

## **Exploring challenges encountered by University of Cape Coast, Institute of Education sandwich students in Online teaching and learning: Insights and coping strategies**

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Sponsoring information: The study was funded by us, the authors.

### **Abstract**

The COVID-19 pandemic shifted teaching from in-person to virtual modes, presenting challenges for students. This study focused on identifying the Information and Communication Technology knowledge and digital skills of 435 University of Cape Coast Institute of Education sandwich students in Ghana, their locations during online sessions, the challenges they faced, and their coping mechanisms or strategies. Most students accessed online sessions from their homes and they had low digital skills to navigate the digital platforms used for the online teaching learning due to a lack of prior training before the sessions. They often relied on colleagues, friends, and technicians for help during challenges when having the online sessions. Recommendations include providing training sessions for the students to enhance their digital skills, having the appropriate digital devices, implementing support systems to manage challenges and stress, and ensuring stable internet connectivity with zero-rating.

**Keywords:** Digital Platform; Digital Skills; Online, COVID-19; Training; Challenges; Internet Connectivity; Coping Strategies

### **1. Introduction**

In recent years, the landscape of education has undergone a profound transformation with the integration of online teaching and learning sessions due to the COVID-19 pandemic. Online teaching and learning sessions, meetings and other engagements have become the order of the day. Since 2020, face-to-face/in-person teaching and learning sessions had given way to the online sessions and most meetings, conferences, workshops, seminars and other engagements are done virtual mode across the globe. The virtual teaching and learning mode was greatly used during the peak of the COVID-19 pandemic. Online teaching and learning involve the delivery of educational content and instruction through the internet, enabling students and teachers to interact and engage in learning activities despite physical separation. This approach has advanced from traditional distance education by incorporating live online tutorials and digital course materials, enhancing the accessibility and flexibility of education. This shift, accelerated by technological advancements and the global pandemic of COVID-19, has brought both opportunities and challenges to both students and institutions. As the digital classroom becomes increasingly prevalent, it is imperative to

examine the challenges faced by students in this new educational paradigm and to devise effective strategies to address these obstacles.

According to previous studies, the transition to online learning has introduced a range of challenges especially for students at the tertiary level. One significant challenge is the lack of face-to-face interaction with instructors and peers, which can hinder meaningful engagement and collaborative learning experiences (Palloff & Pratt, 2007). Additionally, technological barriers such as limited internet access, device compatibility issues, and digital literacy gaps exacerbate disparities in educational access and equity (Means et al., 2014). Moreover, the asynchronous nature of online courses can lead to feelings of isolation and disconnection from the learning community (Garrison et al., 2000). Understanding these challenges is essential for developing targeted interventions to support student success in developing countries like Ghana.

A multifaceted approach is essential in addressing the challenges of online teaching and learning. Such approach must encompass pedagogical, technological, and socio-emotional considerations. Pedagogically, educators must adapt instructional strategies to foster active learning and student engagement in virtual settings (Anderson, 2008). This may involve incorporating interactive activities and providing opportunities for peer collaboration through virtual platforms (Means et al., 2013). Furthermore, integrating formative assessments and personalized feedback can enhance student motivation and learning outcomes in online courses (Hattie & Timperley, 2007).

Technological support also plays a pivotal role in reducing barriers to online learning. According to Punie and Cabrera (2006), educational institutions must ensure equitable access to reliable internet connectivity and appropriate devices for all students. Moreover, providing comprehensive technical support services and training opportunities can empower students to navigate digital platforms effectively (Boettcher & Conrad, 2016). Bawden and Robinson (2009) also added that, cultivating digital literacy skills is essential not only for academic success but also for preparing students for the demands of the modern workforce.

More so, addressing the socio-emotional needs of students is paramount in online learning environments. Building a sense of community and belonging through virtual interactions, discussion fora, and collaborative projects can foster a supportive learning environment (Rovai, 2002). Subsequently, offering opportunities for social connection and emotional support can help alleviate feelings of isolation and promote student well-being in online courses (Wang et al., 2020). By integrating these strategies, educators can create inclusive and engaging online learning experiences that empower students to thrive in the digital age.

## **1.1 Research Objective**

The primary objective of this study is to identify and analyze the challenges that Sandwich students of the University of Cape Coast Institute of Education encounter in online teaching and learning sessions. By conducting a comprehensive examination of these obstacles, this research aims to shed light on the factors that hinder the success of online teaching and learning. Furthermore, this study seeks to explore effective strategies and best practices for addressing these challenges, offering practical recommendations for the University, students and policymakers to improve the quality and effectiveness of online education.

## **1.2 Research questions**

1. What are the challenges Sandwich students face in the online teaching and learning engagement?
2. In what ways can the challenges faced in the Sandwich online teaching and learning sessions be addressed?

## **1.3 Significance of the study**

As the landscape of education continues to evolve, it is important to recognize the unique hurdles that students encounter in online learning environments. By identifying and understanding these challenges, institutions can tailor their approaches to better support students and enhance their learning outcomes. This study seeks to contribute valuable insights that can inform the development of targeted interventions and strategies to enhance the effectiveness of online teaching and learning among Sandwich students of the University of Cape Coast Institute of Education.

## **2. Literature review**

### **2.1 Theoretical review**

Social Learning Theory, proposed by Albert Bandura, emphasizes the role of social interactions and observational learning in shaping human behaviour. According to this theory, individuals learn not only through direct instruction but also by observing and modeling the behaviours, attitudes, and emotional responses of others (Bandura, 1977). In the context of education, social learning processes occur within a dynamic socio-cultural environment where students engage with peers, instructors, and instructional materials to construct knowledge and develop skills. In traditional face-to-face settings, students benefit from real-time interactions with peers and instructors, fostering a sense of community, belonging, and collective engagement in the learning process (Lave & Wenger, 1991).

In contrast, the asynchronous and often isolated nature of online learning environments can diminish opportunities for social interaction and collaborative learning experiences, potentially impeding the development of critical thinking skills, communication abilities, and socio-emotional competencies (Dabbagh & Kitsantas, 2012). By applying Social Learning Theory to online education, researchers can assess these challenges and develop strategies to enhance social interaction and community building in virtual classrooms, ultimately promoting more effective learning experiences for students in the digital age.

### **2.2 The concept of online teaching and learning**

Online teaching and learning represent the delivery and acquisition of educational content through internet-based platforms and digital technologies. Online teaching involves instructors delivering instructional content, facilitating discussions, and assessing student learning outcomes via the internet. It encompasses various instructional methods, including synchronous interactions in real-time and asynchronous activities allowing self-paced learning (Simonson et al., 2012). In other words, online learning refers to students acquiring knowledge and skills through digital resources and activities, often mediated by internet-connected devices. This can include formal courses, self-

directed study, and collaborative projects conducted online, typically within virtual learning environments (Means et al., 2010).

Synchronous online learning occurs in real-time, where students and instructors engage in interactive activities simultaneously through virtual classrooms or video conferencing platforms. This form of online teaching and learning session enables immediate feedback, live discussions, and collaborative problem-solving, closely resembling traditional face-to-face instruction in terms of real-time interaction (Means et al., 2010). Conversely, asynchronous online learning allows students to access instructional materials, participate in discussions, and complete assignments at their own pace, without the need for simultaneous interaction with instructors or peers. This form of online learning provides flexibility and accommodates diverse learning styles and schedules, making it accessible to learners with varied commitments and time constraints (Anderson, 2008).

The dimensions of online teaching and learning include pedagogical, technological, and social dimensions. The pedagogical dimension involves instructional design principles, learning objectives, assessment strategies, and instructional methods tailored to the online environment. Effective pedagogy in online learning emphasizes active engagement, collaboration, and critical thinking, aiming to optimize the learning experience for students (Conrad & Donaldson, 2011). The technological dimension encompasses the use of digital tools, platforms, and resources to facilitate online teaching and learning activities. This includes learning management systems, multimedia resources, communication tools, and assessment platforms designed to enhance the online learning experience (Bates, 2015). Finally, the social dimension focuses on the role of social interaction, community building, and peer collaboration in fostering meaningful learning experiences. This dimension includes online discussions, group projects, peer feedback, and collaborative problem-solving activities aimed at promoting social presence and engagement in virtual classrooms (Garrison & Arbaugh, 2007). Each dimension contributes to the holistic understanding and effective implementation of online teaching and learning practices.

Assessing the effectiveness of online teaching involves a multidimensional evaluation of various factors that impact the learning experience. This assessment encompasses students' comprehension of course material, perceptions of instructor performance, and overall satisfaction with the online learning environment. Factors influencing the effectiveness of online teaching include technology acceptance, instructional design, instructor characteristics, course attributes, and the level of interaction and competency among learners.

### **2.3 Empirical review**

Previous research has highlighted a range of challenges faced by students in online learning, including issues related to technology access, digital literacy, time management, and engagement. For instance, a study by Smith et al. (2020) emphasized the importance of providing adequate technical support to students to overcome technology barriers in online education. Similarly, Jones and Brown (2019) underscored the significance of fostering a sense of community and collaboration in virtual classrooms to enhance student engagement and motivation. Building upon these findings, this study aims to delve deeper into these challenges and explore novel strategies for addressing them in the context of online teaching and learning.

### 3. Research methods

The study adopted a purely quantitative approach, using the explanatory research design. Data were collected from 435 Sandwich students across the University of Cape Coast, Institute of Education Sandwich Centres. A structured questionnaire was used for gathering data for this study. According to Kim (2016), the structured questionnaire is the most appropriate data collection instrument for explanatory research. The data processing was done with SPSS version 26 while descriptive statistics such as frequency, percentages, mean and standard deviation were used to analyse the processed data. Results have been presented in tables. Ethical considerations such as ensuring anonymity, confidentiality of responses and voluntary participation were duly upheld.

### 4. Results and discussion

A total of 435 responses were obtained via the online questionnaire. Respondents cut across all the Colleges, offering the various programmes offered by the Institute of Education.

#### 4.1 Demographic information of respondents

The first section of the questionnaire obtained background information of respondents. The purpose for the inclusion of background data of respondents was to have an idea on some general characteristics of respondents which may influence their responses. Table 1 presents the distribution of the demographic details of respondents:

Table 1: Demographic information of respondents

Statement	Frequency	Percentage
Gender		
Male	282	64.8
Female	153	35.2
Level of education before current program		
Diploma	403	92.6
Degree	32	7.4
Device used for online learning		
Laptop	15	3.4
Desktop Computer	-	-
Tablet	3	0.7
Smartphone	417	95.9
Level of knowledge in ICT		
Beginner	92	21.1
Intermediate	282	64.8
Advanced	61	14.0
Training by the University prior to the start of online lectures		
Yes	143	32.9
No	292	67.1

Where students usually join online lectures		
At home	333	76.6
In the workplace	61	14.0
At school	41	9.4
Preferred teaching mode		
Strictly face-to-face	227	52.2
Strictly online	4	0.9
A blend of face-to-face and online	204	46.9

Source: Field Survey (2024)

From the responses obtained, 64.8% of respondents were males with the corresponding 35.2% being females. Also, a larger percentage of respondents (92.6%) were Diploma certificate holders before enrolling in their respective programs. The data showed that smartphone is the most common device used by students in their online studies (95.9%) followed by laptop (3.4%). Also, most respondents agreed to have intermediate level knowledge in ICT (64.8%) while others ranked their knowledge as beginners (21.1% ) and 14% as advanced users. With regards to whether they were trained by the University on how to use the online platforms prior to the start of their lectures, 67.1% of respondents said they had no such training by the university. Only 32.9% affirmed that they had received such training by the university. With regards to where students usually join online lectures, 76.6% of respondents said they joined in their various homes, 14% chose their workplaces and 9.4% said they had their online lectures in school. The majority of respondents chose 'Strictly face-to-face' (52.2%) as their preferred mode for lectures. Closely, 46.9% of respondents preferred 'A blend of face-to-face and online'. A marginal 0.9% opted for 'Strictly online lectures'

## 4.2 Main Results

### 4.2.1 Challenges faced in the Sandwich Online Teaching and Learning (Part I)

This section of the questionnaire sought to solicit specific challenges that students face while participating in online lectures. According to the results, 84.8% of respondents agreed that 'Unstable internet connectivity' affects their ability to effectively participate in online classes. Further, 46.7% of respondents reported unfamiliarity with the online application or platform as their major challenge, followed by 37.2% whose major challenge was 'Lack of appropriate digital devices'. With regards to 'Low digital skills and knowledge', 22.6% saw this as a hindrance to navigating the online platform. When asked where students seek help from when having challenges navigating the platform, 72.5% said they asked their 'Colleagues' for assistance, followed by 27% who sought help from 'Friends'. Seeking help from 'Technical team/platform managers' and 'The instructor' remained at 5.1% and 5.8% respectively.

With the issue of what makes online learning expensive, 75.1% reported 'Cost of data' as their major challenge followed by 'Learners' limited financial resources' which stood at 13.4%. According to respondents, online discussions will be more engaging and productive if the courses are structured to include: Audio recordings (61.5%), Short videos (36%), Demonstration of

procedure (26.5%) and Compulsory live short quizzes (7.2%). Table 2 presents a summary of the responses:

Table 2: Challenges faced in the Sandwich Online Teaching and Learning (Part I)

<b>Statement</b>	<b>Frequency</b>	<b>Percentage</b>
Which of the following internet connectivity problems affect your ability to effectively participate in online classes?		
Limited internet connectivity	81	18.7
Unstable internet connectivity	367	84.8
Power failure	60	13.9
Which of the following presents a challenge in navigating the online learning platform provided by your institution?		
Lack of appropriate digital device	161	37.2
Low digital skills and knowledge	98	22.6
Unfamiliar with the application or platform	202	46.7
Where do you seek help from when having challenges navigating the platform?		
Colleagues	314	72.5
Friends	117	27
Technical team/platform managers	22	5.1
The instructor	25	5.8
Which of these make online learning expensive?		
Cost of data	325	75.1
Cost of digital devices	50	11.5
Learners' limited financial resources	58	13.4
Which of these will help make online discussions more engaging and productive?		
Short videos	155	27.4
Audio recordings	265	46.9
Demonstration of procedure	114	20.2
Compulsory live short quizzes	31	5.5

#### 4.2.2 Challenges faced in the Sandwich Online Teaching and Learning (Part II)

The study employed a five-point Likert scale ranging from 1 – 5 (1= disagree, 2= strongly agree, 3=Neutral, 4=agree and 4= strongly agree) for the data collected. Mean score of 3.0 was used as a criterion based on the responses. That is:  $(1+2+3+4+5)/5$ . Items with mean scores above 3.0 depict agreement to the item, whereas items with mean scores below 3.0 depict disagreement to the item. The results are presented in Table 3 below:

Table 3: Challenges faced in the Sandwich Online Teaching and Learning (Part II)

ITEM	Mean	SD
The quality of audio or video during online lectures or discussions often presents challenges.	3.08	1.42
Balancing work and other commitments with my online learning schedule is difficult.	3.57	1.48
Creating an appropriate study environment for effective online learning is a challenge.	3.29	1.47
Effectively communicating with instructors or peers through online media (emails, chats, discussion boards) is a challenge for me.	<b>2.72</b>	1.46
Understanding complex course materials without face-to-face explanations from instructors is difficult.	3.52	1.53
Staying online to be updated in terms of announcements, assignments, or changes in the course outline is a challenge for me.	3.03	1.51
I find it challenging to stay motivated and focused during online learning sessions	3.03	1.44
Technical issues such as platform glitches or software problems hinder my learning experience	3.67	1.44
I find it hard to engage actively in discussions or group activities in online classes.	3.04	1.50
I face distractions in my environment that affect my concentration during online classes.	3.18	1.56
The workload in online courses feels overwhelming or difficult to manage.	2.96	1.40
I struggle with self-discipline and staying organized during online lectures.	2.43	1.37
I feel isolated or disconnected from my peers and instructors in online classes	2.43	1.45
I do not have enough expertise/training for navigating online platforms	2.31	1.37
Overall Mean and Standard Deviation	3.02	1.46

Source: Field Survey (2024)

Table 3 presents results on the challenges faced in the during the online teaching and learning session. The majority of the respondents revealed that some of the challenges faced during teaching and learning were; technical issues such as platform glitches or software problems hinder my learning experience ( $M=3.67$ ,  $SD= 1.44$ ), balancing work and other commitments with their



online learning ( $M=3.57$ ,  $SD= 1.48$ ), difficulty in understanding complex course materials without face-to-face explanations from instructors ( $M=3.52$ ,  $SD= 1.53$ ) and difficulty creating an appropriate study environment for effective online learning ( $M=3.29$ ,  $SD= 1.47$ ). Though respondents indicated several factors as a challenge to online teaching and learning, technical issues such as software problem, and platform glitches were major challenges to respondents.

Respondents further indicated that workload in online courses ( $M=2.96$ ,  $SD=1.40$ ), effectively communicating with instructors or peers through online media (emails, chats, discussion boards) ( $M=2.72$ ,  $SD=1.46$ ), and expertise for navigating online platforms ( $M=2.31$ ,  $SD=1.37$ ) was not a challenge faced during online teaching and learning. The overall mean and standard deviation were  $M=3.02$  and  $SD=1.46$  respectively. This implies that respondents face a lot of challenge during online teaching and learning session.

## **5. Discussions**

It was found that some of the challenges faced during teaching and learning were; technical issues such as platform glitches or software problems, challenge with balancing work and other commitments with their online learning, difficulty in understanding complex course materials without face-to-face explanations from instructors, complexity in the active engagement in discussions or group activities in online classes, distractions in their environment that affect their concentration, issues with quality audio or video during online lectures or discussions and difficulty creating an appropriate study environment for effective online learning. Findings are consistent with a study by Nambiar (2020) who revealed that students indicated distractions during online classes as some of the challenges they faced. These distractions largely affect students' online involvement. That is, when students do not have a conducive learning environment for an online class, it affects their effective participation which may later impact negatively on their performance.

The study of Nambiar (2020) further indicated that being at home makes online classes burdensome as they cannot manage both housework and college work simultaneously. Combining online classes with other social realities definitely could put pressure on students. A study by Khan et al. (2021), revealed that lack of motivation to take online classes was one of their major problems. Oye et al. (2011) added that there is inadequate or non-availability of internet access and limited bandwidth in some tertiary institutions. In developing countries like Ghana, the possible challenges to be encountered in introducing an online programme are poor technical infrastructure, financial restrictions, lack of computer literacy, internet connectivity, energy-related problem, and limited expertise (Anene et al., 2014; Abaidoo &Arkorful 2014).

In a similar study conducted in Ghana, Mireku et al. (2009) found that at the pre-tertiary level, none of the computer laboratories were networked and only four computers in one of the schools had internet connectivity. In the researchers' view this is likely to have serious implications on teachers' technology use for enhancing pedagogy and content knowledge in didactic teaching approaches which rely on resources from the internet. Students are also limited in their exploration of the use of internet inside and outside the classroom to construct their own knowledge. There is therefore urgent need to provide technological infrastructure in tertiary institutions to support

teachers and students to use the technology and the internet to access resources that are aligned to curriculum needs in the various subject matter.

This shows that there is still much to be done by teacher education institutions in this regard. Although instructors could access internet on individual basis for personal use, there is hardly any internet connectivity used in the classroom situation. When students face lot of challenges studying online, it affects their e-learning readiness and satisfaction (Abbasi et al., 2021; Nambiar, 2020). Nambiar (2020) found that 87.1% of the students preferred the traditional classroom face-to-face teaching method more than the online teaching mode, while 12.9% preferred online classes. This was confirmed in a study by Abbasi et al. (2020), who highlighted that student are not prepared to accept e-learning perhaps due to the challenges they face. However, Ali et al. (2016) opined that e-learning was a better teaching tool and was preferred by students when the appropriate infrastructure are put in place.

### 5.1 Ways of addressing challenges faced in the sandwich online teaching and learning

The last section of this study sought to solicit the opinions of respondents on how to improve the Sandwich online teaching and learning. Table 4 outlines various ways suggested to address these challenges, focusing on various dimensions to ensure comprehensive support for both students and educators in navigating the online teaching and learning platforms.

Table 4: Ways of addressing challenges faced in the Sandwich Online Teaching and Learning

ITEM	Frequency	Percentage(%)
Free Internet Bundles.	32	7.4
Audio/Video recording of online lessons	125	28.7
Use Zoom app for online class.	8	1.8
Stable Internet Connection	118	27.1
Training of course tutors on how to effectively navigate the internet	25	5.8
Increased online interaction	2	0.5
Make online instructions more practical	10	2.3
Training on the use of online platforms	54	12.4
Use of diverse e-learning platforms	38	8.7
Short Online Quizzes	3	0.7
Incorporating more interactive online element	19	4.4
Appropriate duration of Online lessons	1	0.2

Source: Field Survey (2024)

Table 4 present results on the ways of addressing challenges faced in the Sandwich Online Teaching and Learning. The majority of the respondents revealed that factors such as audio/video recording of online lessons (28.7%), getting a stable network (27.1%), training on the use of online platform (12.4%) and use of diverse e-learning platforms help address the challenges faced in the Sandwich Online Teaching and Learning. However, some of the respondents revealed factors such

as appropriate duration of online lessons, short online quizzes, and increased online interaction help address the challenges faced in the Sandwich Online Teaching and Learning.

## **6. Conclusions and recommendations**

The COVID-19 pandemic had put the teaching and learning activities at the tertiary educational sector in the technological space as online teaching and learning has become the order of the day. The need for digital skills and internet connectivity have become non-negotiable for all staff (academic and non-academic) and students in higher educational institutions. These skills are indispensable, equating to numeracy and literacy in our fast-changing technological world.

The study found out that most of the students access live online teaching and learning session from their homes. It was also established that most of the students did not go through the training sessions prior to the online sessions. They seek support from their colleagues and other students when having challenges during the online teaching and learning sessions. The most used gadget by the students was smartphones and with some not having the appropriate digital devices for the online sessions. The unstable/unreliable internet connectivity couple with unfamiliar with the application or platform for the online session were the major challenges for the students. They mainly relied on their colleagues and to some extent their friends/technicians to help in addressing/coping with the stresses/challenges during the online teaching and learning sessions. Besides stress associated with the students' low digital skills in online learning and the cost of data/internet, erratic power supply impedes the students use of technology in online learning.

We therefore recommend that the University and the Institute should provide and ensure that the needed training session for students and lecturers/instructors to help them upgrade their digital skills prior to the online session are patronised. This would enable them confidently to use digital technologies and platforms for the online teaching and learning sessions. The students should have the appropriate digital devices for the online teaching and learning sessions. The appropriate support systems should be in place to deal with the stress that might confront the students during the online learning. The University and the Institute should collaborate with the internet service providers to provide zero-rating internet connection during the online teaching and learning to reduce the cost of data/internet connectivity.

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