ORIGINAL RESEARCH

Facilitation strategies used in e-learning by nurse educators in Rwanda

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ABSTRACT

In an e-learning environment, teachers need to have the necessary knowledge and skills to deliver course content effectively. Information and communication technology is increasingly utilised in tertiary education due to its flexibility and diverse capabilities in catering to a large number of learners. In Rwanda, e-learning in nursing and midwifery education has significantly enhanced the quality of teaching and learning. Educators' ability to facilitate learning plays a crucial role in motivating students within computer-mediated environments. This study explored the strategies used by nurse educators to facilitate e-learning in Rwanda. A non-experimental quantitative design was used, with 44 nurse educators from three campuses completing the research instruments. The results revealed that nurse educators shared a common vision of integrating information and communication technology into teaching practices (84.1%). Most nurse educators utilised computers and the internet (97.7%) to deliver course content. The facilitation strategies included self-directed learning (95.5%), case studies (93.2%), group discussions (88.6%), small group activities (81.8%), formal lectures (72.7%), role play (70.5%), brainstorming (68.2%), situations of integration (63.6%), and videos (63.6%). While approximately half incorporated research (50%) and workbooks (43.2%) into their courses, a smaller percentage used projects (27.3%), core lectures (25%), and portfolios (11.4%). Effective e-learning implementation necessitates a holistic approach integrating information and communication technology into teaching practices, emphasising the importance of pedagogical design and innovative teaching methodologies to deliver course content successfully.

Key Words: E-learning, Teaching and learning, Facilitation, Teaching strategies, Nursing education, ICT in Rwanda

1. INTRODUCTION

The importance of facilitation skills for teachers to deliver course contents in a computer-mediated learning environment is central to the success of e-learning.[1–10] Technology is being increasingly used in tertiary education, as it is flexible and offers many possibilities to meet the needs of a large number of learners. In nursing education, E-learning is possibly the most important transformation in teaching since the move from hospital training to the higher education sector.[11] The success of e-learning, in general, is determined by a teaching model that responds to the students' needs and educational goals, and which requires a multidisciplinary approach.[12, 13] In order to achieve this, nursing education requires the adoption of facilitation methods that are based on identified needs.[14]

The ability to use Information Communication Technology (ICT) by both learners and teachers has an impact to the integration of e-learning into existing teaching programs.[11] The use of technology in education requires a change in the educator's method of teaching,[15] with the literature indicating the positive impact of effective facilitation in higher education,[1, 16–18] particularly that online.[1, 2, 19] ICT can be defined as the use of hardware and software for the efficient management of information, and refers to the forms

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of technology that are used to transmit, store, create, share and exchange particular tasks.[20] A number of technological tools are used, such as learning management systems, computers and networks, hardware and software, as well as the services associated with them, such as electronic mails and video conferences. ICT also includes the use of satellite systems, television, radio, Video, and Digital Versatile Devices (DVD).[20,21]

In e-learning, the use of ICT is a cornerstone as it increases collaboration between educators and students, and supports innovative pedagogy. It was also found that e-learning allows students to work in teams, share ideas related to the curriculum and to learn new skills. The use of ICT tools, such as Moodle, in e-learning encourages independent and active learning, assists in information retrieval and increases learners' motivation, self-confidence, and self-esteem.[22] The implementation of ICT in education requires considering the students' needs while balancing them with projected outcomes. Although educators might be good at teaching in traditional classrooms, it is recommended that additional capacity building be provided in terms of using the technology to deliver instructions, which will avoid discrepancies between technologies and contents.[23] Both educators and students are required to appreciate the importance of collaborative learning in a computer-mediated learning environment, as it is a source of motivations.[24]

When learners are not given feedback and reassurance, it can cause frustration and lack of interests in self-directed learning.[25,26] According to Contact North,[27] the unpreparedness of some students to use ICT hinders effective teaching and learning, highlighting the need to provide proper orientation at the beginning of the program. Although facilitation is becoming popular, a number of obstacles have been reported by Sithole,[17] including: (i) lecturers' lack of knowledge; (ii) use of teaching and assessment strategies that do not facilitate critical thinking in students; (iii) negative attitudes of lecturers and their resistance to change; (iv) inappropriate selection processes and poor educational backgrounds that do not facilitate critical thinking; (v) inadequate socialization; and (vi) cultural and instructional language incompetence. Facilitation is a style of teaching that embraces reflective dialogue leading to critical reflective learning.[26,28–32]

Tiru[18] indicates that educators may adopt different facilitation techniques based on the learners' level of study and the requirements of the planned class activities. Similarly, McKimm and Jollie[33] indicate that teachers might use various strategies by taking into consideration the number of students, available resources, and the intended learning outcomes of the lesson. These strategies include mass instructions techniques lecturing, and use of audio–visual devices such as podcasts, video, radio, and television. It may also include individualized instruction, where the teachers use directed instructions, such as reading books, journals or handouts. In e-learning, the teacher encourages the students to be self-directed learners, and plays the role of mentor or coach. Group learning is another technique used in e-learning when facilitating the students, where the teacher encourages the group work, projects, seminars, group discussions, role play, simulations, and self-help groups.[33] Although the literature search indicated that studies have been conducted on e-learning facilitation in education, it was noticed that many focus on perceptions, attitudes and experiences of learners.[19,34–47] The focus in this study is likewise on the experience and challenges of the educators in utilizing e-learning platform.[34–41]

Information communication technology is fundamental to Rwanda's Vision for 2020,[42–45] and has been adopted in the Rwandan education system.[43] The implementation of e-learning platforms in 2012 in Rwandan nursing and midwifery schools has had a positive impact on nursing education.[46–48] The introduction of e-learning in the schools was based on national needs, with the aim being: to improve nurses' and midwives' knowledge and skills using the modern methods of teaching and learning, to equip different health settings with sufficient well trained, qualified nurses and midwives, and upgrade the levels of nurses and midwives.[48] However, some challenges have been reported regarding the use of ICT equipment by students and teachers.[46] Despite its use, e-learning platforms will require higher education institutions to investigate various teaching and learning styles, and to adopt relevant ICT models into nursing educational curricula. This paper therefore aims at exploring the facilitation strategies used in e-learning by nurse educators in Rwanda.

2. METHODOLOGY

A descriptive, non-experimental quantitative design was used to explore E-learning facilitation strategies used by nurse educators in Rwanda. The study population consisted of 75 nurse educators from three select nursing campuses in Rwanda, with 44 nurse educators responding to the research instruments, this being a response rate of 57.1%. The respondents who participated in this study were distributed as follows per campuses: Campus A: 24; Campus B: 16; Campus C: 4. The sampling technique was stratified for each of the three campuses, then simple random sampling for selecting participants. The criteria for inclusion in the study were: nurse educators with at least 6 months involvement in e-learning, or after being assigned that post, and those who

were willing to participate.

A structured questionnaire was developed following the adjustment of a teachers' questionnaire of ICT use in education from European Union.[49] Furthermore, the choice of the questions was guided by the aim of this study, and the literature on teaching strategies used in nursing education. The research instrument contained socio-demographics: age, gender, educational level, qualification in nursing education, and years of working experiences. Others questions were grouped as follows: shared vision about integrating ICT in teaching and learning in the school (1 question); the purpose of using Information Communication technology in teaching by nurse educators (11 questions); permission for students to use their personally owned devices at school for learning (2 questions); teaching strategies used by nurse educators in their classroom instructional practices (14 questions); and teaching and learning activities in e-learning (11 questions).

The research instruments were distributed to the participants after the purpose of the study was explained and the informed consent signed. The respondents were required to select from options when responding to questions, which resulted in the quantitative data being descriptively analysed using frequencies and percentages. Ethical principles were respected throughout the study, and ethical clearance was secured from the University of KwaZulu-Natal, and from the Rwanda Ministry of Education. The permission was also obtained from the school where this study was conducted.

3. FINDINGS

The findings from this study are presented descriptively using frequencies and percentages, and they include: socio-demographic characteristics, vision and purpose of using ICT in nursing education, teaching devices and strategies for classroom instruction, and teaching and learning activities in e-learning.

3.1 Socio-demographic characteristics

The findings indicated that the minimum age of the 44 nurses was 27 and the maximum 57 years, mean age 34.59 and the standard deviation (S.D) 7.215. The majority (n = 30, 68.2%) were female, the largest number has a bachelor's degree (n = 24, 54.5%), 22.7% (n = 10) had an honour's degree, 18.2% (n = 8) had an advanced diploma, and 4.5% (n = 2) had a master's degree. The majority of nurse educators (n = 31, 70.5%) did not have a qualification in nursing education and only 29.5% (n = 13) reported to have a qualification in nursing education. The minimum number of working years' experience was 2 years and the maximum number 15 years, while the mean working years' experience was 4.91 and the standard deviation (S.D) was 3.139.

3.2 Vision and purpose of using ICT in nursing education

In this study, it was found that respondents had a common picture, needs and goals to use ICT in teaching and learning. The findings showed that the majority of the participants (84.1%) had the same vision about incorporating ICT in teaching and learning as their colleagues, the head of school, and other staff, and only 15.9% (n = 7) reported not having the same vision.

The findings revealed that nurse educators used ICT for various reasons, including to collect information to prepare class activities for the students, and to assess the students. Furthermore, the results indicated that they make use of ICT to enhance their knowledge and skills of teaching in a computer-mediated learning environment, and being done through online self-directed learning and professional development. Technologies were used to browse/search the internet to collect information and learning resources to be used to prepare lessons; prepare presentations, exercises and tasks for students; evaluate digital learning resources; create their own digital learning materials for students, and post homework for students on the school website (see Figure 1).

3.3 Teaching devices and strategies for classroom instruction

The findings from this study showed that some students were allowed to use personal devices for learning, while a few were not, which might have been due to a concern that these devices might distract the students during the classroom sessions. Out of the 44 participants, the majority (n = 41, 93.2%) indicated that students were allowed to use laptops, tablets, netbook and notebooks, and 77.3% (n = 34) allowed them to use a mobile or smartphone in their target classes for learning purposes.

The findings from this study revealed that nurse educators used various classroom instructional practices. These strategies were used with the help of ICT tools: formal lectures, core lectures, group discussions, small group activities, self-directed learning, situation of integration (simulation), videos, role play, brainstorming, workbooks, projects, case studies, PortoFolio, and research. Out of 44 nurse educators, 95.5% (n = 42) reported using self-directed learning, 93.2% (n = 41) used case studies, 88.6% (n = 39) used group discussions, 81.8% (n = 36) used small group activities, and 63.6% (n = 28) used videos (see Figure 2).

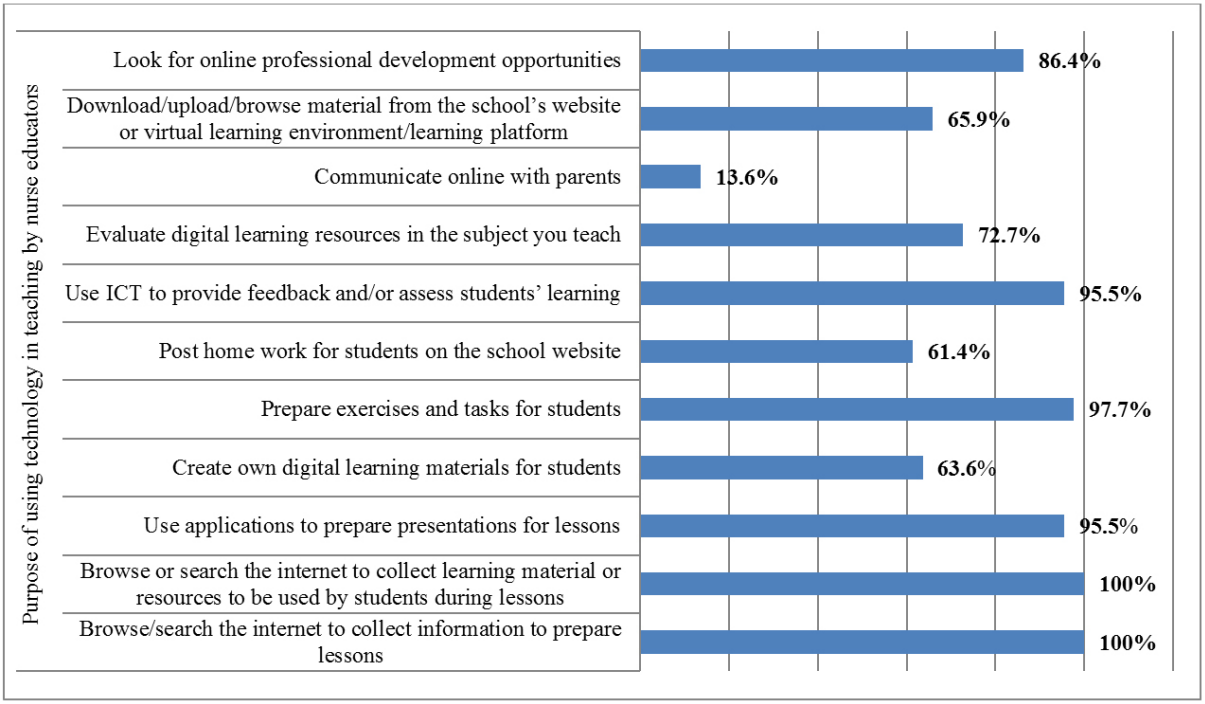

Figure 1. The purpose of using technology in teaching by nurse educators (n = 44)

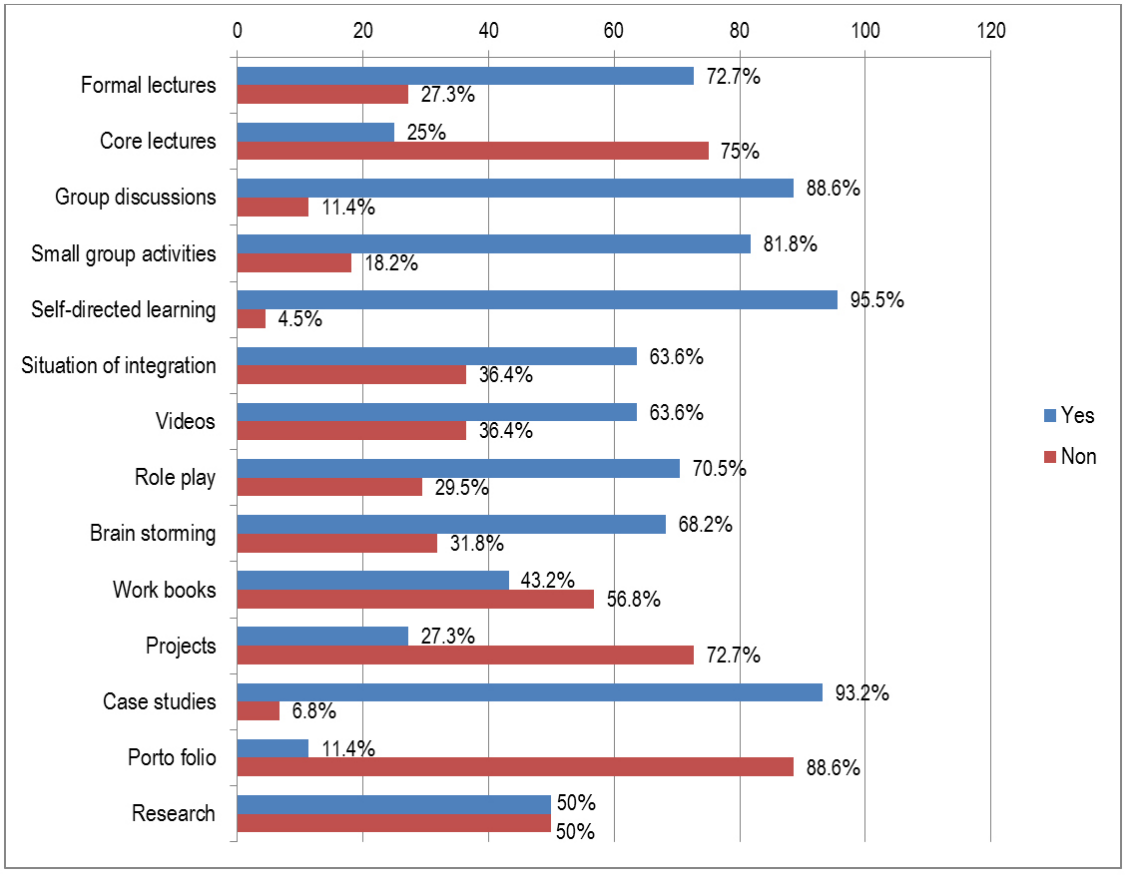

Figure 2. Teaching strategies used by nurse educators (n = 44)

3.4 Teaching and learning activities in e-learning

The study found that course content delivery was done in the blended mode of e-learning, which included face-to-face as well as online teaching and learning. Various teaching and learning activities were carried out in the target class.

All of the nurse educators agreed unanimously that students reflect on their learning, discuss ideas with others, engage in enquiry based activities, and 97.7% (n = 43) reported that they present and demonstrate to the whole class, students work in groups, and they work on exercises individually at the same time. Nurse educators reported to support and explain things to individual students, and make them participate in assessing their own work (see Figure 3).

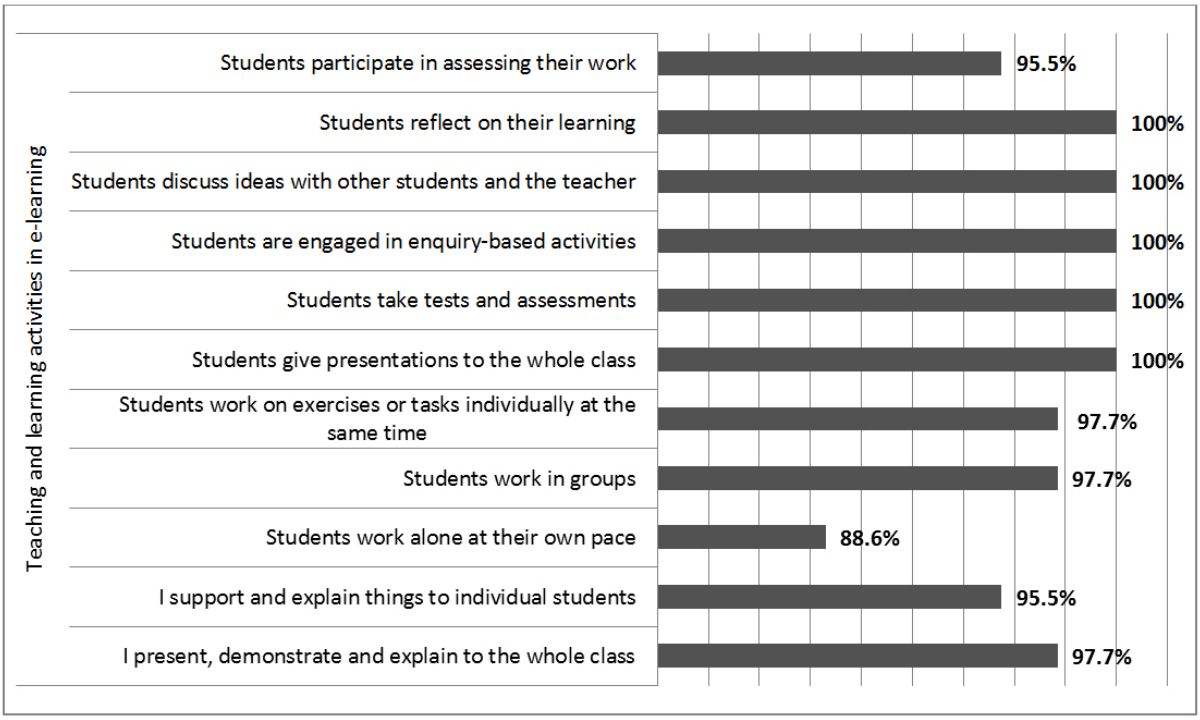

Figure 3. Teaching and learning activities in e-learning (n = 44)

4. Discussion

Rwanda has made considerable steps towards ensuring "Universal Education for All", with a major emphasis having been placed put on integrating ICT in education to promote quality education.[50] In the Rwandan nursing education, the introduction of e-learning in 2012 was based on national needs to improve nurses' and midwives' knowledge and skills using the modern methods of teaching and learning. This was done to equip different health settings with sufficient well trained, qualified nurses and midwives.[46,48]

The findings indicated that the majority of nurse educators did not have a qualification in nursing education, with most having bachelor's degree in nursing as the highest qualification. Penn, Wilson[51] stated that although registered nurses are eager to share their clinical expertise as nurse educators, many have questions about what is required to transition from the clinical practice setting to the academic environment, even on a part-time basis. There is a need for a qualification in nursing education at various levels to ensure that these educators are equipped to provide quality education using current technology. In many teaching institutions, instructors teach at various levels, highlighting the need for improved educational preparation to ensure their versatility.[51]

The results from this study indicated that the majority of the participants had the same vision about incorporating ICT in teaching and learning as their colleagues, the head of school and other staff. According to Martin, McCormack, Fitzsimons and Spirig,[52] it is important to have a shared vision with all team members, as it provides clear goals and expectations from stakeholders, and ensures that people work together to achieve a common purpose.[52] The majority of nurse educators used computers and the internet to prepare lessons, deliver instructions, and provide feedback and/or assess students' learning. In addition, they used technology for browsing or searching information from the internet; retrieving materials or resources to be used by students during lessons, and for their own professional development. The rapid growth of ICT has the potential to have a great

impact on both personal and professional development.[53] The literature indicates that perceived usefulness is the most significant factor of behavioural intention to use the technology.[54–56] Acceptance of e-learning includes the acceptance of technology, but differs from it in some key respects, as the pedagogical aspects need to be considered.[54] According to Évora,[57] the internet can be used in nursing as a tool for accessing available resources. The internet is a valuable resource in seeking information for answers to nursing problems, and to easily find information on many topics. When the information is online, an appropriate search can recover the information that is needed much faster than when accomplished manually.[57,58] Similarly to the findings of this study, Kader[59] found that respondents used the internet mainly for communications, including with their teachers and colleagues. Kheswa[60] states that students and teachers are increasingly required to use the internet for course-related activities and administrative functions.

The majority of nurse educators allowed their students to use laptops, tablets, netbook and notebooks in classrooms, as well as mobile or smartphones. According to WHO[61] computers are used in undergraduate health professional education irrespective of their internet connectivity. Alamargot and Morin[62] argue that internet and computers are important teaching aids, as they can alleviate teachers' work when preparing and delivering lessons. According to Santamarta, Hernández-Gutiérrez[63] technological devices are frequently used in teaching and learning, and are replacing other materials, such as books and papers. The authors also noted that the use of electronic devices, such as tablets, smartphones and notebooks, enhances students' training. Thus, it is important to train students and teachers how to effectively use these technologies.[64,65]

The findings from this study revealed that nurse educators used various teaching strategies, including formal and core lectures, group discussions, small group activities, self-directed learning, simulations, videos, role play, brainstorming, workbooks, projects, case studies, portfolios and research. In a study conducted by Tiru,[66] it was found that teachers use different facilitation strategies based on various factors, such as the level of the study of the students, and type of the educational activities. Similarly, McKimm and Jollie[33] argue that teachers may adopt various roles based on the classroom size, planned activities and teaching styles, and that teachers might choose to use mass instruction techniques, individualised instructions, and group learning. Nursing students need to be prepared in order to adopt e-learning and benefit from its advantages. This depends on students' having the necessary motivation and discipline to learn in a self-driven mode and to respond to learning instructions. According to McCarthy,[67] successful e-learning for nurses is facilitated by experienced nurse tutors who use effective facilitation practices and integrate technology in teaching.

The results from this study indicated that a number of activities were also used as part of teaching instructions in e-learning, and included: class presentation (by the students and teachers), demonstrations, facilitating students with their individual and group work, inquiry-based activities, reflective learning and students' assessments. Several studies show the importance of students' facilitation through a number of teaching approaches, such as student-centred teaching. Anderson[68] noted that embracing student-centred learning is important, as it puts the students at the centre of learning and responds to their needs by taking into considerations their abilities, learning styles and interests, which in turn results in students being self-motivated to learn.[68,69]

The findings from this study indicated that the teaching strategies used were intended to encourage inquiry-based learning, which allows students to search for information in order to respond to problem cases that they have selected.[68,70] They also collect information from the internet, and may also use offline resources such as compact discs and books. As students research, analyse, synthesize and evaluate the information they collect, the tasks are very much student-centred.[68] E-learning helps the students to collaborate with their peers, to learn from each other by working in small groups, and to foster social interaction and team learning, thereby enhancing their intellectual development. Due to the limited time for face-to-face interaction with educators, supplementary modes of communication and collaboration can increase student's motivation.[71]

With the introduction of e-learning in Rwandan nursing education, the use of technology requires a change in the educator's method of teaching. The results from this study indicated the need to increase the knowledge and skills of nurse educators in teaching in a computer-mediated learning environment, which can be done through the continuous capacity building programs, and lifelong and collaborative learning. Recruiting a number of nurse educators who have a qualification in nursing education would promote effective integration of ICT in teaching and learning, and the use of adequate teaching methodologies. Availability and accessibility of ICT tools to both teachers and students are essential to the success of e-learning.

5. CONCLUSION

E-learning requires a comprehensive approach of incorporating ICT in learning and teaching, and ensuring that teachers'

have the required knowledge and skills to provide instructions online are essential to ensuring quality education. The success of e-learning does not only depend on the availability of technological tools, but also on the pedagogical design, with teachers being required to use innovative teaching approaches to deliver their course contents. Institutional support in making the technology available is important if educators in resource-constrained settings are to take full advantage of e-learning resources. Educators who have the necessary resources, knowledge and skills will be able to use effective facilitation strategies in the computer-mediated teaching and learning environments.

CONFLICTS OF INTEREST DISCLOSURE

The authors declare that there is no conflict of interest.

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