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Distance Learning (DL): Cambodian Graduate Students' Perception and Readiness

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Abstract: In today's technological world, Distance Learning (DL), also called online learning, has become a widely accepted means of providing educational content in tertiary education institutions around the globe. A wealth of literature has indicated that the learners' perceptions and readiness levels could determine the effectiveness of implementing a particular learning mode, such as DL. Thus, this cross-sectional survey research sought to investigate graduate students' perceptions and their readiness for DL in terms of the process of using technological devices and apps, and software that support DL. The questionnaires were utilized to collect the data from 204 graduate students pursuing their master's degrees at a public university in the Kingdom of Cambodia. The results revealed that most graduate students positively perceived DL for reasons, namely, gaining more knowledge, receiving updated information, reducing problems in traditional learning, fast communication, and seeing real-time classes. In addition, although most graduate students reported that they were ready for DL in terms of possessing devices and being able to use some types of applications and learning software that could support DL, some still had a hurdle in using some other apps and learning software that support DL. In light of the findings, this study would contribute to the limited existing literature on distance learning in the Cambodian context through unlocking graduates' perceptions and their levels of readiness for Distance learning. In addition, this study would provide context-specific insights for policymakers and program coordinators in launching this innovative learning mode.

Keywords: Distance learning, students' perception, students' readiness, higher education, online learning, educational technology, cambodia, graduate students, technology readiness, e-learning

Highlights

What is already known about this topic:

- Distance learning (DL), also known as distance education or online learning, has been widely acknowledged as a contemporary method of delivering education in higher education.
- DL has been exhaustively studied in developed countries among graduate students concerning their perceptions or attitudes, but less so in developing countries such as Cambodia.

What this paper contributes:

- This study contributes to existing literature by investigating Cambodian graduate students' perceptions and the level of their readiness for DL in terms of the process of using technological devices and using apps and software that support DL.
- The study found that graduate students positively perceived DL for some reasons, namely gaining more knowledge, receiving updated information, reducing problems in traditional learning, fast communication, and seeing real-time classes.

Implications for theory, practice, and/or policy:

- This study would contribute to the limited literature on DL in Cambodia by revealing graduates' perceptions and degrees of readiness for this learning mode.
- The study would give policymakers and program coordinators context-specific insights as they launch this unique learning mode.

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Introduction

The advent of technology has made teaching and learning go beyond the physical classroom settings. In other words, technology has exerted a strong influence on the transformation in the realm of teaching and learning means. As a result, most educational institutions at all levels, especially tertiary ones, have strived their best to adopt new learning modes, including Distance learning (DL). In the meantime, DL appears to be the buzzing term to most educators and researchers in educational practice at all levels. DL in tertiary education, in particular, is an even more prevalent and continually growing concept (Torun, 2020). It is a new method of executing the learning process that is based on the use of modern information and communications technologies that allow students and teachers to study at a distance without personal interaction (Wagner et al., 2021). The existing literature has acknowledged that DL provides numerous advantages to both instructors and learners at higher education levels. For instance, it does not necessitate actual presence in the classroom, as well as the capacity to attend a lecture or seminar on a certain subject at a convenient time and location, which is especially helpful for those working without a flexible schedule (Kotrikadze & Zharkova, 2021). As a result, prior studies (e.g., Kireev et al., 2019; Tamborra, 2021; Todri et al., 2020; Torun, 2020) investigated DL at a higher education level. This also reflects the significance of DL in higher education.

Higher education institutions in Cambodia have been encouraged to adopt DL, and it has been included as an agenda item in Cambodia's education policy for a decade. As stated in the *Master Plan for Information and Communication Technology in Education 2009-2013*, concerning higher education, the plan focuses "on expanding computer use, increasing access to information and research, reaching out to more students through distance education" (Ministry of Education, Youth and Sports [MoEYS], 2010, p.3). However, to date, some public higher education institutions appear not to be ready for this new learning mode. The relevant issues, especially students' perceptions of this mode and their readiness for it, tended to be the dominant factors that needed more attention and research, as they could affect the DL process. The implementation of DL can be successful or unsuccessful depending on some relevant facets that need attention. One of those facets could be how students feel about the process (Ismail et al., 2022). Additionally, students must be ready for DL in terms of access to technological devices and the ability to use technology for DL. If the students are not ready, DL, without a doubt, could not be applied, as it would negatively affect their learning engagement, leading to their low academic achievement. In this scenario, identifying students' levels of readiness for DL is another critical element in learning success (Torun, 2020). It not only makes it easier for course designers to offer DL but also enables teachers to develop their distance education capacity to improve students' understanding of the DL environment (Akdogan, 2021). Howbeit, the study has yet to investigate graduate students' perceptions of and their readiness for DL in a selected university. The current study set out to investigate graduate students' perceptions of DL and their readiness for this learning mode in terms of possessing technological devices and using apps and software that support DL. The findings would offer insights for policymakers or program coordinators to consider when adopting the DL mode. That is to say, this study would contribute to the scarc literature on DL in Cambodia by revealing graduates' perspectives and levels of readiness. Furthermore, this study would give policymakers and program coordinators context-specific insights as they launch this learning mode.

Literature

Distance Learning

Although Distance Learning (DL), also known as online learning or distance education, appears to be a novel concept in some contexts, it has long been used in the educational sphere in developed countries for ages. It initially arose around 1840, and within a few years, DL programs started to be offered in the UK, Germany, the USA, and Japan (Debes, 2021). DL, also known as online learning (Kireev et al., 2019; Schneider & Council, 2021; Todri et al., 2020), refers to a teaching strategy in which students and teachers are separated by both time and space (Todri et al., 2020). It is a method of interaction between

a student and a teacher over a great distance using Internet technology (Kotrikadze & Zharkova, 2021; Wagner et al., 2021). For Gaba et al. (2021), it refers to the dissemination of educational programs by educational institutions via digital platforms. To put it in another way, DL is a form of online education that requires computers and the Internet to distribute materials online (Allen & Seaman, 2008). Likewise, Alam et al. (2012) described DL as a branch of education that focused on teaching methods and technology to deliver instruction, sometimes on an individual basis, to students who are not physically present in a traditional educational setting such as a classroom. In other words, learning can take place in different settings when learners and instructors make use of the Internet (Saleh & Meccawy, 2021).

DL or online learning can refer to hybrid or blended learning and solely online learning, as most of the research compares these two modalities with traditional face-to-face learning (Nguyen, 2015). This style of learning involves the physical separation between the teacher and the student, both in terms of time and place (Ulanday et al., 2021). DL can encompass both synchronous and asynchronous modalities (Coogle & Floyd, 2015). It is not restricted by place and is not dependent on time because of utilizes both synchronous (live conferences) and asynchronous (flexible assignments) methods (Debes, 2021). Synchronous DL provides real-time video lectures and other forms of classes, such as round tables, discussions, consultations, and video conferences, while asynchronous DL enables intermediate control of student knowledge through the use of a range of test tools such as tests, written tasks, task books, creative tasks, group projects, and so on (Wagner et al., 2021). Poláková and Klímová (2021) noted that it was crucial to use both synchronous and asynchronous online learning methods to provide a well-rounded learning environment for students. DL at higher education levels encompasses a wide range of applications (Torun, 2020). That is to say, some institutions use entirely online instruction, while others use a blended learning approach, using programs such as Moodle, Blackboard, Atutor, and CanvasLMS, among others (Torun, 2020). In this study, DL refers to distance education, online learning, or online education.

Advantages and Disadvantages of DL

DL is one of the most promising approaches to active teaching methods (Kireev et al., 2019). The literature indicated that DL has provided students with numerous advantages. DL that is conducted asynchronously is especially convenient for people working without a flexible schedule. It does not require actual attendance in the classroom and allows participants to listen to a lecture or seminar on a certain subject whenever and wherever they choose (Kotrikadze & Zharkova, 2021). That is to say, it enabled students to attend classes at any time and from any location (Debes, 2021; He et al., 2022). DL is built on cutting-edge technology that enables users to "see" and "hear" each other as if they were in the same room (Todri et al., 2020). Another intriguing aspect is that learners can schedule or organize their learning (Poláková & Klímová, 2021). Furthermore, students can develop a sense of being self-directed and independent (Saleh & Meccawy, 2021). The existing studies in various contexts also indicated the benefits of DL. For instance, the prior study (Poláková & Klímová, 2021) revealed that students were able to work independently and without the assistance of others while completing homework. DL could help students to develop 21st-century skills, including critical thinking, creativity, collaboration, and communication, with the skill of using digital resources (Priyadarshini & Bhaumik, 2020).

Although the advantages DL offers, there could also be some drawbacks in this learning format. To begin with, the costs of DL may also be higher. The cost included hardware, software, transmission, repairing and upgrading, teaching material development, and administrative and personnel costs (Threlkeld & Brzoska, 1994, as cited in Rahman et al., 2015). Even though giving courses via DL has significant expenses, those prices are equivalent to those of traditional methods (Rahman et al., 2015). Moreover, it does separate the teaching and learning process (He et al., 2022). That is, DL might not be unsuitable for the development of communication skills because the learning process is carried out with minimal contact with other people, if any at all (Kotrikadze & Zharkova, 2021). Besides, learners must be self-disciplined and able to work independently (Messina, 2002). In addition, the users' attitudes toward DL could also be another issue. That is, both teachers and students may not prefer DL. For instance, the existing study (Gonçalves, Sousa, & Pereira, 2020) from students' perceptions revealed that DL could not replace the face-to-face class when it comes to the practical class and laboratory.

Although existing studies in some contexts have acknowledged that it has numerous benefits for students, teachers, and institutions, this does not guarantee that it should be implemented in all

institutions and contexts, particularly in less developed countries such as Cambodia. In other words, various factors, particularly learners' perceptions and readiness, may inhibit the successful implementation of this learning mode.

Students' Perception of DL

Students' perceptions of DL are vital for policymakers or program coordinators to consider whether or not to launch this learning mode. Students' perceptions of DL could affect their learning engagement, which leads to their low or high learning performance and achievement. The body of literature has also acknowledged this. To name a few, student-related characteristics are critical in the concept of preparation for DL (Küsel et al., 2020). The attitudes of students have an impact on the overall quality of DL (Belousova et al., 2022). That is, the successful or unsuccessful DL process depends on how students feel about it (Ismail et al., 2022). In this sense, understanding students' perceptions would lead to improvements in learning systems and practices in the long run (Charles, 2022). Various studies also investigated the students' perceptions of DL (e.g., Aladsani, 2024; Alam et al., 2012; Charles, 2022; Todri et al., 2020; Upadhayaya et al., 2021); this reflected the acknowledgement of students' perceptions that could hold potential to impact DL. To this end, there must be a call for investigating students' perceptions of DL, before it is supposed to be launched.

Students' Readiness for DL

Students' readiness for DL is another aspect that also needs attention. A particular learning mode, like DL, could not be applied in an educational institution if the learners were not ready for it, as it would negatively affect their learning performance. Therefore, when it comes to adopting DL in the institution, it is initially necessary to investigate if the students are ready for it. Knowing the readiness levels of students and their direct and indirect consequences could provide a planning guide for better learning and student accomplishment (Torun, 2020). Students are ready when they can allocate time for self-study, utilize a variety of online resources, and select which resources to utilize (Mphahlele et al., 2023). At least, they should be ready for non-interactive tools, including tapes, DVDs, CDs, slides, televisions, videos, and short-wave radios, which are created by computers (Rahman et al., 2015). Besides, the DL process has to depend heavily on technology, especially to be able to communicate through technology as well. Students in some contexts may be ready for DL in terms of the ability to use technological devices or applications, but they may not be ready for access to some kinds of technology, such as iPads, tablets, and laptops. For instance, the existing study (Arthur-Nyarko et al., 2020) indicated that students did not have access to some digital technologies, such as desktops, laptops, tablets, and iPads, but most students possess smartphones with internet connections. If students are ready for devices used for DL, the ability to use the devices will be another issue. In this sense, training is necessary for students, and the training has to include how to use the devices, viz., computers, television, mobile phones, or iPads for synchronous (live) or asynchronous (prerecorded) format (Messina, 2002).

Methodology

Design

This study employed a survey research design with a cross-sectional study. Survey research is used to gather numerical data on trends, attitudes, or opinions of a population by studying a sample of that population (Creswell & Creswell, 2018). A cross-sectional survey is a type of survey that collects information about individuals at a specific moment in time; it is conducted only once and is not repeated (Creswell & Creswell, 2018; Stockemer et al., 2019). The study utilized this design, as it aimed to gather quantitative data from graduate students regarding their perception of and their readiness for DL.

Participants

The participants in this study comprised 299regular graduate students pursuing master's degrees from the 12 participating departments. Most participants (if not all) had not yet encountered DL in other institutions; it is crucial to examine their perceptions and level of preparedness before implementing this

learning mode in the selected university. The number of returned questionnaires was 204 (68.22%) out of 299. Table 1 presents the total number of participants (N = 204). Among these respondents, there are 129 males and 75 females.

Table 1. Participants' Gender

Genders	N	%
Male	129	63.20
Female	75	36.80
Total	204	100

Table 2 presents the participants' majors, including Khmer Literature, Chemistry, Mathematics, Physics, Social Work, Development Studies, Linguistics, Psychology, Philosophy, IT Engineering, Education, and TESOL.

Table 2. Participants' majors

Degree of Master's Program Students	N	%
Khmer Literature	23	11.30
Chemistry	19	9.30
Mathematics	26	12.70
Physics	17	8.30
Social Work	13	6.40
Development Studies	10	4.90
Linguistics	16	7.80
Psychology	7	3.40
Philosophy	8	3.90
IT Engineering	23	11.30
Education	12	5.90
TESOL	30	14.70
Total	**204**	**100.00**

Instruments

Survey questionnaires in English were utilized in this study, and the survey questionnaires were adapted from different sources. The first section was about personal data, where participants could provide their personal information. The other parts included the survey questionnaires adopted from various sources. The reason why the researchers adopted these survey instruments because they were relevant to the current study's objectives, intending to measure the same constructs. That is, the second part of the survey questionnaires concerning the students' perceptions of DL was used in Song's study (2010) and contained 18 items with 7-point Likert scales (strongly disagree to strongly agree). This survey was tested for validity and reliability in the previous research (see Song, 2010), and in this study, we slightly modified a few items to fit the Cambodian context. For instance, the item " *I think online learning is interesting*" to "*I think distance (online) learning is interesting*". The last section of the survey questionnaires about students' readiness for DL included the technological device possessions and the use of technological tools/applications, and this part of the survey was initially used in Ngamporchai and Adams (2016). The technological devices included desktops, smartphones, and iPads or tablets. The survey concerning the use of technological tools or applications consists of 15 items. The items ranged from 1 = never, 2 = 2-3 times total, 3 = 2-3 times a month, 4 = once a week, 5 = 2-3 times a week, and 6 = every day. These items about technology include spreadsheets, word processing, e-mail, search engines, Google Drive, forums, text chat, voice chat, computer games, web videos, photo-focused web, blogs, wikis, and social media. This survey was initially used in Son et al. (2011) and modified by Ngamporchai and Adams (2016). The respondents would be given a clear explanation in the questionnaires, as well as a brief talk for instruction, by giving a tick in each column that comes along with each number.

Data Analysis

Statistical Packages for the Social Science version 20 (SPSS 20) was employed to analyze the data, and the statistics, including Percentages (%), Means (M), and Standard Deviations (SD), were utilized to report data.

Findings and Discussions

The result revealed that graduate students positively perceived DL. They acknowledged that DL was an interesting and enjoyable learning mode. Table 3 presents mean scores (M) and standard deviations (SD) for the results of the graduate students' perceptions of DL. The highest M represents the most positive perception. M ranged from the highest (M = 3.81, SD = 0.98) to the lowest (M=2.88; SD = .96). Specifically, graduate students reported the highest mean score (M = 3.81, SD = 0.98) in item 6 "*I can save time by taking DL program*" followed by item 1 "*I think distance learning is interesting*." (M=3.75; SD=0.87). They also perceived DL as a convenient learning mode, as stated in item 4, " *I think taking a distance (online) program is convenient*" (M=3.47; SD=0.90). Regarding the lowest mean score (M=2.88; SD =0.96) in item 18, "*Distance (online) courses require more study time than face-to-face courses*." This also meant that they still positively perceived DL. In other words, they did not agree that DL would require more time than physical classrooms. However, when it comes to the comparison between DL and traditional class concerning the benefits, they rated slightly below the medium level (See item 16).

Table 3. Perception of distance learning

Items	N	M	SD
1. I think distance (online) learning is interesting.	204	3.75	.87
2. I think distance (online) learning is enjoyable.	204	3.37	.98
3. I think distance (online) learning is fun.	204	3.00	.99
4. I think taking a distance (online) program is convenient.	204	3.47	.90
5. I can save money by taking the distance (online) program.	204	3.72	.97
6. I can save time by using the distance (online) program.	204	3.81	.98
7. Taking the distance (online) program enables me to finish my degree more quickly than taking the traditional program.	204	3.39	.99
8. Taking a distance (online) program increases my productivity (i.e., I could spend more time on non-work-related activities, and arrange my work schedule more effectively).	204	3.41	.89
9. Distance (online) program is compatible with the way I like to learn.	204	3.38	.86
10. Distance (online) program fits well with my lifestyle.	204	3.25	.88
11. I expect to be proficient in using distance (online) learning.	204	3.40	.83
12. I would feel confident that I can use distance (online) learning.	204	3.32	.93
13. I am able to skillfully use distance (online) learning.	204	3.30	.86
14. Using distance (online) learning is entirely within my control.	204	3.18	.90
15. I have the resources, knowledge, and ability to use distance (online) learning.	204	3.56	.92
16. I think I learn more in the distance (online) program than in the face-to-face program.	204	2.91	.98
17. I prefer the distance (online) program to the face-to-face program.	204	3.15	.88
18. Distance (online) courses require more study time than face-to-face courses.	204	2.88	.96

The findings appeared to be in line with existing literature. To name a few, DL allows students to attend class whenever and from wherever (Debes, 2021; Kotrikadze & Zharkova, 2021; Poláková & Klímová,

2021). In addition, graduate students also acknowledged that DL was a convenient learning mode. The finding was in line with the existing literature. DL has provided students with numerous advantages, such as being convenient for people working without a flexible schedule (Kotrikadze & Zharkova, 2021) and enabling the users to interact with one another as if they were in the same room (Todri et al., 2020). In addition, the prior study (Poláková & Klímová, 2021) also revealed that, in DL, students were able to work independently and without the assistance of others while completing homework. That said, the participants of the current study did not think that DL was as effective as the physical one. This finding contrasts with the study conducted by Chang et al. (2021), who found that DL was more effective than a conventional classroom. This distinction can be attributed to the participants' previous experience with DL.

The second purpose of the study was to investigate graduate students' level of readiness for DL. As seen in Table 4, four types of technological devices, including laptops, desktops, smartphones, and iPads, which have been accepted as the most common devices used for DL, were included in the survey. Results showed that, among the total participants (N=204) who participated in this survey, 186 students, or 91.17%, possessed laptops, and 177 students or 86.76%, possessed smartphones, although only 35 students, or 17.15%, possessed desktops, and 39 students, or 19.11% owned an iPad.

Table 4. Devices participants possess

Devices	**N**	**Frequency Count**	**%**
I have a laptop.	204	186	91.17
I have a desktop	204	35	17.15
I have smartphone(s)	204	177	86.76
I have an iPad/Tablet	204	39	19.11

Table 5 presents results regarding graduate students' readiness for DL in using learning tools. The students have used social media, e.g., Facebook, or Twitter every day (73.50%), Search Engines such as Google and Yahoo (55.40%), word processing (48.00%), and Web Video, e.g., YouTube (44.60%). Yet, they reported quite a low percentage of using other application software such as Google Drive, Forums, Voice chat (Google Hangout), and Voice chat (e.g., Skype).

Table 5. The percentage of use of technological tools/applications

Items	N	Response Distribution %					
		Never	2-3 times total	2-3 times a month	Once a week	2-3 times a week	Every day
Word processing (e.g., MS Word)	204	2.00	9.80	6.90	8.80	**24.50**	**48.0**
Spreadsheet (e.g., MS Excel)	204	7.40	14.70	2010	18.60	19.10	20.10
E-mail	204	2.00	8.80	14.20	12.70	23.00	39.20
Search Engine (e.g., Google, Yahoo)	204	3.90	2.50	4.90	9.30	**24.00**	**55.40**
Google Drive	204	15.20	10.80	14.70	17.20	19.10	23.00
Forums (e.g., Pantip.com)	204	49.00	13.20	8.80	15.70	9.30	3.90
Text Chat (e.g., Line)	204	15.20	9.80	8.80	12.30	16.70	37.30

Items	N	Response Distribution %					
		Never	2-3 times total	2-3 times a month	Once a week	2-3 times a week	Every day
Voice chat (Google Hangout)	204	36.30	10.30	7.80	15.20	19.10	11.30
Voice chat (e.g., Skype)	204	29.90	17.20	19.10	11.30	11.80	10.80
Computer games	204	37.70	21.60	13.20	10.80	6.90	9.80
Web Video (e.g., YouTube)	204	5.90	8.30	5.90	8.80	**26.50**	**44.60**
Photo-focused web (e.g., Instagram)	204	27.50	19.10	16.20	14.20	10.80	12.30
Blog (e.g., Blogger, BlogSpot)	204	42.60	18.60	12.70	13.20	7.80	4.90
Wikis (e.g., Wikipedia, Wikispace)	204	15.70	15.70	13.70	17.60	20.60	16.70
Social Media (e.g., Facebook, Twitter)	204	2.90	3.90	3.40	4.40	**11.80**	**73.50**

Although DL is convenient because it doesn't have to be limited by time or place, it does separate the teaching and learning process. The blockades that students encounter could influence the overall quality of DL (Markova et al., 2017). For instance, device accessibility prevented students from accessing DL and hindered instructors from turning their pedagogy into effective learning experiences (Ara & Vijaysimha, 2022). The current study also revealed that although most graduate students were ready for DL in terms of possessing devices that support DL. They reported a decrease in the utilization of other significant applications and software that could facilitate deep DL. The existing study (Arthur-Nyarko et al., 2020) indicated that the majority of students did not have access to digital devices, but Smartphones. In addition to allocating time for self-study and selecting which resources to utilize, students should be able to utilize a variety of online resources (Mphahlele et al., 2023). Rahman et al. (2015) noted that, at least, students should be ready for non-interactive tools. To be ready for DL, students need to be trained on how to use supporting technological resources such as computers, mobile phones, or iPads (Messina, 2002). In other words, students need skills and knowledge of using technology, which is significant for DL. Thus, the current finding suggests that training in using the apps and learning software that support DL for their graduate program is needed for graduate students. Additionally, when constructing the instructional design for DL, the relevant personnel, such as course instructors and program coordinators, may consider these facets.

Conclusion and Suggestions

The study aimed to investigate graduate students' perceptions of DL and the reasons behind their perceptions. The study also sought to examine the levels of their readiness for this learning mode. The study revealed that the graduate students positively perceived DL for some reasons, including gaining knowledge of the subject and technology skills, receiving updated information, and so on. In addition, most of them possessed significant devices such as laptops and smartphones needed for DL. They also frequently used social media, Search Engines, word processing, and Web Videos. This could also reflect their readiness for DL. Yet, they did not frequently use some other significant applications and software such as Google Drive, Forums, and Voice chat (Google Hangout) that could support DL. In light of these findings, they might have difficulties in adopting DL when it comes to incorporating such apps and software into the DL program. This study would contribute to the scarce literature on DL in Cambodia

by revealing graduates' perceptions and levels of readiness for this learning mode. Furthermore, this study would give policymakers and program coordinators context-specific insights as they launch this means of learning. The current study has left some topics for prospective research. The present study employed a quantitative method, and the data were collected through survey questionnaires. Thus, the future study may employ a mixed method with both survey questionnaires and interview questions to get in-depth information. In addition, as the survey was adopted from the previous research, the researcher of the prospective study could develop the new instruments that perfectly fit the context of the study. Moreover, because the participants in this study consisted only of graduate students, the comparison between graduate students and instructors' perceptions could be an interesting topic for future study. The future research may employ a longitudinal survey, which could see if the graduate students' perceptions change over a period of time.

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Author's Contributions(CRediT)

Makara Khim: Conceptualization, methodology, data collection, and data analysis. Both authors: reviewing, revising, and editing the whole article. Both authors have read and agreed to the published version of the manuscript

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This study is linked to Quality education (SDG 4)

Data Accessibility Statement

All data generated or analyzed during this study are included in this published article

Ethics and Consent

The authors received ethical approval to collect the data. All graduate participants were volunteers and were informed about the study objectives, the advantages of participating in the study, and possible risks.

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