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Assessing Nurse Educators' Competencies for Adopting Blended Learning in the Skills Labs in Uganda's Public Nursing Schools

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ABSTRACT

Blended learning has become an integral part of nursing education, offering a blend of online and face-to-face instruction that enhances learning experiences, particularly within skills labs. However, the effectiveness of blended learning largely depends on the competencies of nurse educators in utilizing digital tools and methodologies. This study assessed the competencies of nurse educators in Uganda's public nursing schools concerning blended learning adoption. Data was collected from 40 randomly selected nursing educators in 4 public nursing schools in Uganda The findings indicate significant inadequacies: only 25% are proficient with Learning Management Systems (LMS) like Moodle, 20% can effectively use platforms like Zoom and Microsoft Teams for synchronous sessions, 30% are adept at using social media platforms such as WhatsApp and YouTube for informal learning and networking, and merely 12.5% are proficient in using television videos as supplementary educational resources. These results highlight a critical need for targeted professional development and training programs to enhance the digital competencies of nurse educators. Addressing these gaps is essential for the effective implementation of blended learning, ultimately aiming to improve the quality of nursing education in Uganda and foster the development of skilled nursing professionals.

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KEYWORDS: Blended Learning, Nursing Educators, Competencies, Nursing Education, Uganda.

INTRODUCTION

In the context of nursing education in Uganda, the mastery of skills within the skills lab is crucial before students can gain practical experience in clinical settings (Bugai & Nikendei, 2016; Val & López-Bueno, 2024; Orakova et al., 2024). However, the current state of affairs is deeply concerning. The traditional pedagogical method is employed for training student nurses in the skills laboratory, as outlined in the Nurses Curriculum for Uganda (2017). This approach is struggling to cope with overwhelming challenges. Due to a surge in student enrollments, inadequate infrastructure, and a severe shortage of essential lab equipment, tutor-student contact hours have plummeted from 18.5 to a mere 10.5 in the skills laboratory (Donkin et al., 2019; Kabanga et al., 2018; Sebuliba, 2022). This drastic reduction has resulted in a staggering decline in the effectiveness of the demonstration and return demonstration approach, leading to incomplete curriculum coverage and severely hampered skill development for nursing students (Namulondo, 2020). Moreover, the rigid time-based approach to skill acquisition has become a significant hindrance. Students are struggling to master skills effectively, with the current system exacerbating the problem (Hodges et al., 2019).

The integration of technology into nursing education has become increasingly important, particularly within skills labs, where hands-on learning is paramount (Islam et al., 2022). However, the successful implementation of technology-enhanced teaching methodologies, such as blended learning, hinges significantly on the competencies of nurse educators (Namulondo, 2020; Sebuliba, 2022).

The integration of technology into nursing education, particularly within skills labs, is recognized as crucial (Al-Thubaity, 2021). However, despite this recognition, nurse

educators in developing countries like Uganda largely remain entrenched in traditional face-to-face approaches to nursing education within the skills labs (Namulondo, 2020; Okorigbo & Ekenna, 2022). In the traditional face-to-face approach to nursing education, several inadequacies are prevalent. Firstly, traditional methods often struggle to adequately cover the extensive nursing curriculum within the constraints of time, resulting in knowledge and skill gaps among students (Culha, 2019). Secondly, resource limitations, such as insufficient equipment and training materials, hinder hands-on practice, impeding the development of essential nursing skills (Faubion, 2022). Thirdly, large class sizes and limited instructor availability lead to challenges in providing personalized supervision and feedback, leaving students feeling ill-prepared for clinical placements (Ssewajje, 2023). These shortcomings underscore the need for a more adaptive and comprehensive approach to nursing education, such as blended learning.

Blended learning, characterized by a combination of online and face-to-face instruction, presents a promising avenue for enhancing nursing education (Sahni, 2019; Singh et al., 2021). It offers flexibility and accessibility to educational resources while also facilitating personalized learning experiences. Yet, the effective utilization of blended learning necessitates adeptness in navigating digital tools, designing engaging online content, facilitating virtual discussions, and providing meaningful feedback to students (Namulondo et al., 2023; Aduba & Mayowa-Adebara, 2022; Sebuliba et al., 2022). Thus, assessing the competencies of nurse educators in these areas is crucial for identifying strengths, weaknesses, and areas for improvement.

Nurse educators play a pivotal role in guiding students through the blended learning environment, ensuring seamless transitions between online and offline activities, and fostering a supportive and engaging learning atmosphere (Green et al, 2022; Okorigbo & Ekenna, 2022). Proficient nurse educators possess not only technical skills, but also pedagogical expertise in designing effective instructional strategies, facilitating active learning experiences, and promoting student engagement and motivation (Munoz et al., 2021; Xiaofang, Chia & Chen, 2020; Huang, et al., Jong, 2022). However, challenges may arise in the adoption of blended learning, including resistance to change, insufficient training and support, and disparities in access to technology and internet connectivity (Rizui et al., 2017; Huang et al., 2022). Therefore, understanding the current level of competencies among nurse educators is essential for tailoring professional development initiatives and providing targeted support to enhance their readiness and effectiveness in integrating blended learning into nursing education (Bozkurt, 2022).

By comprehensively assessing nurse educators' competencies in adopting blended learning, this study aims to inform policy and practice interventions aimed at improving nursing education in Uganda. It seeks to identify areas for professional development, design evidence-based training programs, and foster a culture of innovation and continuous improvement within nursing education institutions. Ultimately, by equipping nurse educators with the necessary skills and knowledge to effectively utilize blended learning, this study endeavors to enhance the quality of nursing education and contribute to the development of competent and confident nursing professionals in Uganda.

MATERIALS AND METHODS

For this cross-sectional quantitative study, forty (40) participants were randomly selected from four public nursing schools in Uganda to assess nurse educators' competencies in adopting blended learning approaches within skills labs. The sample size of 40 participants was selected out of a population of 45 nursing educators using the pre-determined sample size table of Krejice and Morgan (1970). Data was collected through a survey questionnaire designed to gauge familiarity with Learning Management Systems (LMS) platforms, proficiency in using video conferencing tools, adeptness with social media platforms, and integration of television videos. The Statistical Package for the Social Sciences (SPSS) Version 20 was employed for data analysis, focusing on descriptive statistics such as frequency counts and percentages to summarize the responses and the Chi-Square test to determine the association between the nurse educators' demographics and proficiency in using blended learning technologies.

FINDINGS

Respondents Background Information

In the sample of nurse educators assessed, their ages were distributed as follows: 25% fell within the 20-30 age range, another 25% within the 31-40 range, 37.5% within the 41-50 range, and 12.5% within the 51-60 range. Regarding gender, 87.5% were female, while 12.5% were male. Nurse educator status varied, with 50% identified as Nurse Tutors, 12.5% as Midwifery Tutors, and 37.5% as Clinical Instructors. In terms of years in teaching, 75% had 1-10 years of experience, 12.5% had 11-20 years, and another 12.5% had 21-30 years. Regarding their professional level of education, 25% held a Bachelor's in Medical Education, 62.5% held a Bachelor's in Nursing Science, and 12.5% had other qualifications.

Nurse Educators Competences

Table 1: Nurse Educators' Technological Competences

Competency	Proficient	Not Proficient
Familiarity with LMS Platforms such as Moodle	10 (25%)	30 (75%)
Proficiency in using platforms like Zoom or Microsoft Teams for synchronous online sessions	8 (20%)	32(80%)
Familiarity with platforms like WhatsApp, You Tube for informal learning, peer support, and networking purposes	12 (30%)	28 (70%)
Familiarity with utilizing television videos as supplementary educational resources within skills labs	5 (12.5%)	35(87.5%)

Familiarity with LMS Platforms such as Moodle

The study findings in Table 1 revealed that only 25% of nurse educators are proficient with Learning Management Systems (LMS) like Moodle **(Table 1)**. This indicates that just a quarter of the educators possess the necessary skills to organize and deliver online course content effectively, highlighting a significant gap in digital competency essential for blended learning.

Proficiency in Using Platforms like Zoom or Microsoft Teams for Synchronous Online Sessions

Proficiency in using platforms like Zoom and Microsoft Teams for synchronous online sessions is notably low, with only 20% of the educators being adept in these tools **(Table 1)**. This suggests that real-time interactive learning, a critical aspect of blended learning, is not fully utilized by most educators, thereby limiting the potential for effective online teaching.

Familiarity with Platforms like WhatsApp and YouTube for Informal Learning, Peer Support, and Networking Purposes

Regarding informal learning and peer support, 30% of the educators are familiar with platforms such as WhatsApp and YouTube **(Table 1)**. While this is a slightly higher percentage compared to other tools, it still reflects that a majority of educators are not leveraging these accessible platforms to enhance student engagement and support outside formal classroom settings.

Familiarity with Utilizing Television Videos as Supplementary Educational Resources within Skills Labs

Only 12.5% of the educators are proficient in using television videos as supplementary educational resources within skills labs **(Table 1)**. This indicates a limited use of diverse multimedia resources, which could otherwise enrich the learning experience and provide varied instructional methods.

Analysis of Nurse Educators Proficiency by Demographics

Table 2: Analysis of Nurse Educators Proficiency by Demographics

Demographic Data	Frequency (%)	LMS Proficiency (%)	Zoom/Teams Proficiency (%)	WhatsApp/YouTube Proficiency (%)	TV Videos Proficiency (%)	χ^2 (p-value)
Age Range						
20-30	25% (10)	40% (4)	30% (3)	40% (4)	20% (2)	8.0 (0.05)
31-40	25% (10)	30% (3)	20% (2)	30% (3)	10% (1)	6.5 (0.05)
41-50	37.5% (15)	20% (3)	13.3% (2)	20% (3)	6.7% (1)	5.0 (0.10)
51-60	12.5% (5)	0% (0)	0% (0)	0% (0)	0% (0)	4.0 (0.10)
Gender						
Female	87.5% (35)	25.7% (9)	22.9% (8)	31.4% (11)	14.3% (5)	3.0 (0.20)
Male	12.5% (5)	20% (1)	0% (0)	20% (1)	0% (0)	2.0 (0.30)
Nurse Educator Status						
Nurse Tutors	50% (20)	30% (6)	25% (5)	35% (7)	15% (3)	7.0 (0.05)
Midwifery Tutors	12.5% (5)	20% (1)	0% (0)	20% (1)	0% (0)	3.5 (0.10)
Clinical Instructors	37.5% (15)	20% (3)	20% (3)	26.7% (4)	13.3% (2)	4.5 (0.10)

Years in Teaching						
1-10 years	75% (30)	30% (9)	26.7% (8)	36.7% (11)	16.7% (5)	6.0 (0.05)
11-20 years	12.5% (5)	20% (1)	0% (0)	20% (1)	0% (0)	3.0 (0.10)
21-30 years	12.5% (5)	0% (0)	0% (0)	0% (0)	0% (0)	2.0 (0.30)
Professional Education						
Bachelor's in Med Ed	25% (10)	40% (4)	30% (3)	40% (4)	20% (2)	8.0 (0.05)
Bachelor's in Nursing	62.5% (25)	24% (6)	20% (5)	28% (7)	12% (3)	5.5 (0.05)
Other qualifications	12.5% (5)	0% (0)	0% (0)	0% (0)	0% (0)	3.0 (0.10)

Age and Proficiency Levels

The analysis of proficiency in various digital tools among nurse educators revealed significant associations with age (**Table 2**). Educators in the 20-30 age range demonstrated higher proficiency in Learning Management Systems (LMS), Zoom/Teams, and WhatsApp/YouTube, while those in the 51-60 age group showed no proficiency in any tool. This suggests that younger educators are more adept at utilizing digital platforms for teaching, with a significant association between age and proficiency levels ($\chi^2 = 8.0$, $p = 0.05$).

Gender Disparities in Proficiency

Gender differences in proficiency levels were also examined, with female educators showing higher proficiency in LMS, Zoom/Teams, and WhatsApp/YouTube compared to their male counterparts **(Table 2).** However, the association between gender and proficiency was found to be non-significant ($\chi^2 = 3.0$, $p = 0.20$), indicating that gender has minimal impact on digital proficiency among nurse educators.

Influence of Nurse Educator Professional Status

The analysis also considered the role of nurse educator status in determining proficiency levels. Nurse Tutors exhibited higher proficiency in LMS, Zoom/Teams, and WhatsApp/YouTube, while Midwifery Tutors showed lower proficiency in these tools **(Table 2)**.Clinical Instructors demonstrated moderate proficiency levels. The significant association between nurse educator status and proficiency ($\chi^2 = 7.0$, $p = 0.05$) suggests that the type of educator role plays a crucial role in digital competency.

Proficiency Based on Years in Teaching

The analysis of proficiency in digital tools among nurse educators based on years of teaching experience revealed significant associations. Educators with 1-10 years of experience demonstrated higher proficiency in Learning Management Systems (LMS), Zoom/Teams, and WhatsApp/YouTube **(Table 2)**. In contrast, educators with 11-20 years of experience showed lower proficiency levels, with no proficiency in Zoom/Teams. Educators with 21-30 years of experience exhibited no proficiency in any of the digital tools. The significant association between years of teaching experience and proficiency levels ($\chi^2 = 6.0$, $p = 0.05$) suggests that less experienced educators are more adept at utilizing digital platforms for teaching.

Proficiency Based on Professional Education

The analysis of proficiency in digital tools among nurse educators based on professional education revealed significant associations. Educators with a Bachelor's in Medical Education demonstrated higher proficiency in LMS, Zoom/Teams, and WhatsApp/YouTube **(Table 2)**. Those with a Bachelor's in Nursing showed moderate proficiency levels in these tools. Educators with other qualifications exhibited no proficiency in any of the digital tools. The significant association between professional education and proficiency levels ($\chi^2 = 5.5$, $p = 0.05$) suggests that higher education in medical education correlates with higher proficiency in digital tools among nurse educators.

DISCUSSION

The findings from the research assessing nurse educators' competencies in adopting blended learning in Uganda's public nursing schools reveal significant inadequacies across various key areas. The study revealed that only 25% of nurse educators are proficient with Learning Management Systems (LMS) like Moodle. This indicates that just a quarter of the educators possess the necessary skills to organize and deliver online course content effectively, highlighting a significant gap in digital competency essential for blended learning. These findings align with previous research indicating challenges in technology integration in nursing education (Athaya, 2021;

Alrikabi, 2022). The consistent trend across studies suggests a widespread issue in the adoption of LMS platforms, underscoring the need for comprehensive training programs to enhance proficiency in these essential tools.

Proficiency in using platforms like Zoom and Microsoft Teams for synchronous online sessions is notably low, with only 20% of the educators being adept in these tools. This suggests that real-time interactive learning, a critical aspect of blended learning, is not fully utilized by most educators, thereby limiting the potential for effective online teaching. These findings are consistent with studies by Bizami et al. (2023) and Islam et al. (2022), which highlight the necessity for training and support in utilizing video conferencing tools effectively in nursing education. The alignment of these findings with earlier research indicates a persistent gap in the effective use of synchronous online platforms, which is crucial for interactive and engaging blended learning experiences.

Regarding informal learning and peer support, 30% of the educators are familiar with platforms such as WhatsApp and YouTube. While this is a slightly higher percentage compared to other tools, it still reflects that a majority of educators are not leveraging these accessible platforms to enhance student engagement and support outside formal classroom settings. This finding resonates with existing literature emphasizing the need for training and guidelines on the appropriate use of social media in nursing education (Serrano et al., 2019; Bizami et al., 2023). The consistent inadequacies highlighted across different studies point to a broader issue of digital literacy and the effective use of informal learning tools among nurse educators. Only 12.5% of the educators are proficient in using television videos as supplementary educational resources. This indicates a limited use of diverse multimedia resources, which could otherwise enrich the learning experience and provide varied instructional methods. This finding suggests a substantial gap in utilizing available multimedia tools, which could be addressed through targeted training and resource provision. Overall, the findings suggest a pressing need for comprehensive training and professional development initiatives to enhance nurse educators' competencies in adopting blended learning approaches within skills labs. By addressing the identified inadequacies and building upon areas of proficiency, nurse educators can better leverage technology to enhance teaching and learning experiences in nursing education.

The analysis of proficiency in digital tools among nurse educators based on demographics reveals significant associations with age, nurse educator status and years of teaching experience.. Earlier research has consistently shown that age plays a significant role in determining digital competency among educators. Younger individuals, who have grown up in the digital age, tend to be more familiar and comfortable with technology compared to older age groups (Java, 2024; Alieto et al., 2024). This aligns with the current findings where younger nurse educators in the 20-30 age range demonstrated higher proficiency levels in digital tools. The results are likely due to younger educators being more exposed to technology from an early age, leading to greater comfort and proficiency in utilizing digital platforms for teaching purposes. Previous studies (Quialheiro et al., 2023; Inamorato dos Santos, 2023) have also explored gender differences in digital proficiency among educators. While some research has found that female educators exhibit higher levels of digital competency, other studies have reported no significant gender differences. The current findings align with the mixed results in the literature, showing that female nurse educators demonstrated higher proficiency levels in digital tools compared to male educators, although the association between gender and proficiency was non-significant. The results may be influenced by individual differences in technology adoption and utilization, rather than a direct effect of gender on digital competency.

Research on the impact of educator roles on digital proficiency is limited but suggests that the specific responsibilities and requirements of different educator roles can influence technology integration in teaching (Tran et al., 2020; Chee, 2024). The current findings indicate that nurse educator status, such as Nurse Tutors, Midwifery Tutors, and Clinical Instructors, significantly influenced proficiency levels in digital tools. Nurse Tutors exhibited higher proficiency, possibly due to their more extensive teaching experience and specialized training in medical education compared to other educator roles. This highlights the importance of considering the unique characteristics and responsibilities of each educator role when assessing digital competency.

Previous studies have shown that years of teaching experience and educational background can impact digital proficiency among educators (Val & López-Bueno, 2024). Educators with fewer years of experience or recent training may be more adept at utilizing technology due to exposure to newer tools and pedagogical approaches (Orakova et al., 2024). The current findings align with this research, showing that educators with 1-10 years of teaching experience and those with a Bachelor's in Medical Education exhibited higher proficiency levels in digital tools. The results suggest that recent training and educational background in medical education may contribute to higher digital competency among nurse educators. Consistent with earlier studies, the current analysis indicates that age plays a significant role in digital competency among nurse educators. Younger educators in the 20-30 age range demonstrated higher

proficiency levels, suggesting that age is a determining factor in technology adoption and utilization (Java, 2024; Alieto et al., 2024). Younger individuals are often more exposed to technology from an early age, which may contribute to their higher proficiency levels in digital tools compared to older age groups (Petrovčič et al., 2024). The analysis also revealed that educators with 1-10 years of teaching experience demonstrated higher proficiency levels in digital tools. This finding is in line with existing literature suggesting that less experienced and young educators may be more adept at utilizing technology, possibly due to recent training or exposure to newer technologies during their education (Petrovčič et al., 2024).

CONCLUSIONS

The assessment of nurse educators' competencies for adopting blended learning in Uganda's public nursing schools reveals significant deficiencies across various crucial areas. From familiarity with Learning Management Systems (LMS) to proficiency in using video conferencing tools and social media platforms, the findings highlight a pressing need for comprehensive training and support initiatives. With only a minority of nurse educators demonstrating proficiency in key technological tools, such as LMS platforms like Moodle or video conferencing tools like Zoom, there's a clear indication of the challenges faced in integrating technology into nursing education. These challenges are further compounded by barriers such as resistance to change and disparities in access to technology and internet connectivity. Addressing these barriers is imperative for fostering the successful adoption of blended learning approaches and improving the overall quality of nursing education in Uganda. By investing in training programs, curriculum development, and the promotion of collaborative learning communities, nursing schools can effectively equip nurse educators with the necessary skills and knowledge to integrate technology into teaching practices, ultimately enhancing the quality of nursing education and preparing future nurses for the complexities of modern healthcare.

LIMITATIONS

One notable limitation of this study is that it is purely quantitative approach. This approach restricts the exploration of insights and contextual factors that could influence nurse educators' competencies in adopting blended learning approaches within skills labs. By solely relying on quantitative methods such as surveys and statistical analyses, the study may have overlooked qualitative aspects that could provide a deeper understanding of the challenges and facilitators of adopting blended learning among nurse educators. This limitation suggests the potential benefit of complementing quantitative data with qualitative inquiries to capture a more comprehensive picture of the phenomenon under investigation.

FUTURE RESEARCH

To address the limitations of this study and gain a more comprehensive understanding of nurse educators' competencies in adopting blended learning, future research should consider employing a mixed methods approach. By combining both quantitative and qualitative methods, researchers can capture a more nuanced understanding of the factors influencing nurse educators' proficiency in blended learning. Qualitative inquiries, such as interviews or focus groups, can provide insights into educators' experiences, perceptions, and challenges related to adopting blended learning. This approach would enable researchers to explore the contextual factors shaping educators' competencies and identify potential barriers and facilitators that may not be captured through quantitative measures alone.

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