



Strategies for Motivating Nurses to access and complete online learning in Ghana: Enhancing Professional Development in a Digital Era

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ABSTRACT

Online learning has increased over the last decade, particularly during and after the COVID-19 pandemic. Studies indicated a 400% increase in online course enrollment among healthcare professionals between 2020 and 2022 (WHO, 2022). In Ghana, 100% of healthcare educational institutions adopted online learning as part of providing education and training. Anecdotal evidence suggests that most nurses complain of lack of engagement during online learning leading to incompleteness of course. In the post-COVID era, there is a need to explore the motivation of nurses to complete registered online learning in Ghana to contextual strategies for engaging postgraduates in hospital-based learning to achieve learning goals. For nurses to provide safe and quality care, online learning provides an opportunity to get current and evidence-based information. This study aims to identify the motivations and challenges for professional nurses registering for and completing online learning.

The study employed mixed methods. A sample size of 166 respondents ensures a margin of error of approximately $\pm 7.5\%$ at a 95% confidence level, aligning with standard research methodologies. A survey was conducted using Qualtrics and was administered through the Nursing and Midwifery Platform for 4 months. 166 nurses responded. A convenient sampling method was used to recruit six nurses who consented to an interview. An interview with six nurses was conducted to gain deeper insight into the challenges and motivation for completing online learning. Survey data was analyzed from Qualtrics and was grouped into themes. Nurses identified challenges such as time constraints, poor quality digital devices, poor network access, inadequate and boring content, and no certificate after completion. Reasons for motivation were more extrinsic which included simple engaging content, affordable courses, flexible time, access to the internet, and certification on completion.

There was a correlation between intrinsic and extrinsic motivation as well as intrinsic and personal factors indicating that both intrinsic and extrinsic motivation significantly impact online learning engagement.

The research revealed a need for accredited nursing/midwifery institutions to introduce more appropriate online learning platforms and train nurses in their use, as well as improve digital skills. Clear standards for the duration and format of online courses are needed to enable sponsorship approval. A formal orientation program is needed for nurses to properly integrate into their online courses and support provided especially to nurses who are gradually learning innovative technologies. The course provider needs to promote online interactions among nurses, for example by setting up community discussion groups and providing feedback forms for evaluation. Gamifying the courses was also helpful in achieving objectives and maintaining the interactions.

Keywords: Online learning, Intrinsic Motivation, Extrinsic motivation, Formal online orientation, Gamified courses

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INTRODUCTION

Globally, the COVID-19 pandemic and the associated restrictions to face-to-face contact posed challenges to nurses' access to traditional in-person teaching and learning. These challenges have resulted in a dramatic change in how nurses access teaching and learning for their continuous professional development. Najafi et al (2018) observed that learners with higher motivation were more likely to complete courses and satisfy their learning intentions compared with those with low motivation. To provide the needed environment to access and complete online courses, curriculum developers and providers need to understand what motivates nurses to persist in the course till completion. Engagement of the nurses when they enroll in a course can be stimulated by the extrinsic motivation to increase course completion (Najafi et al., 2018). While the development of online teaching and learning technologies has been widely researched and has influenced current practices, there has been little research investigating what motivates nurses to complete online courses and achieve satisfactory learning goals. In the Ghanaian context, there have been some studies of the online learning of student nurses (Bester et al., 2021; Enyan et al., 2022) but none of practicing Ghanaian nurses. Addae et al. (2022) identified online learning as a temporary measure to ensure continuity in learning in the Nursing and Midwifery training schools, however, recommended the establishment of robust information and communication technology infrastructure on their campuses to ensure reliable internet connectivity for online learning.

Nurses in Ghana require continuous professional development and continuous learning to maintain professional competence to provide quality and safe care. Section 55 (f) of Part III of the Health Professions Regulatory Bodies Act, 2013 (Act 857) mandates the Nursing and Midwifery Council of Ghana to among others, “determine & implement post-registration, continuing education & continuing professional development programmes for practitioners”. The Council has therefore recommended professional activities required to maintain a professional license and some online platforms have been recommended. To this end, a study will look at the challenges and motivation of Ghanaian nurses to complete online learning and thus provide a guide to how nurse professional educators can motivate them to engage in and complete online continuous professional development to enhance their knowledge, thereby improving the quality and safety of patient care.



As a specialist nurse for over a decade, I have come to understand the pressures and personal costs associated with the responsibility of being a professional nurse. I have witnessed many professional nurses who sign on to online courses but find it difficult to complete due to access to the internet, computer, and time to study. However, it was after providing training for nurses and other health professionals that I realized many nurses only complete courses because of directives from the Nursing and Midwifery Council of Ghana to maintain their professional license.

RESEARCHERS POSITIONALITY

I believe investigating the experiences of these nurses will provide valuable information that will prove useful in increasing motivation amongst nurses in Ghana and increase engagement in online learning in the future.

I view the role of nurses as pivotal in healthcare and understand the workload on a long shift, working overtime hours, and having to find time to study to maintain a professional license whilst providing high-quality, safe care. My informal observation is that many nurses scroll through the course to acquire certificates to renew their professional licenses, however, they are unwilling to sacrifice their time, money, traditions, and culture to the new normal of acquiring skills and knowledge from online learning.

PRACTICAL SIGNIFICANCE

Ghanaian nurses need to have the most current knowledge to provide safe and quality care. The experience of online teaching and learning during COVID has paved the way for increasing use of online learning. However, to ensure adequate acquisition of knowledge by these nurses, nurses need to be motivated to access and complete online learning. A mixed methods study (including both quantitative and qualitative data) provides a clearer understating and innovative solution to how nurses in Ghana can be motivated to access and complete online learning. This will add to the literature and provide a creative pathway for nursing education concerning online courses. Completing online learning can improve the skills required for good administrative practices. Nurses will also acquire new and evidence-based skills that can be implemented to improve patient outcomes.



This study identifies what motivates and challenges professional nurses to register and complete online learning for stakeholder engagements. This research develops recommendations for motivating nurses in Ghana to access and complete post-graduate online courses and provides suggestions to content developers to increase the engagement of professional nurses.

SCIENTIFIC/POLICY CONTRIBUTIONS

In the first systematic review of nursing research in Ghana, Christmas et al. (2018) recommend increasing the amount of nursing research and researchers in Ghana to “influence policy formulation to promote efficient use of resources” (p. 21). This research is a response to that *cri de cœur*. The research can inform strategies to enhance continuous professional development (CPD) for nurses through online learning, aligning with the policy’s goal of improving workforce competence as the National Health policy emphasizes the use of technology and innovation in healthcare education and training. It can also provide policy and strategies to increase enrollment and completion rates in online nursing programs, addressing the shortage of skilled nurses in Ghana as stipulated by the Nursing and Midwifery Strategic Plan and Service Framework (NMSPSF) 2024-2028. The Nursing and Midwifery Council of Ghana (N & MC) can also use the strategies to suggest improvements to the online platform of Continuous professional education to improve nursing and midwifery skills post-registration.

METHODS

The study used a mixed-methods research design intertwined with a survey design. This method ensured the study is rich and thorough in its exploration of the motivation of nurses to complete online learning.

The study concentrated on the motivation of nurses by exploring the different realities causing nurses to persist in or abandon registered online courses and what will motivate them to complete them. Therefore, the data collected in this study consists of nurses’ descriptions of their individual ‘realities’ in terms of experiences and motivating strategies that glue or fail to glue them to online courses.

The study focused on the context in which nurses’ access and explore innovative strategies shared by participants to inform theories surrounding the motivation of nurses concerning online continuous professional development courses. Utilizing broad, open-ended questions within a structured questionnaire



allowed participants to construct the meaning of a situation (Creswell 2018) and reflect on their motivation to complete online learning.

A cross-sectional survey was employed for quantitative data collection where participants were invited to respond to questions in a Qualtrics survey which was circulated via emails and the WhatsApp platform of the Ghana Registered Nurses and Midwives Association. This data collection method can be used to make inferences about a population of interest (i.e. Ghanaian nurses) at one point in time. It gives a snapshot of the Ghanaian nurses' motivation to undertake online courses. The researcher's key role was to design a web-based questionnaire in a manner to win the trust of the nurses.

The study therefore focuses on asking two pre-determined open-ended questions, with an emphasis on employing probing strategies to retrieve detailed information from participants. Question types included demographic data such as gender, age, ranking, and number of online courses completed which were answered categorical as well as continuous questions (e.g. strongly disagree, disagree, neutral, agree, and strongly agree). The four last questions were open-ended questions that provided a wide range of suggestions as to what will make nurses discontinue or sign up for a course.

The key methods of the data collection involved participants completing a web-based questionnaire and an interview for participants via Zoom. Sampling was utilized to recruit participants for this study, where prospective participants are invited by a third party to contact the researcher if they are interested in knowing more about or participating in the study. Nurses who have participated in online learning were selected from the Nursing and Midwifery Council of Ghana database.

A criterion ensures participants are qualified to answer the research question. For this study, eligible participants must be a nurses registered with the Nursing and Midwifery Council of Ghana and registered for an online course. The Nursing and Midwifery Council of Ghana was chosen because it is the regulatory body for Nurses and Midwives in Ghana and possesses accurate data. Survey and interview participants (professional nurses) were invited from the Online Registration database of the Nursing and Midwifery Council of Ghana. A research assistant was added to the team to send the survey link and conduct the interviews. An email was sent to all qualified participants from the database and those



who responded to the questionnaire and agreed to participate in the interview were selected. The interview was conducted by the research assistant with the help of the Nursing and Midwifery Council staff.

I applied for ethical clearance through Deakin University and was approved. (HAE-22-006). Data collected within this study was non-identifiable as names were not required on the questionnaire and information was not traceable back to the participant. The participant's email is the only possible identifiable factor however, the data is securely kept.

RESULTS & DISCUSSIONS

The information was gathered using an online survey that was provided to registered nurses who have registered with the Nurses and Midwifery Council of Ghana. A total of 166 nurses responded.

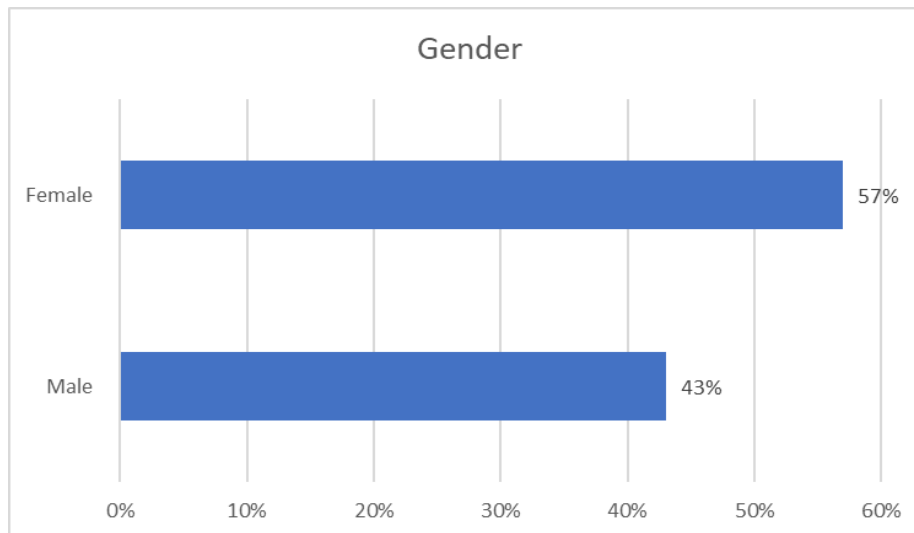


Figure 1: Gender of respondents

The results show most of the nurses who responded to the survey (57%) are females. This is lower than the proportion of females in the Ghanaian nursing population but still gives a balanced representation of Female nurses were 20% more likely to complete courses than their male counterparts (Cheeseman & Christnacht, 2019). Although half theoretical the nurses who responded to the survey were in their thirties (which is representative of the nursing population), there were respondents from a range of different ages from 26 and above. The results show 48% were between ages 31-40, 20% were between ages 41-50, 11%



were 26-30, 7% were between ages 51-60. This shows the embracement of digital platforms to enhance knowledge.

Table 1: Professions of respondents

Ranking of Nursing	Percentage of respondents
Staff Nurses	20%
Nursing/Midwifery officers	24%
Senior nursing/midwifery officers	19%
Principal nursing/midwifery officers	22%
DDNS/Directors	15%

Respondents to the survey were from different rankings of nursing. Results show the wide range of ranks in the nursing profession. 24% were Nursing/Midwifery officers, 22% were Principal nursing/midwifery officers, 20% were Staff Nurses, 19% were senior nursing/midwifery officers and 15% were DDNS/Directors. Results drew 20% of each ranking which provides diverse opinions and a good representation of online learning experiences.

Number of Online Courses Completed

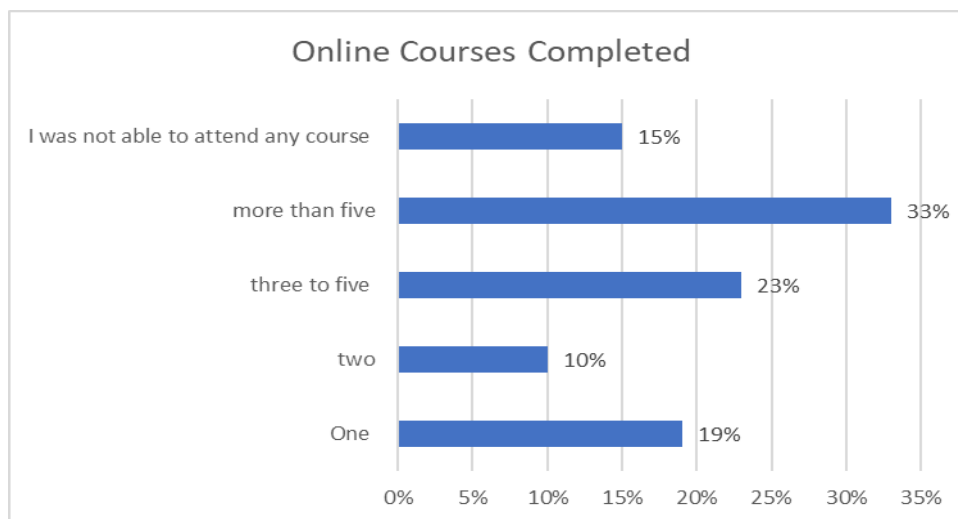


Figure 2: Online Courses Completed by Nurses



The above figure shows that nurses had registered and completed a large number of online courses. This includes compulsory courses or joined short webinars. However, there were 15% of nurses who were not able to complete any course.

Motivation of Nurses

The survey had 22 items in which respondents chose responses on a Likert scale. The items were sub-grouped into 3 themes: intrinsic, extrinsic, and personal factors based on motivation for learning.

Results showed most participants agreed that they were intrinsically motivated, including feeling happy about flexible time to learn and complete exercises, navigating through the course, understanding the content, and completing the course easily. This reduced the anxiety of registering and accessing online courses. Most of the participants expressed those extrinsic factors contributed to the completion of their courses. These factors included needing to acquire certification to renew their professional license, reduced or no cost for the course, adequate internet, good devices, and flexible time from family commitments. Most participants had personal factors that motivated them to complete the online courses. They agreed to lots of distractions, loss of concentration, and do not have access to helpful online courses. Participants were used to their face-to-face learning and preferred more group work when taking online courses. This suggests nurses' education may be online but face-to-face enhances student engagement.

There was just a little correlation between the Extrinsic and the intrinsic factors which may suggest a combination of factors to help nurses to complete their learning. Statistical analysis indicated a moderate correlation ($r=0.52$, $p<0.05$), suggesting that both play a role in course completion. The personal and intrinsic factors had a stronger correlation which suggests a personal and stronger willpower to pull through an online course. Notably, there was no correlation between extrinsic and personal motivation which suggests that nurses make independent decisions on acquiring education. Nurses with more personal responsibilities (childcare) were 40% less likely to complete courses thereby delaying pursuing higher education.

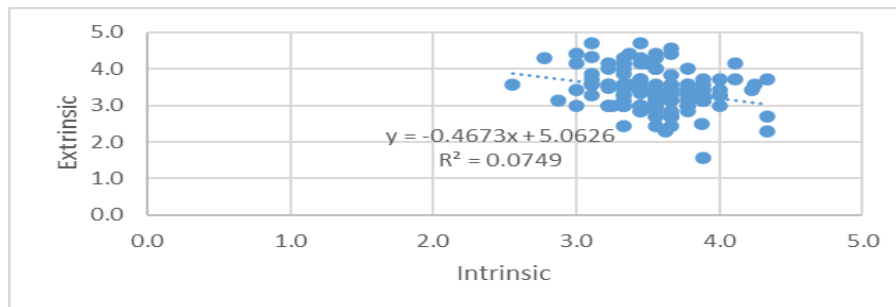


Figure 3: Correlation between Extrinsic and intrinsic factors

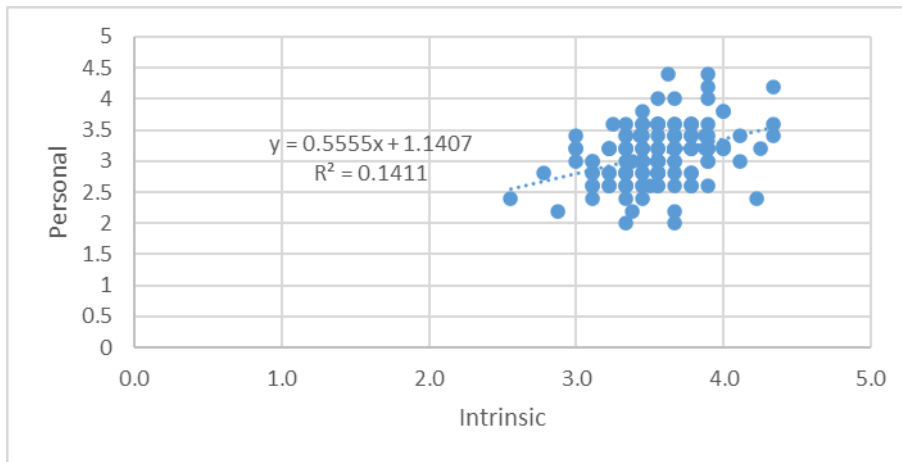


Figure 4: Correlation between Personal and Intrinsic

Discontinuation of Course

Results show online courses completed in 2021, 17% were not able to complete the course but a majority had access to a course. Figure 5 summarizes the answers provided to the question.

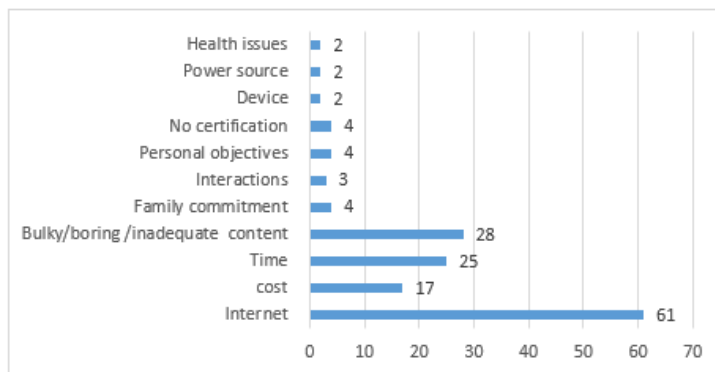


Figure 5: Factors that influence the discontinuation of courses

Results show 42% discontinued the course when they had internet issues, 18% of boring and bulky content, 16% because of a lack of time to complete, 11. % cost issues, family commitment, personal objectives, no certification, and health issues had 2% respectively. Respondents discontinued courses due to extrinsic factors. This may suggest an orientation session with personal motivation and intrinsic factors as discussion points.

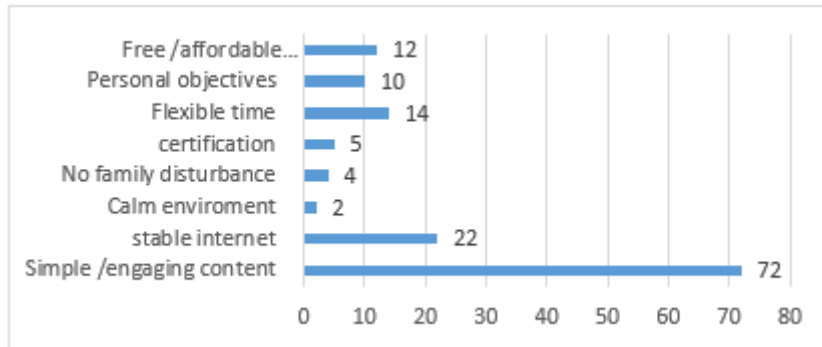


Figure 6: Factors to sustain nurses on online courses

Results show most of the respondents 51% will be kept on a course with simple/engaging content, 16% will be kept with a stable network (internet access), 9% will be kept when there are no fees charged/Affordable registration/sponsorship, 10% require flexible time, Personal objectives, calm environment, certification, and no family disturbance recorded 7%,1.4%,3.5%, and 2.8% respectively. Certification was not as important as previously anticipated in previous anecdotal pieces of evidence.

Views Regarding Description and Experiences of Online Learning

Interviewees described online learning as learning done via the Internet using different methods.

Andrew described online learning as:

“It’s acquiring knowledge and learning new things in the profession, in which you find yourself or in any spectrum of life. It’s a daily activity. It’s also using the computer and good internet data to learn and access information.”

This description is in line with literature which defines online learning as learning taking place over the internet. It also illustrates how online learning is a natural part of nurses’ information-seeking behavior.

“It’s different from classroom learning which needs your presence. It’s a version of internet learning which is online. It can be done anywhere” – (Micheal p2).

This suggests the advantages of online learning to Nurses. It is convenient.

Gift puts it this way:

“It’s just like going to school, a face-to-face interaction with your lecturer or your supervisor. It is internet-based, everything is done on the Internet. We either have discussions or just give a lecture and go away”.



“A mode of learning is not an in-person one using various channels like ZOOM etc. One does not need to go to a lecture hall” (Felicia p3).

“An institution opens a portal, puts some learning materials there for you to go there, and then you read and sometimes you are tested. At the end of the day and awarded a certificate. Sometimes also you could meet facilitators face-to-face online and then they will take you through the nature of the course. Some are also pre-recorded, so you might not end up seeing the facilitator face-to-face. So, all these are how I would describe online learning. Any learning is done via the internet.” (Ama p2)

Views on Purpose for Enrolling in the Online Course

Nurses reported a diversity of reasons for enrolling in an online course. Some participants had more than one reason for enrolling in a course. Some common quotes were:

“So, I did the course because there was no means for me to get the certificate I needed at that point. Unless the online course. I have done online courses for Continuous Professional Development (CPD) courses to register to renew my nursing PIN every year. I had also paid for the course”. – Andrew

“I did online courses quite a lot because I wanted some number of credit hours to enable me to renew my PIN” – Felicia.

This suggests that Nurses are abiding by the requirements of maintaining their Professional identification numbers thereby keeping their practice license. The Nursing and Midwifery council as a regulatory body should be commended for enforcing and ensuring nurses in Ghana maintain professional competencies.

The limited number of courses for career progression in Ghana caused participants to register and complete the course to make them employable with current trends. This was quoted by Michael as:

“I need some courses completed but cannot be in those countries and work at the same time hence look out for looking for courses that I can do online and still get a certificate to help me gain that understanding and also to beef up my CV as well.”

This indicates that nursing courses in Ghana need diversity to address the educational needs of the professionals to deliver quality care. And create avenues for accreditation for some of these new



essential courses. The certificate awarded at the end of the course was enough motivation for completing an online course. This is expressed in the following quotes:

“My motivation is to get information and get a lot of certificates”. – Ama

“So, the fact that I am in the comfort of my home or wherever is one reason, I can do online learning at my convenience motivated me to enroll in an online course. Knowing that I’m going to gain a certificate is very important for me. Those are the key things I look at amidst the challenges.” Gifty

Views on Experiences of Platforms used for Online Learning

Interviewees had some experience with online platforms. The learning platforms most probably determined their learning experiences. The platforms used included WhatsApp, Zoom, and a learning management system. As Betty explained,

“The course was introduced on a WhatsApp group. It was a site group. So, I moved in groups, and then because of that it was cheaper. Unlike joining as an individual.”.

“I started doing it via WhatsApp. It was a major challenge because you would have to be in class and your phone would receive a call both at the same time and you.” – Gifty

Another nurse mentioned he already was using the learning platform: “we were already doing our zoom. That’s when maybe Microsoft teams came in”. – Michael. There were also concerns raised when they joined courses not in their home country, the time differences and navigating their way through the course initially was a challenge.

“I went, got internet access, searched for Coursera, and then found courses. I had to let my brother pay in Accra for me before I could enroll”- Ama

The experiences suggest that the learning platforms provided for the courses can also be a motivating strategy. It is worth using appropriate learning platforms to improve the experiences for online learners.

Nurses had problems with the time of joining courses due to time zones in the different countries. This can be explained in relation to courses not available in the country of residence as implied by some participants as reasons for enrolling in a course.

“I enrolled in an institution based in Canada; the time zone was different, so it was a challenge for me”. – Andrew

Most interviewees appreciated online learning and it was useful. This is how usefulness was described.

“It was educative as well and it also seems to be a refresher like what I learnt in school”- Felicia

“It is very useful for me. Once I’m able to accomplish, no matter the challenges being network, whatever, and getting my certificate, I feel the online learning is useful”. – Gifty



Nurses need professional upgrading hence with all the challenges may still want to enroll on an online course. Andrew explained how useful the course was to him. “What was useful about online learning is that, if you have a good source of data, good network, every information is provided, you have access to what you are looking for at that point in time. Unlike the other form of learning, maybe you need extra time to go and research”. – Andrew

Experiences from different backgrounds were helpful with the challenges of different time zones. It was worth the stress. They would not have the opportunity to gain this experience if they enrolled in local face-to-face courses.

“Apart from it being convenient time, I got the opportunity to meet people from different backgrounds sharing their experiences”. – Betty

Nurses’ Participation in Online Learning

The study solicited the views of approximately 160 participants. Findings from the study revealed the approximately equal distribution of nurses across the ranks of the nursing profession in Ghana. This understanding suggests developmental views of online learning along the ranks of the nursing profession which will advocate for strategies for nurses with different rankings.

Nurses in Ghana primarily understood online learning as an opportunity to acquire knowledge remotely. Research findings suggest online learning is a useful learning pathway for nurses to access continuous professional education and it has enormous advantages. (Wu et al, 2018). The findings of the study revealed that online learning is an alternative platform due to the outbreak of the Covid 19 pandemic thereby increasing the number of online courses registration done by nurses in Ghana irrespective of their ranking. This is in support of findings by Rileys et al (2021) and ImKang et al, 2021 that specific technologies can be used in any discipline-specific course, and nursing is not an exception. The findings from this study show that nurses have participated in online learning and 86% were able to complete courses they registered for. Interestingly, all participants registered for online courses at one point in time but 14% could not complete their significant course

Motivational Factors Identified

Nurses registered for online courses through recommendations from a colleague, friends, or family. Nurses used different platforms to access their online courses. Some of these platforms include Coursera, Zoom,



WhatsApp, Microsoft Teams, and other learning platforms. There was a motivational process that nurses identified as goals, self-efficacy, and personal objectives which are more personal factors. Personal motivation includes flexible time to learn and complete exercises, navigating through the course, understanding the content, and completing the course easily reduces their anxiety of completing the online courses. Personal motivation is a commitment when registering for an online course. This is in support of studies in Nigeria and South Africa that found similar motivation factors, where certification, employer sponsorship, and digital accessibility were key determinants of course completion rates (Aderibigbe et al., 2021; Divya & Binil, 2021).

The external factors included simple/engaging content, stable network (internet access), good devices, reduced or no cost of course, flexible time from distractions and family commitment, and a calm environment. Typically, acquiring certification for renewal of their professional license was highly important to nurses. These findings support research that the self-determination/self-regulation strategy appeared to be more effective than the external factors in increasing students' learning outcomes in online learning. Most nurses were motivated by the learning experiences which included how to navigate through the course and downloading documents. Nurses were concerned about the support received to complete the online courses they registered for. Nurses who completed their course had self-determination strategies which supports findings by Li et al (2021), that these strategies were more effective in increasing learning outcomes. This finding also confirms its application to professional nurses. This finding aligns with research by Kornusky and Karakashian (2021), Wu et al. (2018), Zhu et al. (2018), and Riley and Schmit (2016), which emphasized intrinsic motivation as a key factor in course completion among nursing students. However, our study reveals that practicing nurses face unique challenges distinct from students. Despite these challenges, our findings indicate that nurses actively sought collegial support when enrolling in online courses, suggesting the importance of social networks in professional learning environments. Research indicates that both intrinsic and extrinsic motivation significantly impact online learning engagement. 65% of nurses cited certification requirements as an external motivator, while 58% cited flexibility and self-improvement as intrinsic factors (Najafi et al., 2018).



Challenges of Starting and Completing Online Courses

Nurses identified some challenges that prevent them from completing their registered online courses. Some of these challenges were time constraints, access to a network, type of device being used, cost of the course as well as learning experiences like support being received during the course. These challenges are consistent with Kornusky and Karakashian (2021) who identified workload and family commitments taking more time from the nurses. It was observed that nurses relied on digital devices in their hospitals or their mobile phones to complete the courses which are often unreliable. Nurses were concerned about courses some portions of the course not being adaptable reducing interest in completing it. It was clear that some nurses received support, but they found no space on their devices to download and save. The nurses were also interrupted by social activities, as found by Tang et al (2014), hence could not complete the course even though the course was self-paced. This is in contrast with Aderibigbe et al, 2021 who suggested self-regulation as contributing to providing more insight for online courses and improving motivation. For the Ghanaian nurse, network problems, time, and cost were identified as the major challenges. None of the nurses interviewed mentioned support from employers as they perceived online learning as a personal growth initiative. There is therefore the need for orientation services to support students as suggested by Roddy et al (2017). Nurses may require support by providing orientation services in navigating technology, online-friendly academic support, student well-being services, and activities to improve a sense of belongingness. These support services will help motivate nurses to register and complete online courses.

CONCLUSION

Ghanaian nurses need free and uninterrupted internet access, trusted online platforms as well as hardware to access and complete online learning to be current and provide evidence-based practice. The findings showed that the highest priority for registering for online courses was to gain a certificate and renew their professional license and confirm the assumption that nurses register for courses to renew their professional license. Nurse Educators need to initiate the development of more friendly online learning management systems. There is also a need to better prepare nurses for the changing working environment both in Ghana and abroad and online learning is a powerful tool to bridge the gap of knowledge and skills through online learning.



There should be reforms to create culturally appropriate courses for nurses in Ghana to reduce the cost of courses. While the norm is for the sponsorship of face-to-face courses, employers and scholarship schemes should assist with funding online courses by providing good devices, paying for hiring space in learning centers, as well as supporting nurses with internet bundles to improve accessibility for nurses for continuing professional development. Credit hours should be allocated for practical utilization of knowledge acquired from training for renewal of professional license. Findings emphasize the need for institutional support and policy changes to enhance online learning accessibility.

RECOMMENDATIONS

1. Nurses should be empowered by online learning providers to provide feedback while they are completing online courses. A formal orientation program is needed for nurses to properly integrate into their online courses and support provided especially to nurses who are gradually learning innovative technologies.
2. The course provider needs to promote online interactions among nurses, for example by setting up community discussion groups.
3. Nurse Educators should take courses in specialty areas like Digital learning to improve engagement with participants and students.
4. This research also draws attention to a gap in the literature addressing the most effective duration of courses, especially sponsorship (i.e., provision of devices and cost of internet access) for online courses. The Human Resource Directorate the Ministry of Health, Ghana Health Service and all Health institutions should acknowledge and add online courses to the study leave plan for 2025-2030.
5. Institutions should integrate online learning into mandatory professional development as stated in an article by Ofori-Ampofo, 2022.
6. Future studies should explore the long-term impacts of online learning on clinical outcomes.



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Potential conflicts of interest

The study was conducted independently with no external funding influence.

References

- Aderibigbe, S.A., Dias, M.D., & Abraham M.S. (2021). Understanding issues affecting student's commitment to online discussion forum *International Journal of Interactive Mobile Technologies* 15 (01), <https://doi.org/10.3991/ijim.v15i01.17939>.
- Addae, H. Y., Alhassan, A., Issah, S., & Azupogo, F. (2022). Online learning experiences among nursing and midwifery students during the Covid-19 outbreak in Ghana: A cross-sectional study. *Heliyon*, 8(12), e12155. <https://doi.org/10.1016/j.heliyon.2022.e12155>
- Adu-Gyamfi, S., Brenya E. (2016) Nursing in Ghana: A Search for Florence Nightingale in an African City, *International Scholarly Research Notices*, 2016, 9-14 <https://doi.org/10.1155/2016/9754845>
- Adu, E. (2021). Contextualizing Action Research. *International Journal of Adult Education and Technology*, 12(2), 31-46. <http://doi.org/10.4018/IJAET.2021040103>
- Bester, P., Smit, K., Beer, M. & Myburgh, H. (2021). When online learning becomes compulsory: Student nurses' adoption of information communication technology in a private nursing education institution. *Curationis*, 44. <https://doi.org/10.4102/curationis.v44i1.2152>.
- Center for Research Quality (2015). *Overview of Quantitative Research Methods*, retrieved from <https://www.youtube.com/watch?v=cwU8as9ZNIA>
- Conrad, D., & Openo, J. (2018). *Assessment strategies for online learning: Engagement and authenticity*. Edmonton: AU Press. <https://doi.org/10.15215/aupress/9781771992329.01>
- Creswell, J. W. (2018) *Educational Research planning, conducting, and evaluation of quantitative and qualitative research*. 4th ed. Boston: Pearson.
- Creswell, J. W. (2018). *Research design qualitative, quantitative & mixed methods approaches*, Sage.



Deakin University (n.d.) *Plain Language Statement and Consent Form*, Deakin University, retrieved 5 October 2021,

<https://www.deakin.edu.au/students/research/research-support-and-scholarships/integrity-secure/human-ethics/human-ethics-forms-and-guidelines/application-forms#hre-low-risk>.

Deakin University (2018), *Human Ethics Advisory Group Low-Risk Application Form*, Deakin University, retrieved 10 October 2021.

<https://www.deakin.edu.au/students/research/research-support-and-scholarships/integrity-secure/human-ethics/human-ethics-forms-and-guidelines/application-forms>.

Divya Y. K., & Binil, V. (2021) E-learning Challenges in Nursing Education during COVID-19 Pandemic-A Narrative Review.

Indian Journal of Forensic Medicine & Toxicology. 15 (2), 2317-2322. <https://doi.org/10.37506/ijfmt.v15i2.14718>.

Enyan, N. I. E., Boso, C. M., & Ofori, A. A. *et al.* (2022). Clinical preceptorship in Ghana in the era of COVID-19 pandemic: An interventional study. *BMC Nursing* 21 (61). <https://doi.org/10.1186/s12912-022-00838-w>

Ghana Health Service (GHS). (2020). Ghana Health Service Strategic Plan 2020–2024. Retrieved from

<https://www.ghanahealthservice.org>

ImKang, K., Lee, N. & Joung, J. (2021). Nursing students' experience of online peer tutoring based on the grow model: A qualitative study, *Nurse Education Today*, 105131, ISSN 0260-6917 <https://doi.org/10.1016/j.nedt.2021.105131>.

Li, M. Wang, Y. Stone, H. N. & Turki, N. (2021). Teaching Introductory Chemistry Online: The Application of Socio-Cognitive Theories to Improve Students' Learning Outcomes. *Educ. Sci.*, 11, 95. <https://doi.org/10.3390/educsci11030095>

Kihwele, J. E., & Ngao, A. I. (2022). Pedagogical Adaptation in Higher Learning Institutions During the COVID-19 Pandemic in

Tanzania. In M. A. Malik, A. Bulent, & D. S. Harper (Eds.), *Comparative research on the educational policy response to the COVID-19 pandemic: Eastern vs. Western perspectives*. IGI Global. 10.4018/978-1-6684-3600-4

Kornusky, J., & Karakashian, A. L. (2021). *Watson's Theory of Caring: Integration into Practice*. Glendale, CA: Cinahi Information System.

Simmons M., McDermott, M., Eaton, S. E., Brown, B. & Jacobsen, M. (2021). Reflection as pedagogy in action

research. *Educational Action Research*, 29:2, 245-258, <https://doi.org/10.1080/09650792.2021.1886960>.

Mackavey, C. & Cron, S. (2019). Innovative strategies: Increased engagement and synthesis in online advanced practice nursing

education. *Nurse Education Today*, 76, 85-88. <https://doi.org/10.1016/j.nedt.2019.01.010>



- Maurud, S., Børøsund, E., & Moen, A. (2022). Gender and ethnicity's influence on first-year nursing students' educational motivation and career expectations: A cross-sectional study. *Nursing Open* 9, 1667–1678. <https://doi.org/10.1002/nop2.1191>
- Ministry of Health, Ghana (MOH). (2020). National health policy: Ensuring healthy lives for all. Retrieved from <https://www.moh.gov.gh>
- Ministry of Health, Ghana (MOH). (2020). National eHealth strategy 2020–2030. Retrieved from <https://www.moh.gov.gh>
- Nursing and Midwifery Council of Ghana (N & MC). (2019). Nursing and midwifery continuous professional development (CPD) framework. Retrieved from <https://www.nmc.gov.gh>
- Nursing and Midwifery Council of Ghana. (2019). Ghana national nursing and midwifery strategic plan 2019–2023. Retrieved from <https://www.nmc.gov.gh>
- Ofori-Ampofo, P. (2022). *Our members have the right to practice abroad*. Health News of Monday. <https://www.ghanaweb.com/GhanaHomePage/NewsArchive/Our-members-have-the-right-to-practice-aboard-President-of-Ghana-Registered-Nurses-and-Midwives-Association-1539704>
- Opare, M., & Mill, J. E. (2000). The Evolution of Nursing Education in a Post-independence Context—Ghana from 1957 to 1970. *Western Journal of Nursing Research* 22, 936–944. <https://doi.org/10.1177/01939450022044890>
- Roddy, C., Amiet, D. L., Chung, J., Holt, C., Shaw L., McKenzie, S., Garibaldi, F., Lodge J. M., and Mundy M. E. (2017). Applying Best Practice Online Learning, Teaching, and Support to Intensive Online Environments: An Integrative Review. *Frontiers of Education*, 2(59). <https://doi.org/10.3389/educ.2017.00059>
- Schultz, J. (2012), *Thinking about research design*, Retrieved from <https://www.youtube.com/watch?v=A-VhzWkaHB4&index=9&list=PLsTeSHxNNZbxqfcCoOG34Y8BPWk1jKLL>
- Tiedt, J.A., Owens, J.M., & Boysen, S. (2021) Effect of online course duration on graduate nurse educator student engagement in the community of inquiry. *Nurse Education in Practice*, 55. <https://doi.org/10.1016/j.nepr.2021.103164>.
- Tsai, M. C., Shen, P. D., Chen, W. Y. *et al.* (2020). Exploring the effects of web-mediated activity-based learning and meaningful learning on improving students' learning effects, learning engagement, and academic motivation. *Universal Access in the Information Society*, 19, 783–798. <https://doi.org/10.1007/s10209-019-00690-x>
- Waddington, A. & Porter, S. (2021) Developing a social presence in online learning amongst Nurses: Exploration of the community of inquiry models of social using qualitative descriptive model. *Nurse Education in Practice*, 52. <https://doi.org/10.1016/j.nepr.2021.103000>



Watted, A., & Barak, M. (2018) Motivating factors of MOOC Completer: comparing between university-affiliated students and

general participants. *The Internet and Higher Education* 37, 11-20. <https://doi.org/10.1016/j.iheduc.2017.12.001>

WHO (2022). Strengthening the nursing and midwifery agenda globally, Retrieved October 2022 from

<https://www.who.int/activities/strengthening-the-nursing-and-midwifery-agenda-globally>

Zhu, L., Zhang, J., Au, W., & Yates, G. (2020) University students' online learning attitudes and continuous intention to undertake

online courses: a self-regulated learning perspective. *Educational Technology Research and Development* 68.

<https://doi.org/10.1007/s11423-020-09753-w>