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COVID-19 and tertiary students' knowledge, usage and challenges of using online learning platforms

Rita Yeboah[1*]

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*Corresponding author: Rita Yeboah, College of Education, School of Education and Leadership, Department of Teacher Education, P. O. Box 1181 LG, Accra Ghana
E-mail: riyeboah@ug.edu.gh

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Shuyan Wang, Instrcution, the University of Southern Mississippi, Southern Mississippi, USA

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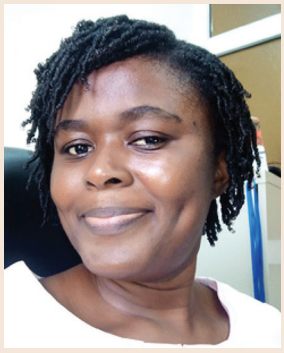
Abstract: The COVID-19 pandemic has resulted in most universities engaging in emergency online learning which they were not adequately prepared for. The emergency nature of the learning process raises questions on how students are able to effectively engage in the process. This study explored undergraduate students from the Department of Teacher Education, University of Ghana's knowledge, usage, and challenges of using online learning platforms during the 2019/2020 second semester academic year. The students had to complete all courses online in the middle of the semester because of the pandemic. Five hundred and thirty-eight (538) students participated in the study; a survey was used to collect data from the students. Descriptive statistics (percentages and frequencies) and inferential statistics (t-test) were used to analyse the data. The results show that not all students who took part in the online learning knew about online learning platforms, indicating that students were not given the needed training before all courses were migrated to be taught online. Almost half (45%) of the students were not engaged in online platforms for learning before COVID-19 indicating engaging in online learning was a very new experience for many of the students. As a result, some students were not able to use and engage in the online platforms and a lot of them indicated they were not comfortable learning online. Access to internet data (61%), stable electricity (54%), technological equipment (47%), internet connectivity problems (77%) and geographical location (47%) did not allow some students to participate well in the online learning.

ABOUT THE AUTHOR



Rita Yeboah

Rita Yeboah is a Senior Lecturer in the Department of Teacher Education, School of Education and Leadership, University of Ghana Legon Accra, Ghana. She holds doctorate and MA degrees in Art Education from KNUST Ghana. Her research interests are in the areas of instructional resources design and development, participatory and active instructional strategies, educational technologies, teacher education, professional development and education for sustainable development.

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Keywords: COVID-19; tertiary students; knowledge; usage; challenges; online learning platforms

1. Introduction

As a result of the COVID-19 outbreak, various changes have been made by governments, tertiary institutions and schools across the globe to continue teaching and learning activities mostly online in order not to disrupt the academic calendar but also to help stop the spread of the virus (Ali, 2020). Since most schools and institutions across the world did not prepare or were not expecting to transfer all programmes and courses online, the sudden change came as a shock and with many challenges. These include inadequate technological resources to implement the online process, inadequate internet data for both teachers and students, lack of technical knowhow of teachers and students in handling online courses and accessing online courses effectively, increased workload on both teachers and students, the complex environment at home and the consequences of educational quality (Murgatrotd, 2020; Zhang et al., 2020). Regardless of these challenges, the online learning and distance education had to be implemented in order to continue educational activities. Similar to what happened in other universities across the globe, the University of Ghana also suspended all physical teaching and learning and implemented online learning for all courses offered in the University. This was to ensure that students could continue with their education and ensure that student learning was least affected during national lockdowns and school closures. This study was conducted to explore university students' knowledge, usage and challenges of online learning platforms during the COVID-19 pandemic. The findings of this study will help uncover critical areas and contribute to local and international literature on the subject, which in turn can be used by relevant authorities to improve the teaching and learning process as education is continued online. The findings will help authorities to put appropriate measures in place to help strengthen the entire process and better prepare lecturers' and students to engage with online learning platforms effectively. The four research questions that were followed are:

(1) To what extent did tertiary students know about online learning platforms before COVID-19?
(2) To what extent did university of Ghana students use online learning platforms during the COVID-19 period?
(3) What challenges did university of Ghana students encounter when they were engaged on online learning platforms during the COVID-19 period?
(4) How does students' gender and previous knowledge influence their usage of online platforms?

2. Literature review

2.1. Nature of online learning platforms

Online teaching and learning platforms are integrated software solutions which makes it possible to engage in e-learning. They provide avenues for transmitting and acquiring knowledge, skills and attitudes through the use of technological equipment such as computers, smartphones, tablets and internet connection (Tosheva, 2016). Online platforms were previously just static software-based courses made up of single-source content and few technological avenues for collaborating. Today, online-learning platforms are more flexible and dynamic to use and can be accessed on different kinds of electronic devices connected to the internet. Contents engaged with on such platforms can be sourced from different avenues which makes the information more dynamic and varied for learning. Quality of content and system interactivity of online learning platforms has an influence on how students perceive their satisfaction of such platforms (Altunoglu, 2017; Baleghi et al., 2017; Chugh et al., 2017). According to Pilli (2014), sometimes students show more satisfaction with social media platforms than solely learning management systems.

2.2. Features and functions of online learning platforms

Online learning platforms ensure interaction between learners and facilitators through communication and exchanging information by providing avenues to distribute learning materials and documents anytime and anywhere. Online platforms allow synchronous and asynchronous communication between teachers and students. They also provide avenues for varied pedagogical activities with text, images, audio, videos and animation in addition to opportunities for online assessments and instant feedback on evaluation. Permanent access to learning materials for a course, recording statistics of courses, visits to sites, success of students, etc., are also some features of online platforms (Ouadoud et al., 2016; Tosheva, 2016; Woodcock et al., 2015).

2.3. Students use of online learning platforms

Online learners pay attention to the structure and leadership of virtual learning environments to take a deep and meaningful approach to learning (Garrison & Cleveland-Innes, 2005). A study by Topchyan and Zhang (2014) identified factors that influence distant learners to develop competencies to study in virtual environments, these are loyalty, integrity, conscientiousness, communication, cooperation, creativity, learning motivation, persistence, independence, and intercultural communication. Students who are engaged with online learning are more satisfied with their experiences related to accessing course content, and less about collaborating with peers to work on projects online (Dahlstrom et al., 2014). According to Cachero-Gonzalez et al. (2019) the opportunities offered by online learning platforms to collaborate among students is highly valued (79%) in their study on students' perceptions of learning platforms in distance education. Online learning platforms are perceived by students as an avenue to improve the interaction and collaboration amongst students and teachers (Maita & Navea, 2014). Nevertheless, Gomez et al. (2016) also discovered that students are more concerned with their learning benefits than the collaborative variables concerning using online platforms. A study on online learning showed that communication was positively perceived, with 52% of students indicating they were comfortable interacting online with instructors and peers, and 63% also indicated that their inquiries were responded to on time. The students made it known that the quick response time is an advantage possible in online learning. While 73% of the students noted that their opinions were respected online, 60% stated that virtual discussions were not as personal as face-to-face conversations. Here, 54% of the students brought to the fore that they started or continued peer and instructor communication online leading up to or following on from face-to-face teaching sessions (Carter, 2013).

Dodun et al. (2015) study on the analysis of the use of the Moodle platform showed that students had internet connection and information technology devices such as computers, within their residences, faculties and at their houses; in this way, the base premise of using the Moodle platform was fulfilled. Similarly, all students indicated that they had regular access to a computer to access at their convenience, all online course materials and 89% of students indicated that they frequently accessed the online materials (Carter, 2013). Benta et al. (2014) purport that students who obtained higher grades in their study accessed more frequently the online learning platform, while students with lower grades accessed less frequently the e-learning platform. The Moodle platform was used in addition to other communication and collaboration platforms like Facebook, Google Groups and Yahoo Groups, and the students worked in organised groups to develop their projects (Dodun et al., 2015). Confidentiality was a must to each group, students from other groups could not have access to the workspace of other groups. In this way, the learner had to ensure the roles of both the student and the teacher, this involved self-organisation of work by the students in fulfilling their tasks. In this study, although students collaborated to learn, they had to develop and manage their own work-space on the e-learning platform individually (Dodun et al., 2015).

Adzobu (2014) posits that the provision of a user guide assisted to explore the Ping Pong learning platform. It helped to know and understand how to use the platform,

> where and how to navigate to the course materials, where to view new messages, and how to use the right language in reading. The user guide assisted in understanding how to provide feedback when necessary, and how to communicate with the unit teacher by mail to seek clarification on questions and issues. (p. 150)

Adzobu noted that the ability to easily remember the Ping Pong link, username and password made it easy to login into the system. Adzobu (2014) further articulates that all the items in the Ping Pong start page were clearly labelled with a few straightforward buttons, making it very easy to use to learn without difficulties. Some students indicate that e-learning platforms become easy to use once they understand how they function. The perceived usefulness of e-learning and the user-friendly interface plays a significant role in students' adoption and use of e-learning platforms (Omer et al., 2015). Ping Pong was motivating, creative, satisfying and helpful because lecture notes were received on time, and all the needed information to facilitate the learning process was easily accessible. Using Ping Pong was fun because new things were learned from the platform (Adzobu, 2014). Students enjoy the independence from teachers and the flexibility that comes with e-learning platforms (Omer et al., 2015). Here, students' user experience of online platforms improves with time and frequency of use. Omer et al. (2015) add that students with little or no previous experience with ICT had difficulty using e-learning at the beginning. However, the students managed to overcome this obstacle by interacting with the platform and being active in their learning process. Students are more willing to contribute online when they are very familiar with the platform which initiates interesting, meaningful discussions where students feel free to ask questions to the instructor directly and privately and to the class broadly (Woodcock et al., 2015).

In terms of security, online students' user logout option is used very less. Most participants choose not to sign out after using a platform. This behaviour is found among students on different kinds of platforms that use a user authentication interface and can be attributed to using personal computers (Benta et al., 2014). Students can feel secure in the use of online platforms when they exclusively have access to the passwords to their pages and learning materials and assessment documents (Adzobu, 2014).

2.4. How students' gender and previous knowledge influence their usage of online platforms

According to Yu and Deng (2022), in general there are no significant gender differences in online learning outcomes with respect to self-efficacy, motivation, attitude and performance. This is confirmed by Yu (2021) study where there was no significant gender difference in online engagement and learning outcomes. In the same vain, Korlat et al. (2021) study indicated no difference between males and females' competence beliefs in online learning, indicating that both genders had equal levels of perceived abilities in online learning. On the contrary Almasri (2022) study found that in a collaborative online learning setting, males showed more positive attitudes and scored higher in attention and confidence than female students. On the other hand, Korlat et al. (2021) study revealed that females exhibited higher online learning engagement than males. Alghamdi et al. (2020) study also showed that females exhibited more self-regulation than their male counterparts in online learning, but Nistor (2013) study showed that males exhibit more positive attitudes towards online engagement than females. A study by Richardson and Woodley (2003) also revealed that females proved more persistent and engaged in online learning than males. A similar situation was also discovered in Morante et al. (2017) where female students participated and engaged more with online learning contents than males.

2.5. Advantages of students online learning

According to Sadeghi (2019) and Grabinski et al. (2020), distance learning has challenges, but the advantages seem to outweigh the disadvantages. The use of online tools in the teaching and learning process helps to focus more on the learner making the learning process more learner-centered. This ensures that students take greater responsibility of their learning which is important in training students who are critical thinkers and independent learners. Omer et al. (2015) earlier

study also identified that the nature of online learning demands that students put in more effort in their academics in order to make meaningful strides. This, when achieved, develops self-confidence in learners' ability to be responsible for their learning.

Collaboratively learning with diverse students regardless of location ensures that students become more active participants in the learning process (Dhawan, 2020). This allows students to learn from each other and construct new knowledge from instruction contents. The potential of online learning can equip learners to combine self-regulated and collaborative learning strategies, in addition to gaining digital competency (Cachero-Gonzalez et al., 2019). According to Ioannou et al. (2014), students' academic online discussions promote co-creation of knowledge among them and bring about self-reflection and self-assessment (Altınay, 2017). This also helps to develop students' critical thinking skills (Kwon & Park, 2017).

Elimination of location boundaries and availability of asynchronous pedagogic opportunities also makes it possible for students who may be confronted with geographic and time barriers to have access to education (Arkorful & Abaidoo, 2015; Dhawan, 2020). Expanding the reach of the curriculum to students on a regional, national, and global level (Burac et al., 2019; Raheem & Khan, 2020). Cachero-Gonzalez et al. (2019) add that online learning offers a good opportunity for individuals who are not able to enrol in traditional educational modalities to also educate themselves.

There is also easy access to global resources where students can get easy access to online databases, resources and subject experts wherever they are (Raheem & Khan, 2020). Students from Cachero-Gonzalez et al. (2019) study agreed that online learning ensures the availability of learning materials anywhere and anytime. The majority of students from Omer et al. (2015) study were positive about online learning because it enhanced their academic experience where course information and materials are always available.

Experiential learning is also very possible with online pedagogy where multimedia can be used to help students practically experience instruction contents. Students can also be engaged in virtual labs to learn by doing. All these help students to practically get engaged and are motivated to learn. Online learning can also nurture innovativeness in teachers as the environment gives teachers vast opportunities to try new, appropriate, and relevant teaching and learning strategies with students (Dhawan, 2020). Again, online education offers educators some convenience not available in the traditional setting such as working from home or anywhere convenient coupled with flexible work schedules (Burac et al., 2019).

2.6. Challenges students encounter during online learning

Sometimes due to lapses in the architecture and connectivity issues, the learning platforms completely fail to load or take a relatively long period to load. When the internet connection is poor students are not able to access live video lectures, likewise poor connectivity and some learning platforms also make it difficult to download video lectures after the live session. This also leads to incomplete live sessions and classes (Adzobu, 2014; Sarvestani et al., 2019; Woodcock et al., 2015). Poor internet connectivity with online learning does not allow students to participate effectively in live lectures and work on assignments to meet deadlines. Poor internet also creates communication barrier between students and teachers in online learning (Omer et al., 2015). Not having the appropriate equipment is also a challenge students encounter in online learning (Sarvestani et al., 2019). According to Gilbert (2015), lack of technology access is mainly due to the lack of financial means on the part of students. Access to relevant course information is critical to understanding the course better; therefore, students' inability to access course materials limits their capacity to perform better in the course. Inexperienced and new users of online learning platforms also may not be very clear and conversant in using the platform. Gillett-Swan (2017), Adzobu (2014), Omer et al. (2015), and Carter (2013) concur that limited previous knowledge can indeed lead to such a situation. Again, the use of online learning platforms mostly does not benefit students who are not computer- and tech-savvy (Sarvestani et al., 2019). Inadequate technical

support for learners also affected their learning experience negatively in online learning. Students articulate that for an effective online experience, there is the need for trained technical staff who can help them with specific e-learning issues, more efficient and effective design of the online platform and enhancing the social presence on the platform is also critical (Sarvestani et al., 2019 Carter, 2013). Students from Omer et al. (2015) study indicated that with their experience in online learning they had access to only one staff who provided technical support and in situations where this person was not available they were not provided with the support they needed.

Lack of pedagogical support from teachers to provide immediate interpersonal communication and feedback to students does not ensure a smooth experience in online learning (Omer et al., 2015). Grabinski et al. (2020) also identified the lack of effective communication between teachers and students in online learning as a challenge for students. With no physical interaction amongst students and teachers, students feel isolated and miss the social physical interaction that comes with attending a traditional classroom (Sadeghi, 2019). Additionally, during online presentations, the limited ability to interact face-to-face and draw upon non-verbal cues and body language of the audience can be an inhibiting factor (Gillett-Swan, 2017). Students from Cachero-Gonzalez et al. (2019) study indicated that one of the biggest threats in online learning is not getting the needed motivation to continue the studies. Some students also articulate that their institutions and professors have not been able to apply effective evaluation skills in light of online assessments (Sarvestani et al., 2019).

According to Sadeghi (2019), there can be high chances of distraction with online learning platforms which demands that students keep themselves motivated in order to successfully complete the course. For example, aside online distractions, work and home activities also disrupt students to miss live online sessions (Gillett-Swan, 2017; Sarvestani et al., 2019). Working and taking an online course is challenging because it prevents the full and effective participation of students in live classes and off-line activities (Omer et al., 2015; Sarvestani et al., 2019). Good time management is a challenge that online students contend with (Grabinski et al., 2020). According to You and Kang (2014), online learners who lack self-regulation do not allocate enough time to do assignments, which results in submitting poor quality work or late submissions.

3. Methodology

This study explored undergraduate students from the Department of Teacher Education, University of Ghana's knowledge, usage, and challenges of using online learning platforms during the 2019/2020 second semester academic year. The quantitative research approach was used in conducting the study. An online survey was used to collect data from the students to answer the research questions. Five hundred and thirty-eight (538) students took part in the online survey. The survey instrument had four sections: the first section was used to collect the students' background data; the second section with 10 questions was used to solicit data on the students' knowledge of online learning platforms; the third section elicited data on the students' use of online platforms and had 9 questions. The last section which had 11 questions focused on the challenges the students encounter when they are engaged on online platforms to learn. Validity was ascertained through content validity. The instrument was given to two experts in online learning to review, and the feedback was used to improve the questions. Alpha Cronbach's reliability was used to measure the reliability of the instrument and a coefficient of 0.7 was obtained. The survey items were reliable with respect to this reliability coefficient (Hulin et al., 2001). Descriptive statistics such as percentages and frequencies were used to measure the levels of agreement in relation to the scales using the Statistical Package for Social Science (SPSS). T-Test was run to find out whether there is any significant difference with respect to gender and the students' knowledge, usage and challenges in engaging with online learning platforms. Two ethical considerations, anonymity and confidentiality, were adhered to in conducting the study. These were ensured as the personal identities of the students were not collected, so the data cannot be linked directly to the individual students who took part in the study.

3.1. Presentation of findings

3.1.1. Students' knowledge about online learning platforms

To answer the first research question, the students were asked to indicate the extent to which they agree to 10 items using a 5-point Likert scale: Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D) and Strongly Disagree (SD).

From Table 1 which provides information on students' knowledge regarding online learning platforms, it can be deduced that (78%) of the students knew about online learning platforms before COVID-19 whiles (18%) of the students did not know about such platforms. Also, (99%) and (82%), respectively, were aware that online learning requires equipment connected to the internet to gain academic knowledge. It must be noted, however, that (10.6%) of the students could not decide as to whether online learning platforms can be used to gain academic knowledge. Nonetheless, (97%) of the students knew that for effective engagement on online learning platforms, learners must have basic information technology knowledge. Also, (85%) and (83%) of the students also knew that such platforms could be used to engage students collaboratively and independently. However, (29%) of students disagreed or could not decide whether online platforms can be used for independent and collaborative learning. Again, (64%) of participants agreed that online platforms can be used to actively engage learners and (36%) disagreed or could not decide. Further, (89%) accepted that engaging students in online learning requires self-motivation on the part of learners. In addition, (89%) and (73%) agreed that engaging learners in such platforms increases learners' ICT competencies and provides access to learning materials anywhere and at any time but (24%) disagreed or could not decide whether engaging in online platforms ensures anywhere and anytime access to materials.

Table 1. Students' knowledge about online learning platforms

Items	Strongly Agree (%)	Agree (%)	Undecided (%)	Disagree (%)	Strongly Disagree (%)
I knew about online learning platforms before COVID-19	34.1	43.6	4.3	13.0	5.0
Using online learning platforms require the use of equipment connected to the internet	75.2	23.5	0.9	0.4	0.0
Online learning platforms provide an avenue for gaining academic knowledge	26.6	55.5	10.6	6.1	1.1
For effective engagement on online learning platforms learners must have basic IT knowledge	61.3	36.1	1.5	1.1	0.0

(*Continued*)

Table1. (*Continued*)

Items	Strongly Agree (%)	Agree (%)	Undecided (%)	Disagree (%)	Strongly Disagree (%)
Online learning platforms can be used for independent learning	34.6	49.9	8.8	5.6	1.1
Online learning platforms can be used for collaborative learning	32.0	51.2	8.6	5.8	2.4
Online learning platforms can be used to engage learners actively in the learning process	17.5	46.4	11.5	19.2	5.4
Engaging learners on online learning platforms can increase their level of ICT competencies	33.1	55.1	6.7	3.9	1.1
Online learning platforms help to provide access to learning materials anywhere and anytime	24.2	49.2	10.6	13.2	2.8
Engaging in online learning platforms requires self-motivation on the part of the learner	37.4	51.6	6.3	3.4	1.3

3.1.2. Students' usage of online learning platforms during the COVID-19 period

To find answers to the second research question, the students were asked to indicate the extent to which they agree to nine (9) items using a 5-point Likert scale: Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D) and Strongly Disagree (SD).

From Table 2 on learner's usage of online platforms, (45%) of the students were not engaged in online learning platforms before COVID-19 whiles (46%) indicated they were engaged in online learning platforms. This shows that almost half of the students were not engaged in online learning platforms, but the other half were engaged in online learning platforms before COVID-19. With respect to easily using the online learning platforms during COVID-19, (59%) were able to easily use them, while (34%) could not easily use such platforms. However, (70%) indicated they were able to use the platforms to develop knowledge, while (30%) disagreed or could not decide. Also, (55%) and (41%), respectively, indicated they were able to collaborate and actively learn using the online platforms, whiles (45%) and (59%) disagreed or could not decide. This shows that a little over half of the students were able to collaborate and less than half actively participated using the online platforms. Also, (60%) of the students indicated they were not comfortable using online learning platforms, the rest

Table 2. Students' usage of online learning platforms

Items	Strongly Agree (%)	Agree (%)	Undecided (%)	Disagree (%)	Strongly Disagree (%)
I was using online platforms to learn before COVID-19	12.7	33.5	8.9	30.9	14.0
I was able to easily use the online platforms to engage in the online learning process during the COVID-19 period	13.8	43.0	9.1	25.3	8.8
I was able to use the online platforms to develop my knowledge	15.5	54.2	12.3	13.6	4.5
I was able to collaborate and learn with my peers on the online platforms	13.6	41.7	11.4	24.6	8.8
I am not comfortable using online learning platforms to learn	29.6	30.4	12.8	19.4	7.8
I have used an online learning platform to write a major academic exam	14.9	28.1	10.4	29.2	17.3
I am able to participate actively when I am engaged in a lecture online	10.1	30.9	9.9	33.5	15.6
The learning platforms used by my lectures during the COVID-19 period motivated me to always participate in the lectures	8.8	37.6	13.8	28.3	11.5
The learning platforms I was engaged on helped to facilitate a good relationship between me and my colleagues	7.4	36.1	14.5	30.4	11.5

disagreed or could not decide. While (46%) agreed that the learning platforms they were engaged on motivated them to participate in lectures, the rest disagreed or could not decide.

This indicates that the learning platforms used did not motivate more than half of the students to participate in lectures and (57%) disagreed or could not decide whether they have used such platforms to write a major academic exam.

3.2. Challenges students' encountered when they were engaged on online learning platforms during the COVID-19 period

To find answers to the third research question, the students were asked to indicate the extent to which they agree to 11 items using a 5-point Likert scale: Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D) and Strongly Disagree (SD).

Concerning challenges, Table 3 shows that (61%) of the students indicated they did not get easy access to internet data to engage in the online learning process. Here, (47%) did not easily get access to a technological device to engage in online learning, while (46%) had easy access. This indicates that the majority of students who took part in the study struggled to get internet data and a device to participate in the online process. Also, more than half of the students, that is (54%), indicated they did not have stable electricity to engage in the online learning and the geographical location of (47%) did not allow them to participate in the learning process. The majority of the students (77%) could not participate well in the online process due to internet connectivity problems. Also, (81)% and (70)% indicated learning online was stressful, and it was difficult for them to find a quiet place to engage in live video lectures. Likewise, (59)% and (56)% of the students struggled to use the online learning platforms they were engaged on and the platforms they were engaged on were technically not reliable. This shows that more than half of the students struggled using the online platforms and also encountered technical challenges. Again, more than half of the students (55%) did not understand lecture contents using the online learning platforms, and majority (63%) expressed they could not fulfil their learning needs engaging in the online platforms.

Table 3. Challenges students' encountered when they were engaged on online learning platforms

Items	Strongly Agree (%)	Agree (%)	Undecided (%)	Disagree (%)	Strongly Disagree (%)
I had easy access to data to use for the online learning during the COVID-19 period	11.4	22.2	5.6	37.4	23.5
I had easy access to a technological equipment for the online learning	11.4	34.5	7.4	32.6	14.2
I had stable access to electricity for the online learning	9.3	27.6	8.9	35.2	19.0
My geographical location did not allow me to participate in the online learning process	21.6	25.3	10.8	32.0	10.2

(*Continued*)

Items	Strongly Agree (%)	Agree (%)	Undecided (%)	Disagree (%)	Strongly Disagree (%)
Internet connection problems did not allow me to participate well in the online learning during the COVID-19 period	41.5	35.2	5.8	13.2	4.3
The online learning process was stressful	55.9	25.5	8.6	6.9	3.2
It was difficult to find a quiet environment to engage in live video lectures	39.9	30.4	7.1	18.1	4.7
I did not understand lecture contents using the online learning platforms	23.6	31.1	16.6	23.3	5.4
The online learning platforms I was engaged on were technically not reliable	23.6	32.0	18.2	21.0	5.0
Usage of the online learning platforms did not help me to fulfil my learning needs	28.3	34.5	13.8	18.4	5.0
I struggled to use the online platforms my lecturers engaged me on	24.6	33.9	13.2	22.2	6.1

From Table 4, the p values indicate that there are no significant difference in terms of student's gender and their knowledge, usage and challenges in engaging with online platforms. However, a critical look at the individual mean scores of the questions showed some differences. For instance, the mean score of the males (3.00) was higher than that of the females (2.73) regarding whether they were able to participate actively when they were engaged online. Also, more males (3.19) indicated that the learning platforms used to engage them motivated them to participate in lectures compared to their female (2.89) colleagues. On whether the online learning platforms helped to facilitate a good relationship between the students and their colleagues, again the mean score of the males (3.11) was higher than that of the females (2.84). Furthermore, more females (3.20) indicated that their geographical location did not allow them to participate in the online learning process in comparison to their male (3.13) colleagues.

Table 4. Relationship between gender and students' knowledge, usage and challenges with online learning platforms

Independent *t*-test

		F	Sig.	T	df	Sig. (two-tailed)	Mean difference	Std. error difference
Gender and Students' knowledge of online learning platforms	Equal variances assumed	3.226	0.398	1.08	536	0.439	0.086	0.073
	Equal variances not assumed			1.09	530.19	0.438	0.086	0.073
Gender and students' usage of online learning platforms	Equal variances assumed	3.686	0.296	1.72	536	0.183	0.177	0.106
	Equal variances not assumed			1.72	534.55	0.183	0.177	0.106
Gender and challenges students encountered with online learning platforms	Equal variances assumed	1.656	0.362	−0.12	536	0.415	−0.009	0.107
	Equal variances not assumed			−0.12	533.08	0.415	−0.009	0.107

4. Discussion

Regarding students' knowledge on online learning platforms, as explained by Tosheva (2016), online learning platforms are used to acquire knowledge and their usage requires technological equipment connected to the internet. The majority of the students had knowledge of what online learning platforms are with the exception of the (10.6%) because they knew that online learning requires equipment connected to the internet to gain academic knowledge. The majority of the students could also ascertain that online learning platforms can be used to engage learners collaboratively and independently; this is affirmed by Ouadoud et al. (2016), Tosheva (2016) and Woodcock et al. (2015) who express that online learning platforms ensure interaction between learners and facilitators, through communication and exchanging information. The (29%) who disagreed or could not decide on the collaborative and independent avenues of online learning platforms may not have had such experiences when it comes to engagement on online learning platforms. Again, majority (64%) of the students expressed that engagement on online learning platforms creates opportunities for active engagement with learners. This is also articulated by Ouadoud et al. (2016), Tosheva (2016) and Woodcock et al. (2015) that online learning platforms provide avenues for pedagogical activities that take various forms such as problem solving, simulations and interactive teaching resources in various formats (text, image, audio, video, and animation). However, (36%) who disagreed or could not decide may not have been offered opportunities to engage actively using online learning platforms and hence their position. According to Topchyan and Zhang (2014), motivation is one of the factors that affects the perception of distance education students in developing their competencies to work online. Lack of motivation on the part of students is a weakness and a threat to effective engagement on online learning platforms (Cachero-Gonzalez et al., 2019; Grabinski et al., 2020). Furthermore, majority of the students indicated engagement with online learning platforms can improve students' ICT competencies and also ensure anywhere and anytime learning. According to Sadeghi (2019) and Grabinski et al. (2020), an advantage of the use of online learning platforms is their ability to provide students access to learning materials anywhere and anytime. The (29%) who disagreed or could not decide on the anywhere and anytime learning of online learning platforms may have encountered challenges with internet access which did not ensure anytime and anywhere access to learning materials.

With respect to students' usage of online learning platforms during the COVID-19 period, it can be deduced that almost half (45%) of the students were not using any online learning platforms before COVID-19. This means that the sudden shift to online teaching and learning was a wakeup call for majority of students to adapt to the new changes without proper training and availability of the needed resources. These findings are consistent with the assertions by Gillett-Swan (2017), Adzobu (2014), and Carter (2013) reports where they have argued that inexperienced and new users of online learning platforms may not be very clear and conversant in using the platform. Similarly, Omer et al. (2015) indicates that, such a situation may see students encountering difficulties at the initial stages but constant and active engagement on such platforms can help students manage and overcome the initial difficulties. However, it is worth noting that, the results also established that almost half (46%) of the students also indicated that they were engaged in the use of online learning platforms already, so the sudden change to engage in online learning might have been a continuation of their previous experiences. This should have been an added value for most of these students, but a critical analysis of the results did not show that majority of these students were able to bring to fore their acquired knowledge. Although more than half of the students claimed they were able to use the online learning platforms they were engaged on easily, more than (30%) could not easily use such platforms and majority of the students also indicated the platforms they were engaged on did not motivate them to learn. Based on the findings from Adzobu (2014) it is clear that when students can easily remember the link to an online learning platform, username, and passwords it becomes easy for them to login to the system, however, the question that remains unanswered could be if just being able to access the platform is enough to be able to use it effectively and have the full benefits. In addition, when all items in the online learning platforms are clearly labelled with straight forward buttons and navigations, it makes it

very easy for students to use such platforms to learn without difficulties. Some students indicate that online learning platforms become easy to use once they understand how they function. The user-friendly interface of online learning platforms plays a significant role in students' adoption and use of such platforms (Omer et al., 2015). This then means that, in the selection of such platforms to teach, in addition to their effectiveness, lecturers should also consider user friendly platforms that are clearly labelled with straightforward navigations which students can easily engage with without difficulties. It is also worth considering that despite the need to have such user-friendly platforms, most teachers and lecturers did not have the opportunity to choose the platform to use at the first instances as most universities and institutions asked and required lecturers to use specific platforms that the university authorities had confidence in. Again, before the use of any online learning platform to engage students, they must be given relevant hands-on training to ensure all can easily access the platform and use it. This can ensure effective and maximum use of such platforms by students. Furthermore, in this study, majority of the students were able to collaborate and learn with their peers which corroborates with Cachero-Gonzalez et al. (2019) study where opportunities offered on online learning platforms for student collaboration was highly valued. Most of the students (59%) could not participate actively in the online lectures. Here, teachers or lecturers have the responsibility of ensuring that they engage students actively in online learning. This will demand that they create opportunities in light of constructivism and connectivism for students to actively involve themselves in the learning process (Mattar, 2018). Institutions therefore have a responsibility more than ever to regularly train teachers and faculty members on how to deliver active online learning engagements. Furthermore, majority of the students indicated that they were not comfortable with online learning and have not used it for a major examination as a result of the fact that the students are used to face-to-face learning and assessment. Students in Sarvestani et al. (2019) study made it known that even lecturers struggled to implement effective online assessments. But with the situation we find ourselves in globally, confronted with the COVID-19 pandemic, all countries must put appropriate measures in place to engage all learners at the basic to the higher levels in online learning platforms so that going forward academic activities can be conducted smoothly online as learners will be familiar and comfortable learning on such platforms and lockdowns will not mean closure of learning activities.

Concerning how students' gender and previous knowledge influenced their usage of online platforms, in general, there was no significant difference which corroborates studies by Yu and Deng (2022), Yu (2021), and Korlat et al. (2021). A more critical analysis showed that males were more motivated to participate in online lectures than females which is in contrast to Korlat et al. (2021) and Morante et al. (2017) studies but agrees with Nistor (2013) study. From Almasri (2022) study, males exhibited more positive attitudes with collaborative online learning, this situation was similar in this study where more males reported that online learning platforms helped to facilitate a good relationship between them and their colleagues.

Regarding the challenges students encountered when they were engaged on online learning platforms during the COVID-19 period, the data indicates that availability of internet data, access to technological gadgets that can connect online, unstable electricity, internet connection problems and geographical location were the main challenges majority of the students who took part in the online learning encountered during the COVID-19 period.

Issues with internet data and internet connection problems are consistent with existing literature which indicates that when the internet connection is poor, students are not able to actively access and engage in online learning (Sarvestani et al., 2019; Woodcock et al., 2015; Adzobu, 2014). Internet connectivity problems in online learning also cause students to miss online classes or assignment submission deadlines and also cause communication disruptions between students and teachers during live sessions (Omer et al., 2015). As found in this study, Sarvestani et al. (2019) study also confirmed that not having the appropriate equipment is also a challenge students encounter when they are supposed to take lectures online. Gilbert (2015) purports that this challenge is mainly due to

the lack of financial means to get such gadgets. To ensure maximum participation in online learning, institutions can support students to get equipment and internet connectivity.

When it comes to online learning, geographical location should not be a challenge, but it was identified as a challenge in this study because in Ghana most remote areas cannot connect smoothly to the internet. This means that students who stay at such places cannot engage in online learning effectively. Again, access to electricity was a challenge because in Ghana, like most developing countries, electricity supply is not consistent. Such pertinent issues can be very distractive to effective online engagement. More than half of the students also could not understand lecture contents online which did not help them fulfil their learning needs. Again, online educators have a responsibility to present learning contents in ways that make them clear and easy to comprehend and such a skill can be acquired through training on online teaching and learning. Regarding technical challenges, according to Sarvestani et al. (2019) and Carter (2013), there is the need for trained technical staff to help with specific online learning issues, such as the creation of efficient and effective design of the platforms and enhance the social presence on the platform. Again, taking from Omer et al. (2015) study, it will be appropriate to provide adequate technical support for online learners to enhance their experience. In addition, the data shows that using online platforms to learn was stressful and students struggled to get quiet places to engage in live sessions. In this regard, Sarvestani et al. (2019) and Gillett-Swan (2017) confirmed that work and home activities disrupt students to miss live online sessions. According to Sadeghi (2019), the distractions associated with online learning demand a high level of motivation to be successful in online learning.

5. Conclusion

From this study, it can be concluded that not all students who took part in the online learning during COVID-19 knew about online learning platforms. This indicates that students were not given the needed training before all courses were migrated to be taught online. Such a situation is a drawback in implementing effective online learning. Students who knew about such platforms had a fair idea on online learning platforms. Almost half of the students who took part in this study were not engaged in online platforms for learning before COVID-19 indicating engaging in online learning was a very new experience. In this regard, some students were not able to easily use and engage on the online platforms. Likewise, a lot of the students were not comfortable learning online, this can be as a result of the fact that they were not giving the needed training before they were engaged online. Further, it was difficult for students to get access to internet data, stable electricity, technological equipment, and internet connectivity problems did not allow some students to participate well in the online learning. The geographical location of some students did not allow them to participate in the online learning because of no internet access in such places.

This study has identified relevant and critical issues useful for planning and providing relevant and appropriate resources, equipment, and training for students and teachers to ensure effective and efficient online engagement. If students are not made familiar with online learning platforms, they will struggle to engage them for learning which will not help them fulfil their learning needs. From the findings of this study, students and teachers must be given periodic training on how to engage with and use online learning platforms to easily enhance online learning engagements. In addition, for effectiveness and to ensure no student is left out, students must be provided with equipment and resources that will enable them to engage in online learning easily. Institutions should also conduct periodic research on their online learning implementation to identify areas that need improvement to strengthen the process.

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Author details
Rita Yeboah[1]
E-mail: riyeboah@ug.edu.gh
ORCID ID: http://orcid.org/0000-0003-4315-8441

[1] Department of Teacher Education, School of Education and Leadership, College of Education, University of Ghana Legon, Accra, Ghana.

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