

Adoption of Seleke Model of Information and Communication Technology Integration through Moodle Learning Management Systems a Case of One Comprehensive University in South Africa



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ABSTRACT

The research examines how the Seleke model of Information and Communication Technology (ICT) integration through Moodle Learning Management System (LMS) affects accounting education within a complete South African university. The research aims to improve teaching methods by creating more practical and accessible accounting education that matches the requirements of 21st-century skills. The research uses the Technology Acceptance Model (TAM) to study how Moodle's perceived usefulness and ease of adoption affect both accounting educators and student teachers. The research employed a quantitative approach to study third- and fourth-year student teachers (N=426) within the Faculty of Education. The online questionnaire reached 146 participants through Google Forms. The data were analyzed using Stata version 18. The research shows that Moodle LMS usage and student interest in accounting content exist at a moderate level. The main obstacles to effective ICT integration are inadequate suitable devices and unreliable internet connections. The Seleke model shows promising potential for educational delivery through its ability to enhance student access to learning materials and assignments and interactive communication tools. The research suggests that institutions should invest in digital infrastructure and support systems to achieve maximum educational benefits from ICT. The research adds value to the field through its contextualized framework for ICT adoption in accounting education and its identification of structural barriers in higher education settings. The research delivers useful information to curriculum planners and policymakers, and teacher educators who aim to improve ICT-based pedagogy in South African universities.

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INTRODUCTION

Ndlovu and Afolabi explain the possibility of applying Moodle in education, especially in rural areas.¹ According to Ndlovu, the quality of infrastructure and access to technology should be enhanced, while Afolabi explains how Moodle can be used to replace conventional face-to-face learning during the

¹ Bongani T. Gamede, Oluwatoyin Ayodele Ajani, and Olufemi Sunday Afolabi, “Exploring the Adoption and Usage of Learning Management System as Alternative for Curriculum Delivery in South African Higher Education Institutions during Covid-19 Lockdown,” *International Journal of Higher Education* 11, no. 1 (2022): 71–84; R. Chauke and P. Ndlovu, “Digital Media and the Fading Voice of Tradition: A Case of Rural Youth in Limpopo,” *Journal of African Youth Studies* 8, no. 2 (2023): 102–17.

COVID-19 outbreak.² The current studies include Muchlis and Mavuso, presenting the approaches to developing Moodle-based learning management systems. Muchlis focuses on the learning, and Mavuso focuses on the learning management system for Information Technology courses.³ These studies equally and collectively reveal the importance of the integration of Moodle in education and the need for further exploration and growth in this area. The studies hitherto have established that the incorporation of simulations, multimedia, and online discussions can improve accounting education. This was confirmed by Abdulrahman et.al., and Muir et.al.⁴ The Seleke model of integrating ICT in schools explains how technology can support the learning and teaching of accounting at various stages. According to the findings of the study, students are more motivated and participate more in accounting classes when they are made to learn through ICT methods. The availability of Learning Management Systems (LMS) and online platforms has the ability to enhance the access and interactivity of accounting education, according to Tetteh et al.⁵ Therefore, it is possible to combine the Seleke model with LMS tools and offer online accounting courses to students effectively. In the study by Ghatrifi, Amairi, and Thottoli, it is shown that the use of accounting software and tools helps students practice the applications of accounting in real-life organizations.⁶

This practical mode helps them prepare for the actual problems they may face in an accounting position. The availability of platforms and digital resources has made it easier for students with different abilities to access accounting education, according to Tettamanzi, Minutiello and Murgolo.⁷ The authors of the article explain that this accessibility is important for learners, especially in areas with specific needs and preferences, and particularly for learners in rural universities. The integration of ICT models in the teaching of accounting has the potential to enhance the learning process and make the students better professionals, as pointed out by Jackson and Meek.⁸ These models help the students to use financial data and accounting tools in a way that has been recommended by Kimmel et al.⁹ Practical experiences help students to gain skills that are directly related to their future professional activity as accountants. Models are used in closing the gap between theory and practice in the teaching and learning of accounting, as pointed out by Twyford and Dean.¹⁰

In the model, students are able to apply their knowledge, analyze problems, and solve them as if they were solving them in a real-world business environment.¹¹ The hands-on learning method helps students to understand accounting principles more effectively. According to De Villiers, accounting models based on accounting software help to prepare students for the world of work.¹² These models often provide students with scenarios that require them to think critically and solve problems in the current

² Gamede, Ajani, and Afolabi, "Exploring the Adoption and Usage of Learning Management System as Alternative for Curriculum Delivery in South African Higher Education Institutions during Covid-19 Lockdown.," Mphathisi Ndlovu, "Facing History in the Aftermath of Gukurahundi Atrocities: New Media, Memory and the Discourses on Forgiveness on Selected Zimbabwean News Websites," *Peace and Conflict Studies* 24, no. 2 (2017): 3.

³ Muhammad Muchlis Solichin, Achmad Muchlis, and Ahmad Ghufuran Ferdiant, "Learning Motivation as Intervening in the Influence of Social Support and Self Regulated Learning on Learning Outcome," *International Journal of Instruction* 14, no. 3 (2021): 945–64; Nesta Bortey-Sam et al., "Health Risk Assessment of Heavy Metals and Metalloid in Drinking Water from Communities near Gold Mines in Tarkwa, Ghana," *Environmental Monitoring and Assessment* 187 (2015): 1–12.

⁴ Musbau D Abdulrahman et al., "Multimedia Tools in the Teaching and Learning Processes: A Systematic Review," *Heliyon* 6, no. 11 (2020); Manisha Paliwal and Archana Singh, "Teacher Readiness for Online Teaching-Learning during COVID- 19 Outbreak: A Study of Indian Institutions of Higher Education," *Interactive Technology and Smart Education* 18, no. 3 (2021): 403–21; Tracey Muir et al., "Using Interactive Online Pedagogical Approaches to Promote Student Engagement," *Education Sciences* 12, no. 6 (2022): 415.

⁵ Lexis Alexander Tetteh et al., "Covid-19 Pandemic and Online Accounting Education: The Experience of Undergraduate Accounting Students in an Emerging Economy," *Journal of Accounting in Emerging Economies* 13, no. 4 (2023): 825–46.

⁶ Maryam Omer Madhaffar Al Ghatrifi, Jawaher Salim Sultan Al Amairi, and Mohammed Muneerali Thottoli, "Surfing the Technology Wave: An International Perspective on Enhancing Teaching and Learning in Accounting," *Computers and Education: Artificial Intelligence* 4 (2023): 100144.

⁷ Patrizia Tettamanzi, Valentina Minutiello, and Michael Murgolo, "Accounting Education and Digitalization: A New Perspective after the Pandemic," *The International Journal of Management Education* 21, no. 3 (2023): 100847.

⁸ Denise Jackson and Stephanie Meek, "Embedding Work-Integrated Learning into Accounting Education: The State of Play and Pathways to Future Implementation," *Accounting Education* 30, no. 1 (2021): 63–85.

⁹ Paul D Kimmel, Jerry J Weygandt, and Donald E Kieso, *Financial Accounting: Tools for Business Decision Making* (John Wiley & Sons, 2020).

¹⁰ Erin Twyford and Bonnie Amelia Dean, "Inviting Students to Talk the Talk: Developing Employability Skills in Accounting Education through Industry-Led Experiences," *Accounting Education* 33, no. 3 (2024): 296–318.

¹¹ Kimmel, Weygandt, and Kieso, *Financial Accounting: Tools for Business Decision Making*.

¹² Katusha de Villiers, "Bridging the Health Inequality Gap: An Examination of South Africa's Social Innovation in Health Landscape," *Infectious Diseases of Poverty* 10, no.1(December 1, 2021): 19, <https://doi.org/10.1186/s40249-021-00804-9>.

world, where technology is developing very fast. They can be easily updated to incorporate the current developments in accounting software and tools, ensuring students are well-positioned to meet the changing world of accounting skills.¹³ The researcher stresses the importance of this in a field where the majority of work involves analyzing and interpreting information. In their article, Carvalho and Almeida state that the application of models in accounting education, especially when combined with ICT, helps to prepare students for the world of work as accountants.¹⁴ Therefore, the integration of models into accounting instruction can be described as a starting platform for both theoretical and practical learning. Today, more application of ICT models in accounting education is observed by Birt et.al.¹⁵ Although these models are meant to enhance the learning process and to make students better accountants in the real world, some problems and gaps need to be solved to effectively implement and use ICT models in accounting education. The purpose of the research is to explore how students perceive the adoption of the Seleke model through Moodle Learning Management Systems at a university in South Africa, with the primary goal of identifying the factors that determine students' views on integrating ICT.

LITERATURE REVIEW

The Technology Acceptance Model (TAM) serves as a popular framework to evaluate Moodle LMS adoption within higher education institutions. Research indicates that Moodle acceptance among students and lecturers depends heavily on their perceptions of usefulness and ease of use.¹⁶ Student perceptions about Moodle's usefulness, together with their difficulties in using the platform, determine their actual usage.¹⁷ The perceived ease of use by lecturers directly affects their willingness to adopt Moodle as a teaching tool.¹⁸ Some lecturers view Moodle as a content repository despite its interactive features because they do not respond positively to its ease of use.¹⁹ The negative impact on the perception of lecturers is due to usability problems and inadequate interaction and communication systems.²⁰ The Technology Acceptance Model demonstrates its effectiveness in both predicting Moodle acceptance and determining adoption factors within educational contexts.²¹

The Seleke Model of ICT Integration

The Proposed Model of ICT Integration in Schools presents a framework to demonstrate how ICT should be integrated into high school Accounting education. The model demonstrates how ICT tools should be strategically used to transform traditional accounting education into an interactive, learner-centered experience. The model supports constructivist learning principles because students use digital platforms to actively work with content, which improves their understanding and develops their critical thinking abilities and practical skills. The model emphasizes that infrastructure, together with teacher training and curriculum alignment, serves as an essential factor for achieving successful ICT integration. The model emerged from Seleke's research about ICT applications in Accounting lesson delivery at the OR Tambo

¹³ Janet G Hamilton, Raymond N Johnson, and John L Eckroth, "Critical Thinking Skills In The Accounting Curriculum," *Journal of Theoretical Accounting Research* 18, no. 3 (2023).

¹⁴ Carla Carvalho and Ana Carlos Almeida, "The Adequacy of Accounting Education in the Development of Transversal Skills Needed to Meet Market Demands," *Sustainability* 14, no. 10 (2022): 5755.

¹⁵ Jacqueline Birt, Maryam Safari, and Vincent Bicudo de Castro, "Critical Analysis of Integration of ICT and Data Analytics into the Accounting Curriculum: A Multidimensional Perspective," *Accounting & Finance* 63, no. 4 (2023): 4037–63.

¹⁶ Boštjan Šumak, Marjan Heričko, and Maja Pušnik, "A Meta-Analysis of e-Learning Technology Acceptance: The Role of User Types and e-Learning Technology Types," *Computers in Human Behavior* 27, no. 6 (2011): 2067–77; M. Moakofhi et al., "Challenges of Adopting E-Learning at a Technical and Vocational Education and Training (TVET) Institution in Botswana," *International Journal of Education and Development Using Information and Communication Technology (IJEDICT)* 15, no. 2 (2019): 36–52.

¹⁷ H.B. Essel and K.A. Wilson, "Students' Perception of Moodle and the Learning Process: A Case Study of University of Ghana," *Journal of Education and Practice* 8, no. 17 (2017): 73–79.

¹⁸ Moakofhi et al., "Challenges of Adopting E-Learning at a Technical and Vocational Education and Training (TVET) Institution in Botswana."

¹⁹ P.S.C. Goh, K.E. Leong, and K. Kasmin, "Learning Management System: A Tool for Active Learning," *International Journal of E-Education, e-Business, e-Management and e-Learning* 4, no. 2 (2014): 73–77.

²⁰ Goh, Leong, and Kasmin, "Learning Management System: A Tool for Active Learning."

²¹ Šumak, Heričko, and Pušnik, "A Meta-Analysis of e-Learning Technology Acceptance: The Role of User Types and e-Learning Technology Types"; Moakofhi et al., "Challenges of Adopting E-Learning at a Technical and Vocational Education and Training (TVET) Institution in Botswana."

District in the Eastern Cape, South Africa.²² The model develops through separate stages of learning and experiences, which help students integrate ICT into their Accounting classroom.²³

Experiences

The model consists of essential ICT-based learning experiences, which include interactive learning. Interactive learning is the combination of simulations and accounting software, and multimedia resources that creates an environment which boosts student engagement and content understanding. Through digital platforms, such as Google Classroom and MS Teams, learners work together to complete accounting assignments. This develops teamwork abilities and enables knowledge sharing. The second essential ICT-based learning experience is Self-Directed Learning. Through ICT, students gain independence in their learning process because they have access to digital educational resources and self-testing tools. The immediate feedback system of online quizzes and automated assessments continuously helps students improve their learning.

The model is operationalized in several phases.

Planning Phase: This needs analysis, Infrastructure review, Teacher readiness assessment, Implementation Phase, and ICT tools receive integration into educational plans. The class uses digital content and online platforms as teaching tools. Ongoing technical and pedagogical support. *Monitoring and Evaluation phase:* The assessment evaluates how ICT implementation affects student achievement results. Educators and learners provide feedback to the system. The ICT strategies undergo refinement through data analysis. *Sustainability Phase:* Continuous professional development, Policy support, and resource allocation. The involvement of stakeholders ensures a long-term impact on the program. This structured method ensures ICT functions as a core teaching element for Accounting education, which enables a transition from teacher-led to student-focused instruction.

Experience with the Seleke Model of Information and Communication Technology Integration

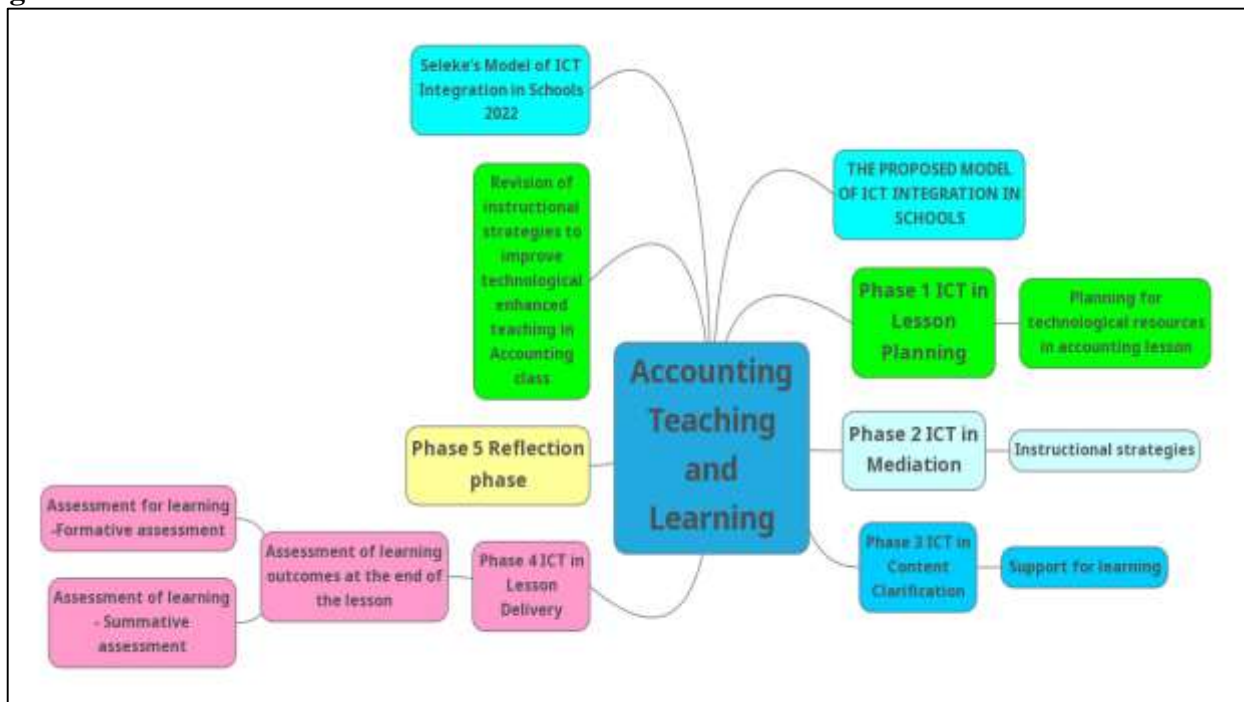


Figure 1: Seleke Model

²² Benjamin Seleke, “Scaffolding Teachers’ Professional Development for the Infusion of Indigenous Knowledge Transfer in the Technology Classroom” (North-West University (South Africa), 2021).

²³ Z. Seleke, “Information And Communication Technology in The Delivery of Accounting Lessons in Secondary Schools at Or Tambo District in The Eastern Cape, South Africa. ” (Walter Sisulu University, 2023).

The Seleke Model in the Planning Phase

The Seleke Model, during the Planning phase, involves planning for technology resources in accounting education to ensure the availability of tools and infrastructure for high-quality instruction.²⁴ Implementing the Seleke Model of ICT through Moodle begins with Assessing Needs and Resources, which includes an evaluation of the institution's existing technology resources, such as hardware, software, and network infrastructure. The university student learning guide outlines the technology resources designated for use in lessons. Before each session, students refer to the module guide to confirm the availability of the required technology for each topic. This method helps identify students' ICT needs promptly within the university.

The Seleke model in the Mediation Phase

In the mediation phase of the Seleke model, ICT plays a role in mediation processes.²⁵ This phase enhances strategies and methodologies for delivering accounting content efficiently, accessibly, and effectively.

The Seleke model in Content Clarification

The use of ICT has an impact on clarifying content in areas like education, communication and information sharing. According to Atinaf, Anteneh and Kifle, ICT can facilitate the retrieval of information from databases and search engines for research purposes. Students benefit from this access to content, which aids in their learning process.²⁶

The Seleke model in lesson delivery

Evanjeli, Fitri and Arafat suggest that Interactive Educational Software incorporating ICT in Accounting education offers materials like simulations, animations and quizzes to enhance understanding.²⁷ The adoption of the Seleke Model shows promise for platforms. Zamiri and Esmaili argue that online collaboration tools allow students to clarify content through real-time discussions and shared documents, facilitating group work.²⁸ Additionally, adopting this model through LMS creates an environment for interaction on student forums. Tai emphasizes how online communities serve as spaces for users to seek or provide content clarification through discussions and Q&A sessions.²⁹

ICT has revolutionized how lessons are delivered in education, enhancing engagement and accessibility. Online learning platforms that use the Seleke Model play a role in enabling lecturers to share course materials, interact with students and conduct discussions through features like forums, quizzes and progress tracking. This approach supports the Flipped Classroom method, where instructors use ICT to provide recorded lectures or resources for students to review before class, allowing for more interactive in-class sessions.

The Seleke model in the Reflection phase of the Accounting lesson

In the context of accounting lessons, leveraging ICT for reflection post-lessons can be beneficial. Online Discussion Forums provide a platform for students to engage in peer-to-peer discussions about their accounting queries, fostering idea exchange. This practice aligns with the concept of Digital Journals advocated by Taylor, Ryan, and Pearce, encouraging students to maintain blogs after each accounting

²⁴ Gary R Morrison et al., *Designing Effective Instruction* (John Wiley & Sons, 2019).

²⁵ Mingxing Shao et al., "The Impact of Information and Communication Technologies (ICTs) on Health Outcomes: A Mediating Effect Analysis Based on Cross-national Panel Data," *Journal of Environmental and Public Health* 2022, no. 1 (2022): 2225723.

²⁶ Muluneh Atinaf, Salehu Anteneh, and Mesfin Kifle, "A Holistic Understanding of Information and Communication Technology for Development through Context, Resilience, and Sustainability: Evidence from a Local Agriculture Extension Information Service in Ethiopia," *The Electronic Journal of Information Systems in Developing Countries* 89, no. 4 (2023): e12260.

²⁷ Cherly Evanjeli, Novi Aryani Fitri, and Yasir Arafat, "Augmented Reality-Based 3D Technology Learning Media for Human Respiratory Organs," *Journal of Artificial Intelligence and Engineering Applications (JAIEA)* 3, no. 2 (2024): 579–83.

²⁸ Majid Zamiri and Ali Esmaili, "Methods and Technologies for Supporting Knowledge Sharing within Learning Communities: A Systematic Literature Review," *Administrative Sciences* 14, no. 1 (2024): 17.

²⁹ Sribala Vidyadhari Chinta et al., "FairAIED: Navigating Fairness, Bias, and Ethics in Educational AI Applications," *ArXiv Preprint ArXiv:2407.18745*, 2024.

class.³⁰ The researcher believes that engaging in this practice helps them express their thoughts clearly and monitor their progress over time. The Seleke model is being used to revise teaching strategies in order to enhance technology-driven instruction in an Accounting classroom.

The Seleke model in the revision of instructional strategies to improve technologically enhanced teaching in the Accounting class

The integration of ICT for revising teaching strategies can greatly improve teaching in the field of accounting. Recent studies focus more on the use of LMS. According to Lan, Liu and Luo Kilag, Obaner, Vidal, Castañares, Dumdum and Hermosa, as well as Bradley, there is an emphasis on implementing LMS within the ICT model to effectively organize course materials, assignments and assessments.³¹ Researchers believe that integrating LMS within the ICT model facilitates communication and content delivery, making it easier for students to access resources and maintain organization.

METHODOLOGY

The research employed descriptive quantitative methods to analyze phenomena without establishing cause-and-effect relationships.³² The research design selected to understand student teachers' perceptions about ICT integration in Accounting education through the Seleke model on Moodle LMS provided broad insights. The research focused on 426 third- and fourth-year student teachers from the Faculty of Education at a rural South African university during the 2024 academic year. A random sample of 146 participants was selected from the population through simple random sampling to achieve equal representation for all students.

Data Collection

The data collection instrument consisted of a structured questionnaire distributed through Google Forms. The research instrument aimed to measure student perceptions about the Seleke model implementation in Moodle LMS alongside factors that shape their opinions about ICT integration in Accounting education. The online survey method allowed participants to access the questionnaire easily while enabling efficient data collection.

Data Analysis and Presentation

The research applied descriptive statistical methods to analyze the gathered data. This method suits the purpose of data summarization for trend identification and frequency analysis and central tendency assessment without establishing cause-and-effect relationships. The research team used statistical tools to analyze and present the findings in a clear and detailed manner.

Ethical Considerations

The researchers received ethical approval from the university ethics committee before data collection activities. All participants in the study gave their voluntary consent to participate before the research began. The research maintained participant anonymity and confidentiality throughout. The study participants were informed of their right to exit the research at any time without facing any adverse consequences.

³⁰ Sue Taylor, Mary Ryan, and Jon Pearce, "Enhanced Student Learning in Accounting Utilising Web-Based Technology, Peer-Review Feedback and Reflective Practices: A Learning Community Approach to Assessment," *Higher Education Research & Development* 34, no. 6 (2015): 1251–69.

³¹ Bo Lan, Tong Liu, and Chao Luo, "The Application of Smart Learning Systems during Global Pandemics: Taking Spanish Teaching Course as an Example," 2024; O K Kilag et al., "Optimizing Education: Building Blended Learning Curricula with LMS," *Excellencia: International Multi-Disciplinary Journal of Education (2994-9521)* 1, no. 4 (2023): 238–50; Luke H Bradley et al., "STEM through Authentic Research and Training Program (START) for Underrepresented Communities: Adapting to the COVID-19 Pandemic," *Journal of STEM Outreach* 4, no. 4 (2021): 10–15695.

³² D K Remler and G G Van Ryzin, *Research Methods in Practice: Strategies for Description and Causation* (SAGE Publications, 2014), <https://books.google.com.gh/books?id=WksXBAAAQBAJ>.

PRESENTATION OF FINDINGS AND DISCUSSION

The age group of the students can be seen in the pie chart below: 24-28: 94.52%, 29-32: 4.11, 33-36: 1.37. This chart shows that the students are mainly in the 24-28 age group and the others are in the 29-32 and 33-36 age groups, respectively. In this case, the students' language is Xhosa 84.25%, Zulu 10.96% and English 2.74%. This is because Xhosa is widely spoken and therefore content and support materials of Moodle should be developed to suit Xhosa speakers to improve their comprehension and participation. English language use is limited, but it should not be ruled out as a medium of instruction, whereby some materials should be provided in both Xhosa and English for the benefit of all students. Age Group Distribution: The highest number of students is in the 24-28 age group (94.52%), which implies that the population is likely to be relatively young and therefore more likely to welcome and use Moodle LMS. The percentage of students in the 29-32 (4.11%) and 33-36 (1.37) age groups suggests that maybe more focused training and support may be needed to engage these older students, who may be less comfortable with the digital learning environment.

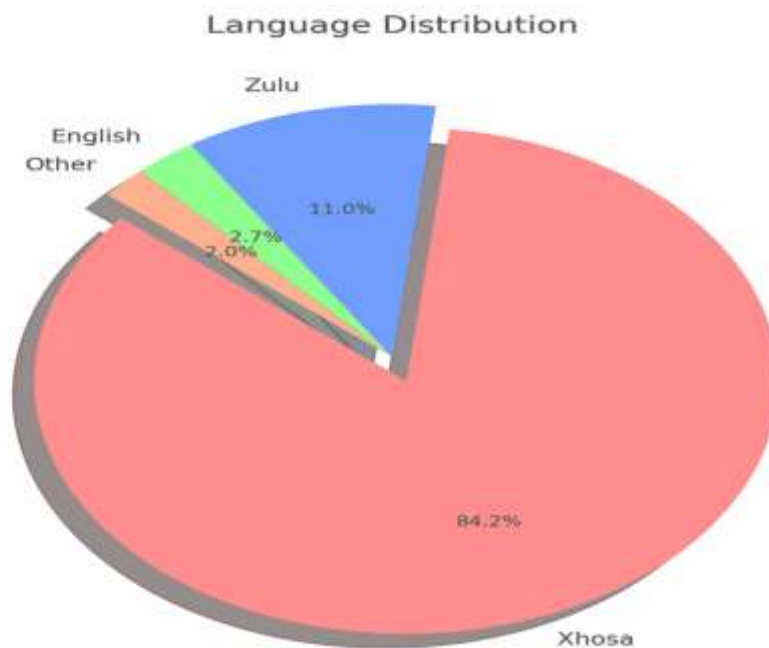


Figure 2: Pie chart

The pie chart in Figure 2 illustrates the language distribution: Xhosa: 84.25%, Zulu: 10.96%, English: 2.74%, Other: 2.05%. This chart highlights the predominance of Xhosa speakers, with smaller proportions of Zulu and English speakers, and a minimal representation of other languages. The adoption of the Seleke model of Information and Communication Technology (ICT) integration through Moodle Learning Management Systems (LMS) at a rural South African university is influenced by various demographic factors, including language and age group distribution. This analysis explores these factors to understand their impact on the adoption process.

ICT Literacy Ranking

Table 1: ICT Literacy Ranking

How would you rank your ICT literacy after the Directorate of Learning and Teaching (DLT) training on the use of Moodle as a student in the university?	Proportion
Advanced	50.69%
Intermediary	35.42%

The table shows that when asked, “How would you rank your ICT literacy after DLT training on the use of Moodle as a university student?”, the respondents self-assessed as follows. More than half of the respondents (50.69%) claimed to be advanced in ICT literacy after the training, which means that training may have been good for at least some of the students. At the same time, about one-third of students (35.42%) evaluated themselves as intermediary. Some of the student body may require extra assistance or more training to reach an advanced level. This interpretation assists in determining the effectiveness of the DLT training in enhancing the ICT literacy of students and also shows a possible weak area for those who are not quite confident in their proficiency.

Evidence of advanced ICT engagement: Moodle integration for course management



Observations reflect a practical web-based platform for teaching and learning accounting designed to be interactive, engaging, and accessible. Interactive Lessons or Video lectures that explain accounting concepts in a simple, step-by-step manner and tutorials video lectures or guided tutorials that break down complex topics for easier understanding were adopted. Simulations of real-world accounting situations to link theory with practice and step-by-step guides on accounting concepts. Simulations of real-world accounting scenarios. Practical Accounting Simulations or Virtual practice using tools such as general ledgers, journals, and trial balances for hands-on exercises that mirror real accounting tasks.

Opportunities for students to apply knowledge in a safe, practice-based environment

Virtual accounting practice with general ledgers, journals, and trial balance exercises was adopted in the accounting classroom.

Student Learning Experience

Table 2: Student learning experience

Student learning experience on the adoption of the Seleke model through LMS	proportion
Option Suitable devices to use LMS	36.99%
Option Unlimited access to technology	36.3%
Option Limited access to technology	

Table 2 above shows the proportion of student learning experience on the adoption of the Seleke model through LMS. Option: Suitable devices to use LLMs 36.99% Option: Unlimited access to technology 36.3% Option: Limited access to technology. The adoption of LMS faces challenges because students who lack access to technology experience different learning outcomes. The solution training in digital

skills. To address this problem, institutions should provide devices and data access, while teachers should adopt flexible methods, and students need

Role of LMS in Learning

Table 3: Role of Learning Management System

What do you think is the role of an LMS in learning when adopting the Seleke model of ICT in learning?	proportion
Option Accessibility and Flexibility of Learning Information	32.88%
Option Course Delivery	22.6%
Option Communication and Collaboration	17.12%
Option Assessment and Timely Feedback from the lecturer	17.12%
Option Content Management	8.9%
Option None of the role that was identified during learning	

Table 3 exhibits the perception of students on the use of Learning Management Systems (LMS) in the adoption of the Seleke model of ICT in learning. The results show that the most frequently mentioned role is Accessibility and Flexibility of Learning Information (32.88%), thus indicating that students mainly appreciate LMS for its ability to offer learning materials at their convenience. About one-fourth of the respondents (22.60%) considered the LMS as a tool for delivering course content. Communication and Collaboration recorded 17.12%. This tied for third place, showing that a number of students find the ability to communicate with the teacher and other students through the platform. Assessment and Timely Feedback from the lecturer also stood at 17.12%, showing that assessment capabilities and the fast feedback that LMS provides for students are as important as the communication features. A fairly low number of the respondents (8.90%) considered that the main function of an LMS is to help sort and manage content. 1.38% is assigned to none of the roles that I identified during my learning option. This was assumed since the percentages do not equal 100%. This result points to the fact that it is rare to find students who have not given any meaningful role to LMS in their learning process. This distribution shows that when using the Seleke model of ICT in learning, educators should focus on creating LMS environments that are easily accessible and offer flexible learning opportunities, as well as having good course delivery systems.

Future integration of an LMS when adopting the Seleke model

Table 4: Future integration of an LMS when adopting the Seleke model

What outcomes would you like LMS integration to produce in the future when adopting the Seleke model?	proportion
Option Promote student engagement	39.58%
Option Improve learning outcomes	34.72%
Option: Enhance course delivery efficiency	23.61%
Option None	2.08%

The data shows students' expectations of the future integration of an LMS when adopting the Seleke model, as nearly 40% of respondents focus on the first factor, which is increasing student engagement. This shows that students thought that the LMS should include features that are interactive and collaborative and that make learning more exciting. About 35% of the respondents pointed out that the LMS should be able to directly improve academic performance and learning achievements. This suggests a very strong relationship between the use of LMS and a better understanding of the course content. 23% of the respondents considered an effective delivery of course content as the most important result. They may well anticipate that a properly integrated LMS will help to simplify the management of course materials and their delivery to students. A very low number of respondents had no expectations for the future integration of LMS. Hence, the data shows that students regard the LMS as a learning platform that can help to make the learning process more interesting and effective and enhance students' performance.

These priorities can assist institutions in fine-tuning their LMS integration plans to better address student needs and expectations.

ICT Infrastructure Access at Home

Table 5: Seleke model of ICT integration through Moodle Learning Management Systems

What ICT infrastructure do you have access to at home?	proportion
Option Mobile phone	68.06%
Option Internet	29.17%
Option Other	2.08%
Option Fixed phone	0.69%

These frequency distributions can give a description of the subjects and their experiences with the application of the Seleke model of integrating ICTs with the help of Moodle Learning Management Systems. The plots are a visual representation of the responses for each category, and it is therefore easier to see the responses and any trends in the data. To Analyse the differences in response distributions based on demographic groups, we'll focus on gender and age group as our primary demographic variables. Let us look at how these demographics are related to other key variables in the dataset. The analysis includes gender and age distributions, ICT literacy levels, learning experiences, and LMS effectiveness for various demographics. These visualizations will help to understand the adoption of the Seleke model through Moodle: Key observations. The age group 24-28 has a more even distribution of the levels of ICT literacy, and more people are in the Advanced category (50%) than in the Intermediary (35.29%) and Basic (14.71%) categories. The age group 29-32 has a higher level of Advanced ICT literacy than the other two groups (66.67%), with the remaining third classified as Intermediary. None of the respondents is in the Basic category. The age group 33-36 is equal in terms of Intermediary and Advanced ICT literacy levels (50% each), and there are no respondents in the Basic category. On average, the 29-32-year-olds are the most technically literate (2.67), followed very closely by the 33-36-year-olds (2.5) and then the 24-28-year-olds (2.35). It is important to note that the sample sizes for the 29-32 and 33-36 age groups appear to be smaller, which may compromise the validity of the results for these groups. The 24-28 age group has the largest sample size and may therefore contain the most accurate data. Therefore, the data indicate that the levels of ICT literacy are relatively high for all age groups, and the majority of the respondents are in the Intermediary or Advanced category. The slight differences between the age groups may be attributed to factors such as technology access, education, or work experience.

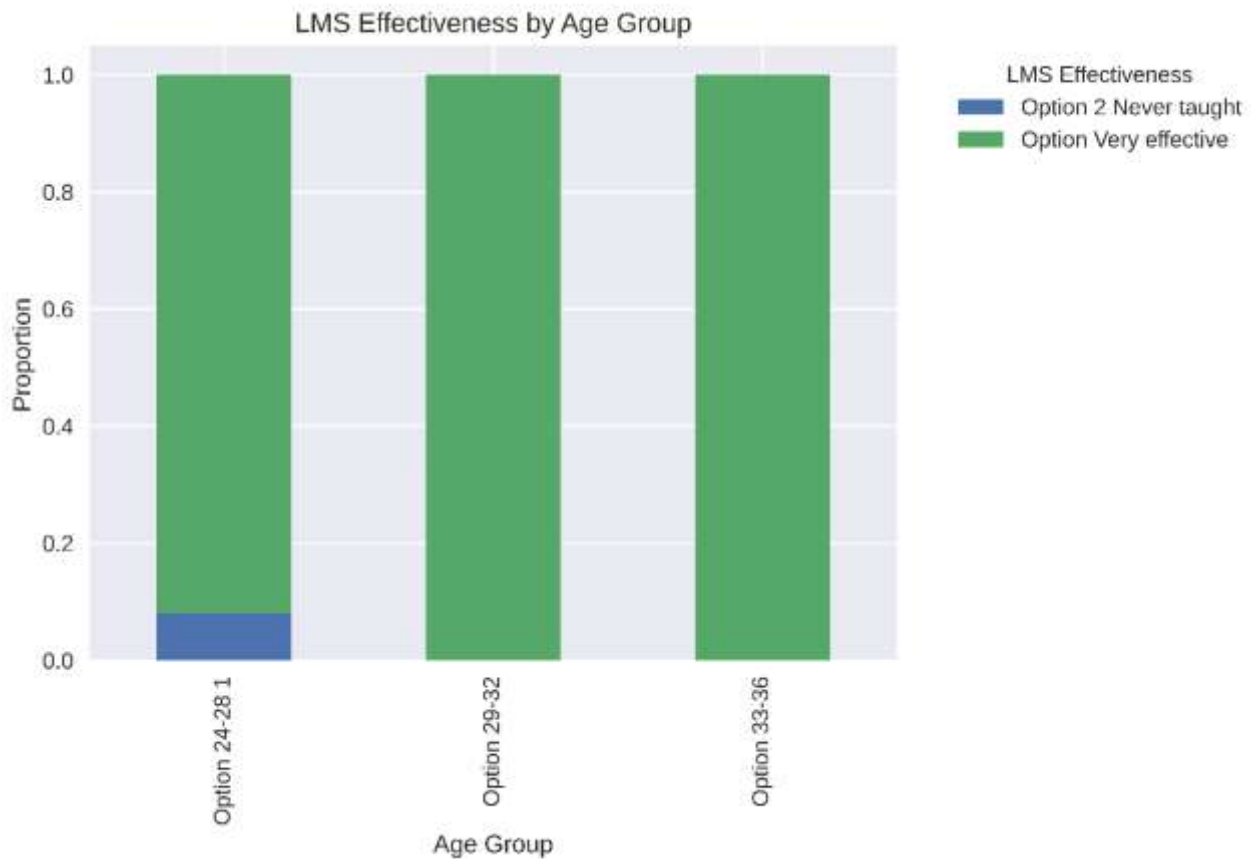


Figure 3: Bar graph The LMS (Moodle) effectiveness across all age groups

Table 5: The LMS (Moodle) effectiveness across all age groups

	Option 2 Never taught	Option Very effective
Option 24-28 1	0.0797101449	0.9202898551
Option 29-32	0	1
Option 33-36	0	1

The LMS (Moodle) is very effective for all ages. 92% of the respondents in the 24-28 age group and 100% in the 29-32 and 33-36 age groups deemed it very effective. This shows that students of all ages are able to accept the Moodle integration successfully and positively, thus implying that the platform is easy to use and applicable to different ages. The lower effectiveness for the 24-28 age group (92% vs 100%) may suggest the need for extra help or guidance for the younger students.

Most used LMS features

Table 6: Most used LMS features

LMS_Features	count
Option Share material	73
Option Use discussion forums	50
Option None	14
Option Share material; Option Use discussion forums	5
Option Share material; Option None	1

Using the material-sharing option is the most popular strategy, followed by forum discussions. Hence, it can be concluded that Moodle is mainly employed for content delivery and cooperative learning. This high uptake of the features shows that the students are using the platform to meet their learning

requirements. To increase the effectiveness of the learning process, it is possible to encourage other Moodle functions that are not used very often.

RECOMMENDATIONS

In order to offer individual consideration and training for students with different levels of ICT literacy, the university can use the following steps based on the data that has been collected.

Tiered Training Programs: Advanced (50.7%): Provide training on the advanced level that covers the complex Moodle functions, data analysis software, and high-level collaboration management. Intermediate (35.4%): The next level of training should include the practical use of the core Moodle functions and an introduction to the advanced functions. Basic (13.9%): Design a detailed basic training that covers the basic navigation of Moodle, the basic features and functions, and digital literacy.

Personalized Onboarding: Conduct an initial self-assessment of students' ICT literacy to inform them about their level of preparedness for the program. Based on the assessment outcomes, direct students to the right training paths. Offer learners specific learning paths in the LMS (Learning Management System), which will help them navigate through the content based on their level of expertise.

Peer Mentoring Program: Ensure that the high-performance students are assigned to help the basic and intermediate students with the use of ICT literacy. Encourage peer teaching and support to create a cooperative learning environment.

Targeted Support for Basic Level Users: Set up a help desk or a support team for the basic level users. Create simple how-to guides and videos for the most frequent Moodle functions. Provide additional help in the form of frequent office hours or training sessions for basic-level users. Continuous Improvement for Intermediate Users: Hold frequent "Tips and Tricks" sessions to help the intermediate users work more effectively.

CONCLUSION

The research paper has discussed the role of incorporating ICT in accounting education by studying the implementation of the Seleke model, which aims to improve learning processes and prepare students for the challenges of the era. This study's findings show the possibility of the Seleke model helping to improve accounting education through the use of ICTs, specifically through Moodle LMS. Students' engagement and motivation were rated as moderate; however, issues such as the lack of devices and unstable internet connection limited the optimal use of the platform. These barriers need to be removed to enable the full realization of the potential of technology-assisted learning in initial teacher education. However, the study has practical significance in showing how digital learning environments can be useful for providing students with interactive and applied learning experiences that are important for accounting education. The research also adds value to the ongoing discussion on the integration of ICT in higher education by offering an understanding of students' perceptions and practices as well as critical factors that determine technology adoption.

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