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# Degree Completion Nursing Students' Perceptions of Their Readiness to Learn Online

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***Abstract***

*Raising the professional knowledge and skill of nurses through acquiring a baccalaureate degree has shown evidence of an increase in the provision of quality care, a reduction in mortality rates in hospitals, and increase in patient safety. Institutions of higher education have adopted online learning for degree-completion nursing programs in Uganda to advance more nurses to the baccalaureate level. This paper presents the findings from the qualitative phase of a mixed-method study that explored factors that contribute to students' self-efficacy to learn online. In the quantitative phase of the study, 226 nursing students were surveyed about their personal attributes, technical competences, and institutional supports that contributed to their self-efficacy to learn online. The surveys revealed that a majority of the students (58%) reported moderate to high levels of readiness to learn online. The qualitative phase was designed to elicit the students' perception of those factors that influenced self-efficacy to learn online. It was also conducted during the COVID pandemic and captured the students' perceptions during the online study. Two focus group discussions were held with a representative sample from the students (n-14) who participated in the survey portion of the study. The findings provided an understanding of students' perceptions of online learning readiness, the challenges they faced, and insights into how educators, employers, and families can support students' online learning. The findings can be generalized to students such as those in degree-completion programs, who are employed, and who study from rural or low resource areas globally.*

***Keywords:*** *Bandura's Social Cognitive Theory, Mixed-method, Nursing Education during the COVID pandemic, Readiness to Learn Online Model (ROLM), Self-efficacy, perceptions, Uganda degree-completion nursing students.*

## Introduction

Globally, raising the professional knowledge and skill level of nurses through acquiring a baccalaureate degree has shown evidence of an increase in the provision of quality care and a reduction in mortality rates [1-4]. This evidence led countries such as Australia, Canada, Spain, New Zealand, the United Kingdom, and the United States of America to recommend the baccalaureate degree (BSN) as the minimum educational level of nurses [5-8]. Additionally, the National League of Nursing called upon nurses to advance nursing knowledge through research to enable them to provide evidence-based care to improve the quality of care [9]. Also, the changing environment in health care and increasing acuity of patients require nurses to be educated at a higher level to enable them to make sound clinical judgements about complex problems informed by the best available evidence [10].

In Uganda, a majority of the nurses are trained at certificate and diploma levels, which limits their capability to provide leadership in the provision of independent quality care. The institutions of higher education have recognized

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the need to adopt online learning for degree completion nursing programs to raise the educational level of nurses to a baccalaureate (BSN) to improve the quality of care. Online education is flexible and addresses the need to retain healthcare workers in the rural and underserved areas and to avoid shortages in service delivery [11]. However, learning online poses challenges with technical competences [12] and personal attributes [13]. The institutional support given to students by instructors and peers influences motivation and the decision to complete or to drop out of online learning [14, 15].

This paper presents the qualitative findings from a mixed-method study conducted in 2020 to 2021 with students enrolled in BSN completion programs at two universities in Uganda. The quantitative phase explored the nursing students' self-efficacy of their technology competences, personal attributes that contributed to their readiness to learn online, and the institutional support that promoted their readiness [16]. The qualitative phase explored students' perceptions of their readiness to learn online. Therefore, the purpose of the qualitative phase was to determine students' perceptions of online learning readiness to help gain a richer understanding of the details of what it was like studying online, particularly considering the courses abruptly adopted online learning during the lockdown in the middle of COVID-19 pandemic.

### Theoretical Framework

Bandura's Social Cognitive Theory [17] was used as a guiding framework for this study. One of the basic tenets of this theory is that self-efficacy affects outcome expectations of accomplishment. Self-efficacy is the belief in one's own ability to successfully accomplish something and reflects the individual's confidence in the ability to exert control over one's own motivation, behaviour, and social environments. In online learning, perceived self-efficacy impacts the students' perception positively or negatively depending on how they regard their ability to accomplish the tasks of learning in the online environment. In Bandura's model, *mastery of experience* is the first and most important source of self-efficacy. Mastery of experience is the judgment an individual makes about themselves when experiencing a situation. On the one hand, when an individual performs a task successfully, their sense of self-efficacy is strengthened. On the other hand, when the individual fails the task, their self-efficacy is weakened or undermined. The second source of self-efficacy is *social modeling. Social modeling* is attained through observing others who have similar characteristics and succeed by sustained effort in performing a task. The observer then believes that he/she has the capabilities to succeed. The third source is *social persuasion* by others that one has the skill and capabilities to succeed. The last source of self-efficacy is *psychological responses to situations.* These include emotional states, moods, physical reactions, and stress levels and how they impact how a person feels about their personal abilities in a particular situation. This article presents the findings from the qualitative phase of the study to gain more insight into nursing students' experiences and perceptions of online learning.

## Materials and Methods

### The design

This sequential explanatory mixed-method study explored BSN-completion nursing students from two universities in Uganda about their experiences and perceptions of their readiness to learn online. The first phase of the study occurred between September 2020 and June 2021. During this phase, self-administered surveys that comprised 57 items developed by the researcher were completed by 226 BSN-completion students from two universities in Uganda [16]. The second and qualitative phase of the study occurred between September and October 2021 to provide a more in-depth understanding of the student experiences and perceptions in an online learning program.

Two online focus group discussions (FGD) were held via Zoom with a nested sample from each of the two Universities that participated in the survey phase of the study. The purpose was to elicit a deeper understanding and clarify the data obtained from the 226 surveys. The focus group discussion method was carried out in four steps (research design, data collection, data analysis, and reporting) according to Morgan, Krueger, and King's Model [18]. To maintain homogeneity, a nested group of 14 students (7 from each university) from the larger sample of those who participated in the quantitative arm of the study were invited to participate in the FDGs and groups maintained by the year of study. The 100 and 105 minutes FGDs occurred three weeks apart via Zoom.

## Data Collection

The qualitative data was collected using a semi-structured interview guide. The clarifying questions were developed from the findings of the quantitative phase aimed to gain a deeper understanding of the survey responses and determine the nursing students' perceptions regarding their readiness to learn online. The selection of questions was guided by concepts in Bandura's model.

It was originally planned to conduct the FGDs in person at each of the Universities. However, due to the national lockdown following the COVID-19 pandemic outbreak, the Universities were abruptly closed, and the FGDs were conducted virtually via Zoom. The participants were contacted through the Deans of the nursing programs and the class representatives. A notice was posted on the classes WhatsApp groups for volunteers. The researcher created rapport with the participants who represented the students studying from various settings (urban, suburban, and rural). The researcher read out loud the semi-structured questions, one at a time, and shared them on the screen for clarity. The researcher listened attentively while at the same time took notes and audio-recorded the sessions in Zoom. Data saturation was reached after one FGD at each University when no new information was generated.

## Data Analysis

The qualitative data collection and analysis were carried out simultaneously. The audio-recording and notes from the first FGD were transcribed by hand and analyzed separately by both researchers before conducting the second FGD. This allowed the researchers to synthesize the data (from the first FGD) to identify any questions that needed elaboration so as to incorporate it in the second FGD. Both data sets were eventually drawn together for synthesis. The data analysis process consisted of five stages according to Ritchie, and Spencer's framework [19] included familiarization, identifying a thematic framework, indexing/coding, charting, mapping, and interpretation.

Familiarization was achieved by reading the interview notes and listening to the recorded audio to ensure the transcriptions were accurate and genuinely reflected the students' perspectives [20]. The researcher looked out for the context, breadth, and depth of the responses in order to identify emerging patterns across the data. Next, the researcher wrote memos about potential codes in the margins and their meaning and pattern with which they appeared. Creating initial codes was achieved by identifying in the data meanings and patterns that occurred frequently. An electronic codebook was created to keep track of the codes. The quotes with similar meanings were grouped together and codes assigned to them. The data within cases and between cases was compared, and the codes were shifted, sorted, and organized under the right categories in the matrices. A consensus about the codes was reached between the researcher and the research guide.

Thematic framework was achieved by the researchers grouping together the quotes that were associated with a particular code and developing categories. Whenever a piece of new information emerged, the researchers reread all

previously coded material to ensure it wasn't missed. The codes that were generated were eventually reviewed, and themes emerged that had enough data to support them. The last stage included charting of the quotes under the newly developed themes for interpretation. This included moving the quotes from their original places and rearranging them under the themes where they belonged. Mapping was accomplished by presenting the themes, codes, categories and quotes in the matrices and followed by interpretation of the findings in the findings section.

## Trustworthiness

To enhance the trustworthiness of the qualitative findings, the researcher adhered to Lincoln and Guba's four-criterion framework of quality control [21]. See Table 1.

**Table 1.** Quality Control Framework

| Criterion | Techniques and procedures |
|---|---|
| **Credibility** | ***The participants*** |
| | A nested group was derived from those who participated in the quantitative arm of the mixed method study. |
| | The participants were actively studying in blended program but had abruptly switched to fully online study during the pandemic lockdown and therefore shared real perceptions of online learning. |
| | Participants were allowed to rephrase the questions to ensure they understood the context |
| | ***The qualitative questions:*** |
| | Generated from the findings of the surveys of the quantitative phase of the study based on significant differences in the demographic and background characteristics. |
| | The participants from the two sites answered the same semi-structured questions that were constructed in English, which is the language of instruction in Uganda. |
| | Semi-structured questions were shared on screen to ensure the participants understood what was asked. |
| | ***The researcher and guide:*** |
| | Experienced with online teaching and learning and therefore ensured the questions asked would bring out credible information about student's perceptions of online learning. |
| **Dependability** | The researcher clearly defined the steps of the study, such as conducting a quantitative survey in the first arm of the study and using the results as a base to directly build the qualitative phase of the study. |
| | The researcher and guide independently analyzed the data before merging and reaching a consensus on the theme, subthemes, and categories of the coded data. |
| | The research guide scrutinize the process of data collection, analysis, and presentation of results aimed at confirming the accuracy of the results and that they came directly from the participants and were supported by the data collected. |
| **Confirmability** | The researcher kept an audit trail of the process of data collection, analysis, and interpretation of data. |
| | Researcher worked in close collaboration with guide at all steps to ensure the interpretations and the findings were clearly derived from the collected data. |
| | The quotes were extracted from participants' narratives and words to represent their perspectives regarding readiness to learn online. |

| | |
|---|---|
| | A member checking exercise was conducted to confirm the findings by holding a follow-up telephone conversation with two representatives, one from each institution, to validate the accuracy and resonance with the students' perceptions of readiness to learn online. |
| **Transferability** | The participants were degree-completion nursing students enrolled in blended degree completion programs. |
| | The study was conducted amidst the global pandemic disease outbreak where students' learning in blended programs suddenly adopted full online learning to promote continuity of learning. |
| | The men and women who participated in the study were already qualified with a diploma and practicing nurses who were older than most first degree students. Thus, it can be surmised that many of them had multiple responsibilities in addition to their studies, including families and employment. |
| | The participants lived in various settings, including urban, suburban, and rural areas that are characterized by low resources, therefore bringing into the focus group discussion a diversity of online learning experiences. |

### Ethical Consideration

An approval to carry out the study was obtained from Texila American University Research Committee, study sites, Mengo Hospital REC, The National Council of Science and Technology (Uganda), permissions from the two universities and consent by participating students.

## Results

According to the findings from the FGD, the students shared their experiences of learning in the hybrid approach, especially the online component. The students highlighted the challenges they faced studying online and the solutions they had devised to help them overcome those challenges. One main overarching theme emerged from the discussions: "Challenges of online learning in Uganda". Three sub-themes emerged that contributed to the overarching theme and were 1) It matters where one lives, 2) A shared responsibility, and 3) Community support.

### Theme 1: It Matters where you Live

It emerged from the discussion that to learn online, the region where the student resided and the environment in which the student learned mattered. It was clear that there were inequalities in the distribution of resources that support online learning between those living in urban/suburban and those who lived in more remote or rural areas of the country. Two categories contributed to the development of this theme, and these were the region of residence and the learning environment of the students (Table 2).

**Table 2.** It Matters where One Lives

| Themes | Category | Sub-category | Quotes |
|---|---|---|---|
| It matters where one lives | Regions of residence | Proximity to the city (Urban versus rural) | "Proximity to the city has access to all the resources such as computer, laptop, tablet or smart phone" |
| | | | "Students in rural areas have to travel [far] to do assignments" |
| | | | "Students who are closer to the city or urban areas have no problems with electricity" |

| | | | |
|---|---|---|---|
| | | Utilities/services Electricity and Internet | "Student nurses, especially those working in remote areas, find difficulties with power [electricity] supply unstable power supply" |
| | | | "In some region's internet [connection] is very poor… and interrupted nearly all the time" |
| | | Prior experience with computer | "Students from urban areas have had enough exposure of the computer and already have some knowledge of how to use the computer" |
| | | | "Students from the remote rural areas, may not be exposed to the use of computer and therefore affects their knowledge of how to use the computer" |
| | | | "Online learning courses needed someone who had knowledge about the use of the computer" |
| | Learning environment | Distractions | "When I am learning online, I will have a lecture where I am at the moment such as at work or home most of the time the environment is not suitable. There are a lot of distractors such as being called to do something, and at the end of the lesson I have not learned anything" |

## Category 1: Regions of Residence (Urban Versus Rural Areas)

### Proximity

The students shared differences in experiences studying online for those students residing in urban versus rural settings. Proximity to the city where the institutions are located determines ease of access to technology and resources. The technologies students identified as necessary for online learning included having a computer or laptop, a reliable internet connection and an electricity supply. The students who lived closer to the city perceived ease of access to technology and resources as compared to those from rural areas. As one student mentioned:

"*Proximity to the city has access to all the resources such as computer, laptop, tablet or smart phone"*. Another mentioned, *"Students who are closer to the city or urban areas have no problems with electricity"*.

The participants reported an inequality in the distribution of resources, which greatly interrupted online learning, especially for those students in rural areas. Some students reported experiencing unstable internet connections. As one of the students put it.

*"In some region's internet [connection] is very poor and interrupted nearly all the time"*. Another student mentioned that *"Student nurses, especially those working in remote areas, find difficulties with power [electricity] supply unstable power supply"*.

The students in the rural areas who did not have a personal computer also faced additional challenges as one student mentioned, "*Students in rural areas have to travel [far] to do assignments*". During the two FGD held over Zoom, the researcher observed that the three students who participated from the rural area kept cutting in and out of the meeting due to poor internet connection, thereby confirming the difficulties the students in those areas experienced in the online classroom.

Furthermore, prior knowledge of computer use was also associated with proximity to the city. Several students associated prior

knowledge of computer use to the setting in which they worked. Some settings where the students worked were equipped with the technologies that enhanced student's competences therefore, a prior experience using a computer as one student said, *"Students from urban areas have had enough exposure of the computer and already have some knowledge of how to use the computer"*. In comparison, some settings did not have the technologies and the students who lived and worked in these areas were not likely to have prior experience with computer use. For example, one student mentioned that,

*"Students from the remote rural areas, may not be exposed to the use of computer and therefore [it] affects their knowledge of how to use the computer"*. Several students expressed the necessity of having prior experience in the use of computers before enrolling in an online course to help build computer self-efficacy. One student expressed this opinion, *"Online learning courses needed someone who had knowledge about the use of the computer"*.

**Category 2: The Learning Environment**

The environment in which the student learns affects the outcome of online learning experiences. Some of the participants discussed the challenges of trying to study in their living environments. They particularly mentioned experiencing *distractions* from home and workplace, which distracted their learning as one student narrated:

*"When I am learning online, I will have a lecture where I am [in a place] at the moment such as at work or home … most of the time the environment is not suitable. There are a lot of distractors such as being called to do something, and at the end of the lesson I have not learned anything"*.

**Subtheme 2: A Shared Responsibility**

Learning in the online environment is a two-way activity and, therefore, a shared responsibility between the instructor, who represents the institution, and the learner. Shared responsibility is a collaboration between the student and the instructor/institution where both are expected to devise ways to work to improve readiness to learn online. In this study, the students shared the strategies they worked out to overcome the challenges of online learning. These resourcefulness, self-direction, and orientation/preparation as means of shared responsibility toward online learning and the need to orient instructors in online pedagogy (Table 3).

**Category 1: Students' Resourcefulness**

Student resourcefulness refers to the initiatives of the students to address challenges they face to study online. The students reported several strategies to accomplish online learning activities. For example, students who used social media applications such as WhatsApp, Facebook, Twitter, Telegram, and IMO found they enhanced their coursework through group discussions. The students identified several strategies to deal with a lack of resources. One student stated, *"Students who do not have computers get their work done from an internet café"*. Another shared that some students with no computers *"Write their assignments on paper and take it to the internet café to type"*. Others *"Share computers" or "use a computer from their workplace and save the work on the flash"*.

**Table 3. A Shared Responsibility**

| Themes | Category | Sub-category | Quotes |
|---|---|---|---|
| A shared responsibility | Student resourcefulness | Workarounds | "Students who do not have computers get their work done from an internet café". |
| | | | "[Students with no computers] Write their assignments on paper and take it to the internet café to type" |
| | | | "Share computers … use a computer from their workplace and save the work on the flash" |
| | Self-direction or discipline | Organized | "Scheduling other responsibilities so they do not interfere with online class… It is better to be organized so that you do not have interferences". |
| | | | "The day before class I make sure I complete all the tasks required of me on the job for which I will be called back if I didn't do them, then I am able to concentrate in the classroom without any inconveniences". |
| | | Delegation | "I am a mum, a student, I work and have other social responsibilities to perform. In a scenario where I know I have to be fully engaged in the learning experience such as online exam, if there's another occasion that coincides with the exam, I delegate that responsibility to another person so that I able to do the exam". |
| | | Time management | "I ensure that I have enough data and my gadgets are fully charged so I do not get disturbances". |
| | | | "I get away from home environment and go to a quiet place where I can concentrate". |
| | | | "I secure days for class … and inform my family and workplace that I will not be available. I also sleep and wake up early to prepare for class the way I would do for a physical class". |
| | | Self-discipline | "In online class … [one should] avoid doing other work that distracts them from learning… in a noisy environment |

| | | | |
|---|---|---|---|
| | | | do not unmute microphone … noise in background will distract others". |
| | Orientation | Student and instructor | "It should also be mandatory for every student to have a router to provide internet other than relying on internet connection from their phones". |
| | | | "The use of the LMS would be enhanced by adequate orientation" |
| | | | "When students are enrolled for online learning, there's need for them to be oriented in the use of the LMS … at the institution". |
| | | Course organization | "The abrupt schedule affects the student in that they are not ready to come to class at that time, which is out of schedule". |
| | | | "Sometimes the lectures are scheduled at the time the student is expected to be with family or doing another activity such as working". |
| | | | "Abrupt lectures do not coordinate well with their time of work, yet they are supposed to be in class". |
| | | | "The teachers need to encourage students to do assignments that involve using the computer for example, encouraging them to typing their own assignments and by not accepting any hand-written work". |

**Category 2: Self-direction/discipline**

Several students described their self-directedness and responsibility for learning through being organized, delegating responsibilities, managing time and self-discipline. One student shared that some students organized themselves by "*scheduling other responsibilities, so they do not interfere with online class… It is better to be organized so that you do not have interferences"*. Other students added that:

*The day before class I make sure I complete all the tasks required of me on the job for which I will be called back if I didn't do them, then I am able to concentrate in the classroom without any inconveniences.*

The students reported having multiple responsibilities at home, workplace, and school and therefore had to find a way to set aside time to study without interruptions. As one student narrated:

*"I am a mum, a student, I work and have other social responsibilities to perform. In a scenario where I know I have to be fully engaged in the learning experience, such as {an} online exam, if there's another occasion that coincides with the exam, I delegate that responsibility to another person so that I able to do the exam.*

In addition, students perceived the role of time management in online learning and shared

strategies they employed to ensure they use time optimally to study without distractions or inconveniences. For example, one student mentioned, *"I ensure that I have enough data and my gadgets are fully charged so I do not get disturbances"*. Another student (he) said *"I get away from home environment and go to a quiet place where I can concentrate"*. Another also recounted:

*I secure days for class and inform my family and workplace that I will not be available. I also sleep and wake up early to prepare for class the way I would do for a physical class.*

Lastly, the students described self-discipline as those activities they engaged in to help them stay on track in online learning. Some reported studying in an improvised classroom or avoiding distractors such as one student mentioned; *"In online class ... avoid doing other work that distracts them from learning... in a noisy environment do not unmute microphone ... noise in background will distract others"*.

**Category 3: Orientation of Students and Instructors**

Orientation in this study is referred to as the training and preparation students and instructors need to undertake for successful online learning. Learning online includes the use of online technologies such as computer and MOODLE the learning management system (LMS). Many of the students in this study perceived online learning as a great experience, however, they stressed the importance of orientation and course organization in online learning. Specifically, they discussed the need for orientation in the use of MOODLE-the learning management system.

One student mentioned that *"the use of the learning management system (LMS) would be enhanced by adequate orientation"* and another supposed that *"when students are enrolled for online learning, there's need for them to be oriented in the use of the LMS ... at the institution"*. Furthermore, there was a suggestion that the teacher helps enhance computer competences as one student mentioned:

*The teachers need to encourage students to do assignments that involve using the computer, for example, encouraging them to typing their own assignments and by not accepting any hand-written work.*

The students also suggested that the institution make it mandatory for the student to have a devices to provide an internet connection to improve access. One student recommended.

*"It should also be mandatory for every student to have a router to provide internet other than relying on internet connection from their phones"*.

Some students raised concerns about the way the instructors organized the course. Course organization is the administrative tasks that are part of the educational process, which in this study was perceived in terms of the online class schedule. Some students perceived inconveniences in the scheduling of online classes as one stated, *"Abrupt lectures do not coordinate well with their [student's] time of work yet they are supposed to be in class"*. Other students expressed that the abrupt online classes interfered with their other roles as one student pointed out, *"Sometimes the lectures are scheduled at the time the student is expected to be with family or doing another activity such as working"*. Another student points out that *"The abrupt schedule affects the student in that they are not ready to come to class at that time which is out of schedule"*.

**Subtheme 3: Community Support**

In this study community support refers to the encouragement and help the students get from family, employers, and peers which enhances their readiness to learn online. There areas of support identified were categorized as; delegation or role change, time and resources, and coursework (Table 4).

**Table 4. Community Support**

| Themes | Category | Sub-category | Quotes |
|---|---|---|---|
| Community support | Family | Delegation or role change | "I find it very challenging to fulfill multiple roles of work and study". |
| | | | "I need a person to help with the roles at home so I can set a side time to study". |
| | Employers | Time and resources | "The employers do not understand the gravity of doing online study. They often assign jobs and require student to be working at the time they would be in class" |
| | | | "Workplaces [should] install computerized systems in health care facilities that require computer skills so as to increase exposure". |
| | Peers | Coursework | "The peers mainly provide social support especially in wellness and illness, especially when stressed" |
| | | | "Students also benefit from peer-to-peer learning ... they are assigned study groups so they can work with colleagues" |
| | | | "They (students) are put in groups with at least one or two members who are computer literate so they can help each other" |

**Category 1. Family**

The students shared their experiences of how they had to cope with the multiple roles while doing coursework. One student mentioned, "*I find it very challenging to fulfill multiple roles of work and study"*. Another student expressed the need to delegate some roles to family member so as to get more time to study … "*I need a person to help with the roles at home so I can set a side time to study"*.

**Category 2. Employers**

The students discussed the important of support from employers to succeed in online learning. Several students expressed the need to take time off from work to attend class. Some expressed concern about how their employers understanding and response towards their online study as one student narrated:

*The employers do not understand the gravity of doing online study. They often assign jobs and require student to be working at the time they would be in class"*.

On the other hand, some students appreciated the support they received from their employers. Some employer loaned them laptops or the ability to use the internet on the job. However, not all workplaces had a computer or computerized systems that would have helped enhance students' computer competences. The students express the need for more exposure to electronic resources, such as Electronic Health System EHS, to help them improve their computer competences. One student mentioned, "*Workplaces [should] install computerized systems in health care facilities that require computer skills so as to increase exposure"*.

**Category 3. Peers**

The students reported receiving peer-to-peer support in the study groups the institution assigned them. One student mentioned that *"Students also benefit from peer-to-peer learning ... they are assigned study groups so they can work with colleagues"* and *"They (students) are put in groups with at least one or two members who are computer literate so they*

*can help each other"*. Furthermore, the students also reported supporting each other in the learning process as some students mentioned *"The peers mainly provide social support especially in wellness and illness, especially when stressed"*.

## Discussion

The readiness competencies measured in the quantitative phase included technical competences, personal attributes, and institutional support. The age of the student, the region where students lived and studied, prior experience or education in basic computing, and a readily available Internet were all found to significantly influence students' readiness to learn online. Those students who were less than 36 years old reported to be more ready to learn online. Students who lived and studied in urban areas, those who had prior computer knowledge and those who had taken an online course reported to be more ready to learn online. The readiness competences were also found to be highly and significantly correlated; predicting 88% of the variance in readiness to learn online. However, a low level of readiness was found among 42% of the students which reflected a gap likely associated with students' perceptions of their self-efficacy of online learning readiness [16].

Bandura's Social Cognitive Theory [17] was used as a framework to explore students' perceptions of their self-efficacy of readiness to learn online in relation to the four sources of self-efficacy that includes mastery of experience; social modeling; social persuasion; and psychological responses to situations. The theory was instrumental in guiding the focus group discussions and proved to be very useful in developing an assessment measure for student perceptions of readiness to learn online. In addition, the theory helped the researchers to gain insights of online learning readiness from the students' emic perspective. The students revealed the challenges they experienced in online learning. The most prominent were a lack of prior experience using computers and the lack of readily available Internet, especially for those living in rural areas. Difficulties with internet connection in online education has been reported in other studies as well [22, 23].

*Mastery of experience* is influential in improving self-efficacy. In this study some students did not have prior computer experience, others did not have access to electricity and Internet, especially those who lived in rural areas. These students demonstrated mastery of their experience by being resourceful in overcoming the challenges in online learning. For example, those who did not have a computer shared or worked from internet cafés to accomplish the assignments, and those who did not have internet or electricity travelled to nearby towns to access the resources. In addition, this study found out that the students who had prior experience using computers were more ready to learn online than those who did not. Lack of technology skills can lead to frustration and interfere with self-efficacy. To avoid nursing students' frustration, an educational intervention was carried out on first year nursing students at Durban University in South Africa that proved to be useful in increasing students' awareness of their technological limitations and their readiness to use them [12]. Therefore, to promote mastery, students need to be equipped with the competences to manage technical difficulties, such as the use of computer/internet and online communication [13] through educational interventions. The students should also be encouraged to always seek peer and instructor assistance whenever facing problems online [24]. These findings suggest a need for the instructors to assess students' technical competences at the beginning of the online learning program and provide remediation when necessary.

*Social modeling* occurs when someone acquires a skill by seeing what others are doing and believes they can also complete the skill [17]. In this study, the students reflected on

social modeling through peer learning. The students reported participating in small informal discussion groups outside of class time, which enhanced their learning. In addition, the instructors paired the students who were more experienced in technical skills with those who were not. Peer learning has been found to be a useful method that improves self-efficacy and academic achievement in online learning [25, 26].

Another way to promote social modeling is through orientation. The students who lacked experience with online technologies expressed the need to be oriented in order to enhance their self-efficacy. Instructors who orient students to online technologies have been found to significantly improve online learning readiness. For example, Liu found a significant improvement in 2,590 college students enrolled in online courses by using an Online Learning Orientation (OLO) tool in a self-paced asynchronous orientation course via Canvas LMS [27]. In another study, Abdous used the OLO tool with 3,888 online students in a public university and found it a proactive support strategy that boosted students' academic self-efficacy [28].

*Social persuasion* occurs when a person is persuaded by others to believe they can attain competences and capabilities to succeed in skills that overwhelmed them in the past. According to Bandura, persuasion is effective when combined with conditions to facilitate performance. In this study, students suggested instructors should require all students to type their assignments on the computer and to not accept any handwritten work. Furthermore, the students suggested that institutions make it mandatory that all students have an alternative source of internet, such as a router. Those students who do not own a computer should be able to arrange to borrow one from the university. In addition, several students suggested that universities make it a requirement for all students to complete a basic computing course before enrolling in online courses.

*Psychological responses* to situations include emotions, moods, physical reactions, and stress levels, and how they impact a person's feelings about their personal abilities [17]. Several of the students in this study expressed frustration in how some of the courses were organized. They reported abrupt changes in the online class schedules, which interfered with their other roles such as parent or employee. The environment in which the student learns matters as it affects learning outcomes. Students discussed the stressors associated with a lack of support from their employers and families and the challenges associated with having to study in environments with multiple distractions. To enhance productivity in the online environment students need to pay attention, and reduce anxiety and distractions. The students in this study reduced their frustrations by being self-directed and organized, and by managing themselves through delegating roles in order to set aside time to study. Virtues such as self-directed learning have been found to promote readiness, satisfaction, academic achievement and success in online learning in many instances [29-35]. Therefore, in order for students to learn successfully in online environments, it is important for employers and family members to provide additional support and sacrifices.

## Limitations

The study was carried out in two universities located within a large metropolitan capital city in Uganda. Thus, the findings may not be representative of universities in other regions or countries. Another potential limitation of the study was the nature of subjective data. The focus group discussions may have led to a tendency for students to overestimate their abilities, risking response and social desirability bias. During the study, universities in Uganda were abruptly closed due to the global COVID pandemic. The planned in-person focus group discussions were changed to online focus groups due to this unforeseen event. This could have influenced the students' responses due to the

stress and uncertainty regarding the sudden introduction of online learning and which students had access to the Internet to participate. However, this limitation may have been considered an unanticipated strength as it provided for 'real world' experiences and captured the challenges students faced in an online learning situation. Future studies might include gaining the perspective of the instructors who teach in the online environment, as they may have an alternate perspective of ways to address these challenges.

## Conclusion

The study has provided an account of the challenges students learning online encounter, especially those studying from rural areas. It highlights nursing students' initiatives to cope with online learning amidst the challenges. The study gives insights into what educators need to know to provide the desired support necessary for successful online education. The context of this study was particularly relevant as it occurred during the COVID-19 disease outbreak when institutions were forced to abruptly adopt online learning with little preparation for students and instructors. In addition, the Social Cognitive Theory used in the study can also help educators to understand the sources of self-efficacy in online learning readiness so as to be in a better position to help them adequately prepare to strengthen their confidence.

## Recommendations

The findings of this study provided useful information to universities, employers and families that can be used to support the students' transition to online learning. Therefore, the findings are recommended to the nursing institutions to consider when enrolling students in online programs, as well as assessing them using The Readiness to Learn Online Model (RLOM) [16]. The findings are also recommended to inform prospective students the support they need from the community before they enroll in online learning programs. The findings also emphasize the need for universities to support all students to build their confidence in the technology competences, personal attributes, and institutional and community support in order to increase readiness to learn online. This being the first study of its kind for the degree-completion nursing students in Uganda, there is a need to explore the instructors' perceptions of online teaching and learning.

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## Conflict of Interest

The authors declare they have no conflict of interest.

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