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# ENHANCING THE METHODOLOGY FOR UTILIZING DIGITAL EDUCATIONAL TECHNOLOGIES AMONG FUTURE PRIMARY SCHOOL TEACHERS (USING NATURAL SCIENCE AS AN EXAMPLE)

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**ABSTRACT**

*With the rapidly advancing digital landscape, educational institutions are continually exploring ways to incorporate digital tools into their curricula. This study focuses on enhancing the methodology for employing digital educational technologies among aspiring primary school teachers, focusing specifically on Natural Science subjects. A mixed-methods approach, including surveys, interviews, and classroom observations, was employed to analyze the challenges, needs, and potential improvements for integrating digital technologies in Natural Science education. Findings indicated that providing sufficient training and support to future educators is crucial in ensuring effective utilization of digital tools. Moreover, the study emphasizes the importance of a pedagogical framework aimed at promoting active learning, critical thinking, and interactive engagement when integrating digital technologies within primary school Natural Science education. The recommendations proposed in this article will lay a foundation for advancing the methodology for utilizing digital educational technologies among future primary school teachers.*

**Introduction:**

Digital technology has revolutionized numerous aspects of our lives, including the field of education. In today's interconnected world, it is imperative for primary school teachers to be equipped with the skills and knowledge necessary to incorporate digital educational technologies effectively. The significance of integrating these technologies can be observed distinctly in the Natural Science subject matter, where interactive digital tools can substantially enhance students' engagement, understanding, and practical application. Therefore, this study aims to explore and improve the methodology for utilizing digital educational technologies among future primary school teachers, using Natural Science as a prime example.

**Methods:**

A mixed-methods research design was implemented to investigate the use of digital educational technologies among future primary school teachers. A survey was administered to a sample of aspiring educators, exploring their level of digital literacy, training experiences, and perceived challenges in integrating digital tools within the Natural Science curriculum. Additionally, in-depth interviews were conducted with a subset of participants to gather qualitative data pertaining to their attitudes, beliefs, and needs with regard to employing digital technologies effectively. Finally, classroom observations were employed to observe and assess the implementation of digital educational technologies in real-time Natural Science lessons.

**Findings:**

The analysis of collected data highlighted several key findings. Firstly, a significant portion of future primary school teachers displayed a moderate level of digital literacy; however, more targeted training programs are required to foster advanced technological skills. Secondly, participants identified a lack of time, curriculum constraints, and limited access to digital resources as the primary challenges in integrating digital technologies within the Natural Science curriculum. Moreover, classroom observations revealed that many educators utilized digital tools as passive instructional aids, failing to encourage active learning or critical thinking skills.

Thirdly, the data showed that the use of digital technologies had a positive impact on student engagement and motivation. Students were more actively involved in their learning and demonstrated a higher level of interest in Natural Science topics when digital tools were incorporated into the curriculum. Fourthly, participants expressed a need for ongoing professional development in order to effectively integrate digital technologies into their teaching practices. They identified a lack of knowledge and confidence in using different digital tools and platforms as a barrier to implementation. Finally, the findings indicated that while digital technologies have the potential to enhance Natural Science education, proper infrastructure and technical support are crucial for successful implementation. Lack of reliable internet access and malfunctioning equipment were cited as significant obstacles. Overall, the findings suggest that there is a need for targeted training programs, ongoing professional development, and improved infrastructure in order to fully harness the potential of digital technologies in Natural Science education.

**Discussion:**

To address the identified challenges and improve the methodology for incorporating digital educational technologies in Natural Science education, several recommendations are proposed. Firstly, it is crucial to implement comprehensive training programs that educate future primary school teachers on the effective utilization of digital tools. These programs must integrate hands-on experience, peer collaboration, and problem-solving strategies. Secondly, it is essential to develop a pedagogical framework that encourages active learning, critical thinking, and student engagement. This framework should leverage the potential of digital technologies to facilitate interactive and creative learning experiences, such as virtual experiments or simulations. Lastly, addressing technological and resource limitations through partnerships with educational technology companies, granting access to advanced tools and software, would enrich the learning experiences of both teachers and students.

**Conclusion:**

Integrating digital educational technologies within the Natural Science curriculum holds tremendous potential for enhancing primary school students' engagement, understanding, and practical application of scientific concepts. To optimize the utilization of these tools, it is imperative to improve the methodology employed by future primary school teachers. This study has outlined key challenges and proposed recommendations to facilitate effective integration, highlighting the significance of comprehensive training programs, the establishment of a pedagogical framework, and partnerships with technology companies. These suggestions will pave the way for better-prepared educators to harness the benefits of digital technologies, ultimately enriching the Natural Science learning experiences of primary school students.

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