teachers' confidence and practical abilities in designing digital materials and using technology-based evaluation tools. These findings reinforce previous research (Rahmawati & Sari, 2022; Kalelioğlu, 2018) which states that structured ICT training improves teachers' digital pedagogical capacity.

4. CONCLUSIONS

Digital media training has been proven to have a significant impact on improving computational thinking and ICT skills among elementary school teachers. To improve the quality of 21st-century learning, structured, sustainable, and relevant training programs are needed to address teachers' needs in the field. Further research is recommended to examine the effectiveness of blended learning-based digital training models and long-term mentoring support.

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