



## PRE-SERVICE TEACHER SATISFACTION IN AN EMERGENCY (nCOV-19) REMOTE LEARNING ENVIRONMENT AT VOLTA ZONE – GHANA

\*<sup>1</sup>Kumah, M.S., & <sup>2</sup>Lokpo, C.

<sup>1</sup>St. Teresa's College of Education, Hohoe, Ghana, Department of Mathematics & ICT, GHANA

<sup>2</sup>Akatsi College of Education, Akatsi, Ghana, Department of Mathematics & ICT, GHANA

\*Corresponding author (email): [seyramart@gmail.com](mailto:seyramart@gmail.com)

### Abstract

Emergency remote learning has become necessary due to the nCovid-19 pandemic. This learning method is a system where teaching and learning are done virtually using the internet. The study explored the satisfaction of pre-service teachers in an emergency remote teaching and learning (ERTL) environment. The study investigated the satisfaction level of student teachers in an ERTL environment during the Covid-19 pandemic. Out of the 2000 population of pre-service teachers, a sample of 372 was sampled were purposively and randomly selected. A quantitative method research survey design was used. The instrument was validated using face and content validity and a reliability index of 0.77 was obtained. The findings of the study revealed that the majority (76.68%) of the participants own either a laptop, smartphone, or computer device for their studies. To measure the satisfaction level for feedback, it was observed that 151 were satisfied, 91 were not satisfied and 120 were neutral in their decision. For organization we have 114 were satisfied, 113 were dissatisfied and 144 were neutral. Finally, for personalized learning 154 participants were satisfied, 79 were unsatisfied and 136 neutral. The result from simple regression and correlation indicates that student-tutor interaction and content satisfaction but not sex and digital utilization plays a significant role in the teaching and learning process regarding ERTL. In addition, participants gave reasons for the barriers in the use of ERTL which made it not satisfactory: for instance, access to digital devices but network problems, (b) don't have money for data (bundle), and technical difficulty. The study concluded that there should be intensified workshops for both tutors and students to use the ERTL system effectively.

**Keywords:** Emergency remote teaching & learning, Pre-service teachers, utilization of digital devices

### Introduction

Emergency Remote Teaching and Learning (ERTL) is a teaching and learning approach that is done during a crisis that may or may not last for long and distract academic work as well as the well-being of human life. In such situations lessons are delivered through a digital or an electronic means, utilizing mobile digital devices, tablets, laptops, or computers among others. Owing to the risk of COVID-19, Colleges of Education in Ghana are seeking alternative forms of education to continue teaching and learning even as engaging their students for lifelong learning as well as tutors occupying themselves and sustaining their job. This has become necessary to keep the members of the institutions safe from a public health emergency that is transferring rapidly and not nicely understood. It is seen and noted over the news that many institutions all over Africa and beyond have opted to close down formal traditional education. After two weeks of school lockdown in Ghana on the 16th of March, 2020, the Ministry of Education (MoE) and other stakeholders in the tertiary institution deemed it necessary to embark on e-learning due to the COVID-19. This would prevent more workers, teachers, and students from contracting the virus.

Online learning over the years now has been stigmatized for being lower quality education compared to face-to-face (physical) learning, regardless of research displaying otherwise. However, the use of e-learning is the only means of engaging students so that individuals stay home and safe. These swift actions online with the aid of such a lot of establishments immediately could seal the notion of e-learning as an alternative, when this is established with all understanding that ERTL is not meant for teaching and assessing students but for learning purposes due to its nature of unplanned (Hodges et al., 2020).

Many energetic members of the academic community have debated the terminology in social media, and "emergency remote teaching" has emerged as a common alternative term utilized by online education, researchers and professional practitioners to draw a clear evaluation with what lots of us recognize as notable online schooling.

Practice and feedback, as an example, are nicely hooked up within the literature, but it is more difficult to enforce this as magnificence length grows, sooner or later reaching a point where it is just no longer possible for a teacher to provide satisfactory comments. In the case of synchrony, what you select will certainly depend upon your rookies' traits and what pleasant approach will meet the wishes of inexperienced persons (Robert et al., 2009). It was reported that students at Ntoaso trek 15mins every weekday to access networks to have lessons and they do not even do effective learning due to poor network but rather end up conversing (TV3 News, 2020).

Research on varieties of interaction that incorporates student–content material and student-learner is one of the key players of research in online mastering. This shows that the presence of each of those kinds of interaction, while meaningfully integrated, will increase the learning effects. According to Robert et al., (2009), cautious planning for online mastering does not consist of simply figuring out the content to cover, carefully tending to how you will assist distinctive forms of interactions that are crucial to the online learning system. This technique acknowledges studying as both a social and a cognitive method, no longer merely a dependence on information transmission (Davies & Bentrovato, 2011). The rapid development of ICTs, internet technologies, and Web-based applications have introduced a revolution in tertiary institutions all over the world. E-learning is changing the way teaching and learning are taking place in tertiary institutions. Though the growth of e-learning in developing countries particularly in Africa is minimal, and not measured in developed nations (Tagoe, 2012).

For a decade, the colleges of education in Ghana joined the existing tertiary institution to articulate a clear vision in its policy document on ICT, where ICT would be integrated into teaching, learning, and research other things within and outside the college campus. Although e-learning has made some improvements concerning administration issues such as payment of fees and students, very little has been done to incorporate e-learning into teaching and learning at colleges. This circumstance is not certain to Ghanaian institutions and most African and other developing nations in the world are still besieged to incorporate e-learning into teaching and learning. The emergence of e-learning in colleges needs urgent acceptance to intensify their understanding and knowledge of the effective adoption and diffusion of e-learning (Macharia & Nyakwende, 2010). The gap which needs to be filled in this study is the need for analysis by stakeholders of what will satisfy their students and appropriate when it comes to introducing the ERTL e-learning during the crisis since the alternative (e-learning) was not an established means of learning. Therefore, to link the identified gaps, this study proposed to investigate the satisfaction of pre-service teachers towards the introduction of ERTL e-learning into teaching and learning during the Covid19.

### Study Objectives

This study focused on pre-service teachers' satisfaction during utilization of ERTL. Based on the aims of the study the following questions were formulated to guide the study.

1. What is the relationship between student-content interaction and satisfaction in ERTL?
2. What is the relationship between student-instructor interaction and satisfaction in ERTL?
3. What is the relationship between student-digital device utilization and satisfaction in ERTL?
4. Is there any difference between student satisfaction in ERTL and sex of participants?

### Related Literature Review

#### Lesson Interactions that Impact Student knowledge in an e-learning Environment

Online interaction is so important for individuals, particularly students in this era of lifelong learning and because of the nCovid-19 pandemic which occurred in March 2020 in Ghana. Considering the contributions of online teaching for students would be an enormous dive towards achieving diverse learning with minimum supervision. It is through this procedure that an individual first plans his/her reflections with the assistance and direction of the educators within the limits of school. Corresponding to this, it is likewise by methods for training that an individual finds his/her qualities and can apply them to useful life. In such a manner, it is essential to use all parts of the learning procedure, including online techniques of instructing and discovering that are so significant in this twenty-first century. It is incredible to consider one of the underlying moves of today's world, for example, outfitting online strategies of educating and learning. The aspect of web-based instruction strategies is right now apparent to most people as an underlying advance toward change (Chang, 2013). A new strategy instruction framework would convey a lot of aptitudes, information, and common sense to students, some of whom are planned educators, who are behind the dividers of their lecture hall. These new strategies could likewise open them to an element of thought, which is relevant to their day-by-day activities and interests. Students' view of the level of interaction became the main component that predisposed their level of inspiration and taste to the experience of distance learning courses (Bacelar-Nicolau, et al., 2009). Interaction affects student continuance in distance learning. As indicated by (Ambe-Uva, 2006), an accomplishment distance teaching and learning gadget

involve intuitiveness among teachers and students, just as how regular live classroom information is shared among student-student and teacher-student.

### Effect on Student Satisfaction in an e-learning Environment

Student satisfaction appeared to improve student studies and enhance understanding and re-call whenever necessary (Chen, et al., 2008). Apart from teachers' factor to coordinate by influencing student satisfaction to be lovely and encourage persistent learning, there should be a well-planned system (infrastructure) that is void of frustration among parties of teaching and learning (Chang, 2013). Student cooperation and attributes are two components essential to student satisfaction, a significant factor of accomplishment in ERTL. Research demonstrated that student satisfaction accompanied diverse student observations and factors for powerful personalized learning. (Chiu, et al., 2007) found that achievement, utility, and characteristic qualities, as well as distributive and interactional reasonableness, had huge constructive outcomes on satisfaction. They inferred that utility worth and satisfaction make huge commitments to students' goal to keep utilizing e-learning.

Chen et al. (2008) argued that guidance, association, organization, and usefulness were arranged into four classes that influence e-learning satisfaction; in their investigation, guidance and association were seen as the essential elements. If students experience issues, this would negatively affect satisfaction and, thus, add to general satisfaction. Student satisfaction will impact the achievement and fate of e-learning. Course conveyance can influence student satisfaction in ERTL. It was also proposed that educators ought to be particular in the way they incorporate e-learning units into conventional, lecturer hall conveyed courses. This incorporation ought to be painstakingly arranged depending on student qualities, the capacity of the student to manage or appreciate the use of ICT, course content, and the learning setting. (Chang, 2013) found that students were progressively happy with the e-learning course, yet low-performing students felt progressively confined from course mates. Detecting masterminds supported the e-learning courses rather than instinctive feelers. These inborn qualities, alongside distributive and interactional decency including association, incorporation of student qualities and character, and learning setting were imperative components identified with student satisfaction. Student accomplishment can be improved when satisfaction is expanded, and instructors ought to think about these components when planning courses to upgrade student satisfaction and fruitful course consummation (Bown, 2006).

The paper investigated the pre-service teachers' satisfaction with ERTL e-learning and how it has been able to assist them to have continuous learning. The study also attempts to find out if there is a relationship between pre-service students' satisfaction level and student-tutor, content interaction, as well as sex.

### Materials and Methods

Pre-service teachers in levels 100 and 200 of the 2019/2020 academic year who are offering Early Childhood Education, Primary Education, and Junior High School Education (option) programmes, in Colleges of Education were surveyed in May 2020. The two levels were purposely selected for the study because they took part in the ERTL. The data collected showed a sample of 372 respondents out of about 2000 student population in six colleges of education in Volta and Oti zone. The purposive sampling was used to select the six colleges while the 372 participants were randomly obtained based on Krejcie and Morgan (1970) sampling size table. The quantitative study approach was employed with a descriptive survey design. The researchers designed a structured questionnaire to elicit a response from participants. The question items were in three sections, apart from the demographic information. The three sections were student-content interaction, tutor-student interaction, and student digital device utilization. In all fifteen question items were distributed among the three sections. It is accepted that a questionnaire is a practically dependable method of collecting realistic information from participants, as well as determining the sentiments, feelings, and insolence of people (Ambe-Uva, 2006). The questionnaire was administered using online JotForm. A link was created and distributed to participants over a month. Data was analyzed using descriptive (frequency and percentage) and inferential (simple linear regression) to determine the association between variables. The instrument was validated using the face and content of two experts who are senior colleagues. A reliability of 0.77 was obtained using Cronbach alpha.

### Results

In this section, we have analyzed the data collected and presented the result as well as discussed its findings. There are various variables that are mainly categorical. The results are presented twofold: variables are descriptively explained and tests of association or relationship are also discussed.

**Table 1: Frequency distribution of students’ sex and types of devices**

| Gender                  | Frequency  | Percent        |
|-------------------------|------------|----------------|
| Female                  | 140        | 37.63%         |
| Male                    | 232        | 62.37%         |
| Total                   | 372        | 100.0%         |
| <b>Types of devices</b> |            |                |
| Laptop                  | 40         | 10.75%         |
| None                    | 83         | 22.31%         |
| Personal Computer       | 67         | 18.01%         |
| Smartphone              | 182        | 48.92%         |
| <b>TOTAL</b>            | <b>372</b> | <b>100.00%</b> |

Table 1 it is shown that we have 140(37.63%) female students against 232(62.37%) male students who took part in the survey. Again, on the type of device used by the students for the ERTL, it was shown that a significant number 182(48.92%) of the participants have access to a smartphone.

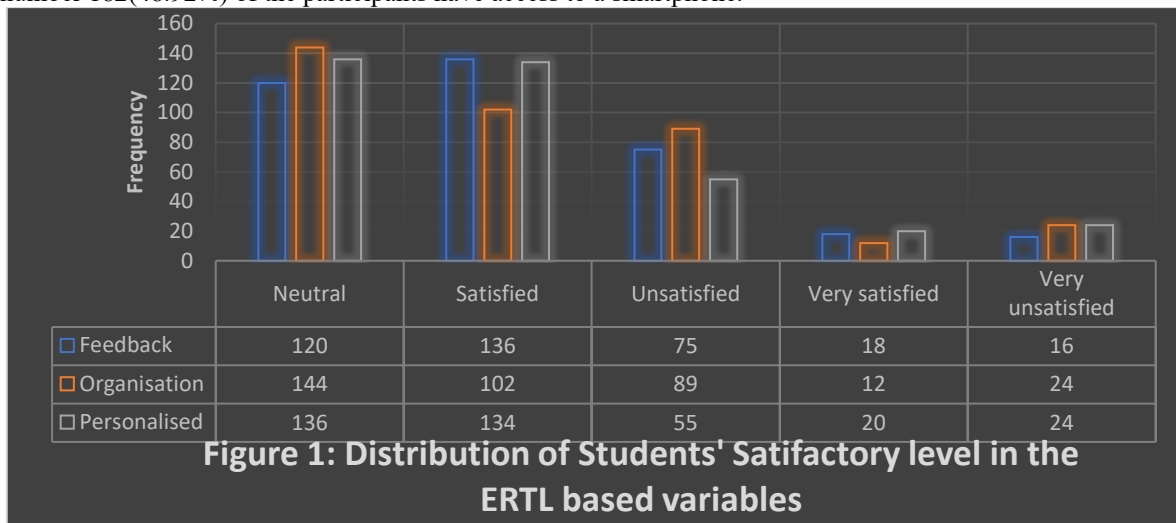


Figure 1 displays a bar graph representing the frequency distribution of students’ satisfaction based on lessons feedback, organization, and personalized learning. It is shown that the majority (120, 144, and 136) of the students have difficulty in determining whether they are satisfied or not hence indicating neutrality in all three variables respectively. However, combining very satisfied and satisfied against very unsatisfied and unsatisfied, it is revealed that the majority of the students indicated that they are satisfied with the ERTL. This explained that ERTL, when consciously and effectively established among college students, would have great impact and benefit students to learn conveniently.

**Table 2: Reasons for student’s expression level of satisfactory during the ERTL**

| Reasons                                       | Frequency | Percent |
|---|-----------|---------|
| Access to digital devices but network problem | 118       | 31.72%  |
| Don't have money for data (bundle)            | 58        | 15.59%  |
| Have no problem with e-learning               | 91        | 24.46%  |
| Have smartphone but no data                   | 54        | 14.52%  |
| Technical difficulty                          | 51        | 13.71%  |
| Total   | 372       | 100.00% |

Despite the remarkable satisfaction raised by most students, some challenges were outlined by respondents (students) regarding the ERTL. As indicated in table 3, most of them 118(31.72) stated that they have access to digital devices (laptops, smartphones etc) but experienced network problems; 112(30.11%) also expressed that they don’t have money for data (bundle) since the ERTL require much data, though they have the gadget for the lessons. However, 91(24.46%) indicate that they have no challenges as far as the ERTL is concerned, while

51(13.71%) said they experienced technical difficulties amid the ERTL. From the result, it is deduced that if students are coached and oriented on the e-learning as a paradigm shift in tertiary education they would adopt and in turn appreciate it as well as the conventional classroom and even more due to its advantages.

**Table 3: Simple linear regression and Correlation of Student's views on ERTL**

| Variables                      | F – statistics | p– value | Correlation coefficient ( $r^2$ ) |
|--------------------------------|----------------|----------|-----------------------------------|
| Student's device utilization   | 0.445          | 0.8196   | 0.01                              |
| Student's – tutor interaction  | 66.5038        | 0.001    | 0.48                              |
| Student – content satisfaction | 67.7537        | 0.001    | 0.49                              |
| Sex                            | 1.3306         | 0.249    | 0.00                              |

The linear regression result shows the relationship between four independent variables (student device utilization, student teachers' interaction), student content satisfaction and sex, and the dependent variable (student's view on the ERTL). The result in table 5 shows that student's device utilization has a p-value of  $0.8196 \geq 0.05$  with  $r^2=0.001$ , this indicates that there is no relationship between student's device utilization and ERTL lesson. Similarly, there is no relationship between student's sex (p-value = 0.249;  $r^2=0.001$ ) and ERTL lessons. The analysis explains that a student's digital devices usage would not make him/her appreciate the ERTL class and being male or female does not make a student either like or dislike the ERTL classes. However, both student-tutor interaction and student–content satisfaction (p – values of 0.001;  $r^2=0.48$ ,  $r^2=0.49$ ) respectively indicate that there is a positive strong relationship between students – tutor interaction and content satisfaction, and ERTL lessons. This revealed that student-tutor interaction and content satisfaction play a significant role in the teaching and learning process regarding ERTL.

### Discussion of findings

#### *To determine the relationship between student-content interaction and student satisfaction in ERTL courses*

The findings of the study maintain that there is a significant relationship between students – content interaction and ERTL. This explained that students who took part in the study showed satisfaction for the lesson delivery through ERTL based on content or subject matter displayed. According to (Kuang-Yu, 2011) distance learners in that study were less satisfied with their interactions with content, instructors, and other students than were traditional learners, but more satisfied with technology. This is partially in support of the finding in this study based on student content satisfaction in the ERTL due to the satisfaction of student technological usage. However, findings of Hoey, (2017) suggest that the frequency of instructor interaction in discussion has no effect on student outcomes (content).

#### *To determine the relationship between student-instructor interaction and student satisfaction in ERTL courses*

Again, there was a significant relationship between student – tutor interaction and students' satisfaction through the use of ERTL. This means that pre-service teachers to some extent have good lesson relationships with their tutors amid the ERTL of the nCovid19. A study by Sher, (2009), in line with our findings, also established that student-instructor interaction and student-student interaction were found to be significant contributors to student learning and satisfaction in an online learning environment. However, it was contrarily found that there were no significant relationships found between student satisfaction and student-TA interaction Shu-Hui, (2006). Another study recommended that interactivity is a significant factor of satisfaction for online learners and that levels of online interactivity vary based on the type of learner (Croxtton, 2014). A study outcome in line with the study maintains that student course satisfaction is strongly correlated with students' instructor satisfaction, while the students' course satisfaction is moderately correlated with student satisfaction with facilitators (Chitkushev, Vodenska & Zlateva, 2014).

#### *To investigate whether there is a relationship between student-digital device utilization and student satisfaction in ERTL courses*

The utilization of digital devices seems to be challenging to pre-service during the ERTL lesson. The finding based on the available data shows that there is no significant relationship between student digital utilization and their satisfaction in the ERTL lesson. Is interesting to note that literature is scarce on student digital devices utilization and satisfaction in ERTL. To find the difference between student satisfaction in ERTL courses and the sex of participants. The finding also revealed that there is no significant difference between sex and overall pre-service teachers' satisfaction in the ERTL lesson. This means that both male and female students have equal levels of satisfaction because of the ERTL lesson during the pandemic. Contrary to our findings Cuadrado-Garcia, et al., (2010), expressed that there are few sex disparities between students in their use of e-learning and satisfaction.

Again, (Dang, et al., 2016) found that there was a significant difference between female and male students in their e-learning satisfaction.

### Conclusion

The study concludes that student–tutor and content interaction were associated with students’ level of satisfaction and that there was no relationship between student level of satisfaction in ERTL and their sex and digital utilization. In addition, student digital gadget possession indicates that access to devices was very high among students. In any case, students suggested that affordable laptops should be procured for them at a fee that they will pay by installment.

### Recommendations

1. The study, therefore, recommends that before introducing ERTL for pre-service teachers,
2. There should be some workshops for students to be more comfortable and confident about utilization of the digital learning environment to experience the best.

### References

- Ambe-Uva, T. M. (2006). Interactivity in distance education: The National Open University of Nigeria (NOUN) experience. <https://files.eric.ed.gov/fulltext/ED494376.pdf>,
- Bacelar-Nicolau, P., Caeiro, S., Martinho, A. P., Azeiteiro, U. M., & Amador, F. (2009). E-learning for the environment: The Universidade Aberta (Portuguese Open Distance University) experience in the environmental sciences post-graduate course. *International Journal of Sustainability in Higher Education*, 10(4), 354-367.
- Bown, J. (2006). Locus of learning and affective strategy use: Two factors affecting success in self-instructed language learning. *Foreign Language Annals*, 39(4), 640-659.
- Chang, K. (2013). Factors Affecting Student Satisfaction In Different Learning Deliveries. Theses and Dissertations, Paper 26.
- Chen, N., Lin, K., & Kinshuk., (2008). Analysing users’ satisfaction with e-learning using a negative critical incidents approach. *Innovations in Education and Teaching International*, 45(2), 115-126.
- Chitkushev, L.T., Vodenska, I. & Zlateva, T. (2014). Digital Learning Impact Factors: Student Satisfaction and Performance in Online Courses. <https://www.researchgate.net/publication/271297966>, DOI: 10.7763/IJTIET.2014.V4.429.
- Chiu, C. M., Sun, S. Y., Sun, P. C., & Ju, T. L. (2007). An empirical analysis of the antecedents of web-based learning continuance. *Computers & Education*, 49(4), 1224-1245.
- Croxton, R. A. (2014). The role of interactivity in student satisfaction and persistence in online learning. *Journal of Online Learning and Teaching*, 10(2), 314.
- Cuadrado-García, M., Ruiz-Molina, M. E., & Montoro-Pons, J. D. (2010). Are there gender differences in e-learning use and assessment? Evidence from an interuniversity online project in Europe. *Procedia-Social and Behavioral Sciences*, 2(2), 367-371.
- Dang, Y. M., Zhang, Y. G., Ravindran, S., & Osmonbekov, T. (2016). Examining student satisfaction and gender differences in technology-supported, blended learning. *Journal of Information Systems Education*, 27(2), 119.
- Davies, L. & Bentrovato, D. (2011). Understanding Education's Role in Fragility; Synthesis of Four Situational Analyses of Education and Fragility: Afghanistan, Bosnia and Herzegovina, Cambodia, Liberia. International Institute for Educational Planning.
- Hodges, C. et al. (2020). The Difference Between Emergency Remote Teaching and Online Learning. *EDUCAUSE Review*, <https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning>.
- Hoey, R. (2017). Examining the characteristics and content of instructor discussion interaction upon student outcomes in an online course. *Online Learning*, 21(4), 263-281. doi: 10.24059/olj.v21i4.1075.
- KUANG-YU, C. (2011). Factors Affecting Student Satisfaction In Different Learning Deliveries. Thesis Dissertation (Illinois State University), <https://core.ac.uk/download/pdf/48840749.pdf>.
- Macharia, J & Nyakwende, E. (2010). Influence of university factors on the students’ acceptance of internet-based learning tools in higher education. *Journal of Communication and Computer*, 10, 72-82.
- Peixoto Olo, D., Correia, L & Conceição Rego, M. (2020). The Main Challenges of Higher Education Institutions in the 21st Century: A Focus on Entrepreneurship. In A. A. Ana Dias Daniel, Examining the Role of Entrepreneurial Universities in Regional Development, eds. (pp. 1–23.). (Hershey, PA: IGI Global: Hershey, PA: IGI Global, 2020.
- Robert M. B & Tonia A. D. (2015). Survey of Instructional Design Models. Association for Educational Communications and Technology (AECT).

- Robert M. B, et al. (2009). A Meta-Analysis of Three Types of Interaction Treatments in Distance Education. *Review of Educational Research*, 1,243–89.
- Sher, A. (2009). Assessing the relationship of student-instructor and student-student interaction to student learning and satisfaction in web-based online learning environment. *Journal of Interactive Online Learning*, 8(2).
- Shu-Hui, H. C. (2006). An assessment of the effectiveness of interaction in distance education based on student satisfaction with the learner-centered paradigm. Thesis Dissertation (Iowa State University), <https://lib.dr.iastate.edu/cgi/viewcontent.cgi?article=2805&context=rtd>.
- Tagoe, M. (2012). Students' perceptions on incorporating e-learning into teaching and learning at the University of Ghana. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, Vol. 8, Issue 1, pp. 91-103.
- TV3 New, (2020, 05 02). News 360: Covid19 & e-learning. (TV3, Interviewer)