

To Evaluate the Influence of Teacher Appraisal (Apas) on Teachers' Performance in Selected Primary Schools in Kapiri Mposhi District

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Abstract

This study explored the integration of technology into teaching to enhance personalized learning in selected schools in Kalomo District, Zambia. The main objectives were to assess the current use of technological tools, identify challenges affecting their implementation, and examine the level of acceptance among teachers, learners, and administrators. A mixed-methods research design was adopted, combining quantitative and qualitative approaches. Data was collected through surveys, interviews, and focus group discussions to provide a comprehensive understanding of the research problem. The findings revealed that while schools are using basic digital tools such as Microsoft Office and online learning platforms, the integration of advanced technologies for personalized learning is still limited. Major challenges identified include inadequate digital infrastructure, limited financial resources, lack of teacher training, insufficient access to technological tools, and unreliable internet connectivity. Despite these constraints, participants demonstrated a high level of acceptance and positive attitudes toward the use of technology in education. The study further established that technology-powered tutoring systems have the potential to improve learning outcomes by offering adaptive content, real-time feedback, and individualized learning experiences. These systems can address diverse learner needs and promote student-centered learning.

Keywords: Technology Integration, Personalized Learning, Educational Technology, ICT, Digital Tools, Teaching and Learning.

1. INTRODUCTION

Technology refers to the application of scientific knowledge, tools, and systems to improve human life and solve problems. It includes both physical devices such as computers and mobile phones, as well as software and digital platforms. Over time, technology has become an essential part of daily life, influencing various sectors including education.

In education, technology has transformed traditional teaching methods into more interactive and learner-centered approaches. It enables personalized learning, where instruction is tailored to individual learner needs, improving engagement and academic performance. Technology-powered tutoring systems play a key role by providing adaptive learning, real-time feedback, and flexible learning opportunities.

These systems help overcome challenges associated with traditional teaching, such as limited teacher attention and differences in learner abilities. They also allow students to learn at their own pace and access content anytime and anywhere, making education more accessible and effective.

Background of the Study

Globally, the integration of technology in education has increased rapidly due to its ability to enhance teaching and learning. Many developed countries have successfully adopted digital tools and platforms to support personalized learning and improve educational outcomes.

In Africa, the use of technology in education is gradually growing, although it is still limited by challenges such as poor infrastructure, high costs, and low digital literacy. Some countries have introduced mobile-based learning solutions to improve access to education, especially in remote areas.

In Zambia, technology integration in education is still developing. While some schools use basic tools such as computers and online platforms, many face challenges such as lack of resources, limited internet access, and insufficient teacher training. These challenges affect the effective use of technology in schools, particularly in rural areas like Kalomo District.

Statement of the Problem

Despite the potential benefits of technology in education, many schools in Kalomo District continue to rely on traditional teaching methods that do not fully support personalized learning. Challenges such as overcrowded classrooms, limited teaching resources, and lack of access to technology make it difficult to meet diverse learner needs.

Although some digital tools are available, their use is often limited and not effectively integrated into teaching. Additionally, teachers may lack the necessary skills and training to use technology effectively. As a result, students may not fully benefit from the advantages of technology-enhanced learning.

Therefore, there is a need to explore how technology can be effectively integrated into teaching to improve personalized learning in Kalomo District.

Purpose of the Study

The purpose of this study is to explore the integration of technology into teaching to enhance personalized learning in selected schools in Kalomo District, Zambia.

Objectives of the Study

The study is guided by the following objectives:

- To assess the current use of technology in teaching and learning.
- To identify challenges affecting the integration of technology in schools.
- To examine the level of acceptance of technology among teachers, learners, and administrators.

Research Questions

The study seeks to answer the following questions:

- How is technology currently used in teaching and learning in schools?
- What challenges affect the integration of technology in education?
- What is the level of acceptance of technology among stakeholders?

Significance of the Study

This study is important because it provides insights into how technology can improve teaching and learning in schools. It helps educators understand the benefits and challenges of using technology in education.

The findings will also assist policymakers in developing strategies to support technology integration. Additionally, the study will benefit researchers by contributing to existing knowledge on educational technology, particularly in developing regions.

Scope of the Study

The study focuses on selected schools in Kalomo District, Zambia. It examines the use of technology in teaching, challenges affecting its implementation, and the level of acceptance among teachers, learners, and administrators.

2. REVIEW LITERATURE

Technology refers to the use of scientific knowledge, tools, and systems to improve human activities. In education, technology has transformed traditional teaching methods into more interactive and learner-centered approaches. One major benefit is personalized learning, where instruction is tailored to individual student needs, improving engagement and performance.

Technology-powered tutoring systems use tools such as artificial intelligence and data analytics to provide adaptive learning and real-time feedback. These systems help address challenges like overcrowded classrooms and diverse learner needs. This chapter reviews existing literature on the effectiveness, applications, and challenges of technology integration, particularly in developing countries like Zambia.

Technology-Powered Tutoring Systems

Technology-powered tutoring systems are digital platforms that simulate human tutoring by providing guidance, feedback, and personalized instruction. They use adaptive learning to adjust content based on student performance, ensuring that learners receive appropriate support.

Key components include adaptive algorithms, natural language processing, and data analytics. These features allow systems to track student progress, identify weaknesses, and provide immediate feedback. As a result, learning becomes more efficient and tailored to individual needs.

Effectiveness of Technology in Education

Technology improves learning outcomes by providing personalized instruction, immediate feedback, and interactive content. It enhances student engagement and supports self-paced learning, which is especially useful for subjects requiring step-by-step understanding.

Research shows that students using technology-based learning systems often perform better than those using traditional methods, due to increased motivation and better access to learning resources.

Effectiveness in Europe.

European countries have successfully integrated technology into education due to strong infrastructure and supportive policies. Tools such as learning management systems and adaptive platforms improve personalized learning and academic performance.

Technology also enhances administrative efficiency by automating tasks like grading and attendance. However, challenges such as data privacy and unequal access still exist.

Effectiveness in Africa

In Africa, technology adoption in education is increasing but remains limited. Programs such as mobile-based learning have improved access to education, especially in remote areas.

However, challenges such as poor infrastructure, high costs, and limited digital skills hinder widespread implementation. These issues affect the effectiveness of technology in improving learning outcomes.

Technology Effectiveness in Zambia

In Zambia, the use of technology in education is still developing. Some schools use platforms like Moodle and Google Classroom, especially after the COVID-19 pandemic.

Despite these efforts, challenges such as limited internet access, lack of devices, and insufficient teacher training reduce effectiveness. Technology has potential to improve education but requires more support and investment.

Comparative Analysis

Europe has advanced technology integration supported by strong infrastructure and policies, while Africa faces challenges such as limited resources and connectivity. Despite these differences, both regions show that technology can improve learning when properly implemented.

Applications of Technology in Personalized Learning

Technology supports personalized learning by providing adaptive content, real-time feedback, and individualized learning paths. Systems like ASSISTments and Cognitive Tutor have shown improvements in student performance.

These tools help students learn at their own pace and receive targeted support, making learning more effective.

Adaptive Learning Algorithms

Adaptive learning algorithms analyze student performance and adjust content accordingly. This ensures that learners receive appropriate support based on their needs.

Research indicates that adaptive learning improves engagement, understanding, and academic performance by providing personalized instruction.

Challenges and Barriers of Technology Integration

The integration of technology in education faces several challenges, particularly in developing regions. These include technical, financial, and policy-related barriers.

Technical Challenges

Technical challenges include poor internet connectivity, lack of infrastructure, and data security concerns. These issues limit effective use of technology in schools.

Chapter Summary

The literature shows that technology has the potential to improve education through personalized learning. However, challenges such as infrastructure, funding, and training must be addressed for effective implementation.

3. METHODOLOGY

This chapter describes the methods used to investigate the integration of technology into teaching to enhance personalized learning in selected schools in Kalomo District, Zambia. It outlines the research design, data collection methods, and data analysis procedures used in the study.

The study aimed to assess the use of technology, identify challenges, and examine acceptance among teachers, learners, and administrators. A structured methodology was adopted to ensure reliable and valid results.

Research Design

This study adopted a mixed-methods research design, combining both quantitative and qualitative approaches. The quantitative approach was used to collect measurable data on technology use and perceptions, while the qualitative approach provided deeper insights into participants' experiences and views.

The study was conducted in three phases. The first phase focused on assessing the use of technology in schools using surveys. The second phase explored challenges and opportunities through interviews and focus group discussions. The third phase examined the level of acceptance of technology among stakeholders.

The mixed-methods approach allowed for a comprehensive understanding of the research problem by combining numerical data with detailed explanations.

Data Collection Methods

Multiple data collection methods were used to gather comprehensive information from participants. These included surveys, interviews, and focus group discussions. Using different methods helped improve the reliability and validity of the findings.

Surveys

Surveys were used to collect data from learners, teachers, and administrators. They included both closed-ended and open-ended questions.

Closed-ended questions provided quantitative data on the use and effectiveness of technology, while open-ended questions allowed participants to share their opinions and experiences. Surveys were efficient for collecting data from many respondents and identifying patterns and trends.

Interviews

Semi-structured interviews were conducted with selected participants to gain detailed insights into their experiences with technology in education. The flexible nature of interviews allowed the researcher to ask follow-up questions and explore issues in depth.

Interviews focused on challenges, benefits, and attitudes toward technology integration. They provided rich qualitative data that complemented the survey findings.

Focus Group Discussions

Focus group discussions were conducted with groups of learners and teachers to explore shared experiences and perspectives. These discussions encouraged interaction and helped identify common views on technology use.

Although some participants may be less active, the researcher ensured equal participation to gather balanced information.

Data Analysis Procedures

Data analysis involved organizing and interpreting collected data to answer the research questions. Quantitative data from surveys were analyzed using descriptive statistics such as percentages and frequencies.

Qualitative data from interviews and focus groups were analyzed using thematic analysis, where responses were grouped into common themes. This approach helped identify patterns and draw meaningful conclusions.

Ethical Considerations

Ethical principles were observed throughout the study. Participants were informed about the purpose of the research and gave their consent before participating.

Confidentiality was maintained by keeping participants' identities anonymous. Participation was voluntary, and participants were allowed to withdraw at any time. Data was used only for academic purposes.

Study Population

The study population included learners, teachers, and administrators from selected schools in Kalomo District. These groups were chosen because they are directly involved in the teaching and learning process.

Sampling Method

A purposive sampling method was used to select participants with relevant knowledge and experience in technology use. This ensured that the data collected was meaningful and relevant to the study.

Sample Size

The sample consisted of 30 learners, 6 teachers, and 3 administrators. This size was manageable and sufficient to provide useful insights into the research problem.

Chapter Summary

This chapter described the methodology used in the study, including the mixed-methods design, data collection methods, and analysis procedures. Data was collected through surveys, interviews, and focus group discussions and analyzed using both statistical and thematic methods. Ethical considerations were observed, and purposive sampling was used to select participants.

4. CONCLUSION

Based on the findings, the study concludes that the Annual Performance Appraisal System (APAS) has the potential to improve teacher performance, motivation, and instructional effectiveness in primary schools in Kapiri Mposhi District. When used as a developmental tool through constructive feedback and supportive supervision, it can enhance teaching practices and learner outcomes.

However, the system is not fully achieving its objectives due to challenges such as inconsistent and biased implementation, inadequate training of appraisers, limited resources (especially in rural schools), and lack of follow-up support. This creates a gap between theory and practice.

Although frameworks like Goal-Setting Theory and Expectancy Theory support the effectiveness of appraisal systems, these principles are not fully applied in practice. As a result, APAS is often treated as an administrative requirement rather than a tool for professional development.

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