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Remote teaching and learning in the Covid Era: Empirical evidence from three universities in Thailand

Kevin Fuchs, Keerati Fangpong***

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Abstract

In an abrupt and unprecedented move to cancel face-to-face classes across the country for all institutions in higher education (HE), the paradigm of emergency remote teaching emerged (ERT). The purpose of ERT is to give students consistent, but temporary and quick access to training and instructional support. The quick transition concerned not just instructors but also students, who had little time to adjust to the new circumstances. The study aims to close a knowledge gap by validating previous research with a limited sample, as well as identify possible correlations between perceived satisfaction and specific socio-demographic characteristics in different geographical settings within Thailand. Empirical data was collected from 874 undergraduate students at three different universities in Thailand. The findings revealed that the students were not satisfied with ERT based on their experience. Moreover, the study concludes by providing theoretical and practical implications for educators and policymakers in HE.

Keywords: Emergency Remote Teaching, Distance Education, Covid, Technology-Enhanced Learning, Online Learning, Higher Education

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Introduction

Covid-19 had a significant impact on education. Indeed, since the outbreak of the pandemic, more than 91 percent of the world's student population has faced educational obstacles (Silletti et al., 2021). Amid the Covid-19 outbreak, many educators across the world struggled to shift their lectures from in-person to remote teaching within a matter of days. This global pandemic exposed a significant gap in distance teaching preparedness and training need for emergency remote teaching, including teaching with technology to ensure continuity of learning for students at a distance (Trust & Whalen, 2020). This unprecedented situation created an entirely new phenomenon and the challenge herein was not limited to the educators, who found themselves in a situation of needing to teach their entire syllabus online, but also for the students, who needed to adapt to a new learning environment instantaneously (Hodges & Fowler, 2020). As a response to the global education crisis, emergency remote teaching has been put into practice. The temptation to compare online learning to face-to-face instruction in these circumstances will be great. Online learning carries a stigma of being lower in quality than face-to-face learning, despite research showing otherwise. These hurried moves online by so many institutions at once could seal the perception of online learning as a weak option when, in truth, nobody making the transition to online teaching under these circumstances will truly be designed to take full advantage of the affordances and possibilities of the online format (Hodges et al., 2020).

Research Aim

This study is an expansion of an earlier study done by Fuchs and Karrila (2021; 2022) that sought to examine the perceived satisfaction of students in higher education concerning emergency remote teaching amid Covid-19 in Thailand. Fuchs (2021) identified that most undergraduate students prefer a traditional on-site classroom arrangement, but still, they were satisfied with the alternative ERT that was deliv-

ered fully online. The study highlighted that the students perceived knowledge, friendliness, and patience as the most important characteristics of their lecturer in these circumstances. However, the limited sample size from the previous study would not suffice to generalize the results to a larger population nor allowed for validation in different geographical parts of Thailand. Therefore, this study aims to close this knowledge gap by expanding the original research question and to meet the following new research objectives:

1. To seek validation of previous studies through an increased sample size.
2. To recognize if the perceived satisfaction varies in different geographical settings within Thailand.
3. To identify possible correlations between perceived importance and perceived performance towards emergency remote teaching.

Moreover, the following research question guided the study from conceptualization to implementation: "How do undergraduate students in Thailand perceive emergency remote teaching during Covid-19?".

Background

The Emerging Paradigm of ERT

As a result of a crisis, emergency remote teaching (ERT) is a temporary shift in instructional delivery to an alternative delivery paradigm in which teaching is done fully online (Hodges et al., 2020). It was also mentioned that online education has been studied for decades, with an agreement on the factors that do not add substantially to online education's efficacy (Baepler et al., 2014). These characteristics include but are not limited to, modality, pacing, student-teacher ratio, and pedagogy, as well as the function of assessment, instructor role, student role, communication routes, and feedback source. An efficient ERT class will invariably have these properties (Bangert, 2006). In the event of a last-minute switch from classroom to online, the lack of time available for educators to modify their teaching materials may

imply an unsatisfactory learning environment for students (Hodges et al., 2020).

Many instructors were caught off guard by the sudden move and found it difficult to conduct their courses in an unfamiliar instructional setting while having been given just a short period to convert their course content and teaching practices to an online format (Petillion & McNeil, 2020). The purpose of ERT is to give consistent, but temporary and quick access to training and instructional support (Xie & Rice, 2021). To achieve these objectives, ERT required teaching staff to modify their in-person instructional plans, syllabi, assessments, and content to accommodate distant delivery (Xie & Rice, 2021). In addition, Wilcox and Vignal (2020) discovered that the two most common challenges students had as a result of ERT were (1) course initiation and (2) the learning environment. In the preceding group, the most commonly stated issue was unstable Internet access, which hampered the students' learning experience. According to Gelles et al. (2020) participants said that the learning process was often described as uncomfortable or unpleasant.

Teaching arrangements during Covid-19

There are several descriptive studies have been published about emergency remote teaching since the outbreak of Covid-19. These studies address the institutional mechanisms that higher education institutions around the world adopted to adjust to the pandemic. Moreover, the current body of knowledge provides useful insights into failures and accomplishments (Bond et al., 2021). For example, studies on the educational effects of Covid-19 highlight the importance of accommodating changes in teachers' professional development, training, and teacher education in general (Tabatadze & Chachkhiani, 2021). As a result, online teaching and learning entail a distinct process, as evidenced by the roles, competencies, and professional development approaches (Carrillo & Flores, 2020). Furthermore, Dvoráková et al. (2021) report that irrespective of how classes are being delivered, the overall "effectiveness is always supported by social interaction" (p.

90). Moreover, when it comes to expressing satisfaction or discontent with online learning, students tend to focus on the role and performance of the teacher (Dvoráková et al., 2021).

In a related study, Alby et al. (2021) empirically investigated how students perceived their remote classes in Italy. For that purpose, the authors surveyed 801 students at the Sapienza University of Rome. Alby and her colleagues (2021) identified that "students are missing the most and strong demand are more opportunities for interaction, participation, and socialization" (p. 26). Moreover, their study revealed that teaching staff is strongly recommended to improve their technical skills to enhance the quality of online teaching. Similarly, Fuchs (2021) collected qualitative data from 238 undergraduate students in tourism and hospitality education to thematically analyze their responses. The study examined the students' perceptions towards the alternative means of study (i.e., remote teaching). The findings revealed that lack of socialization with their peers and difficulties to stay engaged during class were the most problematic issues reported by the students (Fuchs, 2021).

Students Satisfaction in Higher Education

Customers, without a question, are the most significant assessors of service quality. Customer satisfaction has become a strategic priority for businesses since it can have an emotional impact on customer faith (Osman & Saputra, 2019). Osman and Saputra (2019) emphasized that customer satisfaction is critical for service organizations and is strongly linked to service excellence. In pragmatic terms, satisfaction can be described as a euphoric feeling, which occurs when a person's needs and desires have been met (Brill et al., 2019). It is a state of mind that a person has after achieving or perceiving a result that exceeds his or her expectations (Gligor et al., 2019). Consequently, satisfaction can be defined as the experience of achieving anticipated outcomes. Tertiary education institutions regard students as clients or the "primary interested party" in the acquisition of higher education programs and services (Osman & Saputra, 2019).

Student satisfaction is a subjective judgment for students of how well an acquiring knowledge environment aids their educational accomplishments (Anthonysamy et al., 2020). In related research, satisfaction is often portrayed as the positive difference between the perceived importance and the perceived performance of an attribute or action (Muhsin et al., 2020). In other words, satisfaction refers to the satisfaction or dissatisfaction experienced as a result of contrasting perceived results to expectations (Busacca & Padula, 2005; Suikkanen, 2011). Customers are generally satisfied when the perceived performance of a certain service or activity exceeds the perceived expectation of the same service/action. When a person perceives a service as good, he or she is satisfied; nevertheless, when the perceived performance of the service or action falls short of the perceived expectation, the person is unsatisfied (Otto et al., 2020; Pezeshki et al., 2020).

The importance-performance analysis (IPA) is a frequently utilized analytical technique that produces prescriptions for customer satisfaction management (Deng & Pierskalla, 2018; Matzler et al., 2003). The IPA is a two-dimensional grid-based on the relevance of service attributes to customers and the performance of those attributes (Deng & Pierskalla, 2018; Matzler et al., 2003). In the context of this study, a modified version of the IPA is utilized, wherein student satisfaction is measured by calculating the mean rating for the perceived performance of each attribute and subtracting the mean rating for perceived importance for the same item. If the result is positive, the student satisfaction can be assumed as positive, wherein if the corresponding value is negative, the student is unsatisfied (Otto et al., 2020; Pezeshki et al., 2020). Therefore, student satisfaction can be defined as a result of the relative level of experiences and perceived performance concerning educational services over the study time (Busacca & Padula, 2005; Suikkanen, 2011; Weerasinghe & Fernando, 2017).

Methods and Data

Sampling and Data Collection

The data were collected in three individual phases from three different universities in Thailand. The sample was selected based on the convenience sampling methodology, which according to Stratton (2021), is the most common form of non-probability sampling and participants are being drawn from a close population group (p. 373). The included data were collected from full-time undergraduate students in different disciplines (including business studies, science, computing, medicine, language, cultural studies, mathematics, and tourism and hospitality management). The questionnaire to obtain the sample was self-administered electronically with a bilingual option, i.e., English and Thai languages showing simultaneously.

After a rigorous screening process, 51 responses were excluded from the analysis. The discarded responses included 16 responses from another faculty, 14 responses from international exchange students, and 21 inconclusive/incomplete responses. A total of 874 eligible responses was included as a population sample for the data analysis. The confidence level of accurate sampling was estimated at 95% ($p < .05$). Based on included responses, the characteristics of the participants were summarized by the respondents' gender, year of study, age range, nationality, their institution, and preferred mode of study (Table 1).

Sample from University A

The first phase of the data collection took place at the Prince of Songkla University in Phuket, Thailand. The preliminary findings from this isolated sample were previously reported by Fuchs and Karrila (2021). The data was collected in the first quarter of 2021 collected amid a countrywide ERT policy as a result of the imminent spread of Covid-19. Hereafter, this sample is referred to as University A ($n = 219$).

Sample from University B

The second phase of the data collection took place at the Khon Kaen University in Khon Kaen, Thailand. The preliminary findings from this isolated sample were previously reported by Fuchs and Karrila (2022). The data was collected in the second quarter of 2021 collected amid a countrywide ERT policy as a result of the imminent spread of Covid-19. Hereafter, this sample is referred to as University B (n = 363).

Sample from University C

The first phase of the data collection took place at the Mae Fah Luang University in Chiang Rai, Thailand. The findings from this isolated sample were not previously published. The data was collected in the third quarter of 2021 collected amid a countrywide ERT policy as a result of the imminent spread of Covid-19. Hereafter, this sample is referred to as University C (n = 292).

Table 1.
Characteristics of the participants shown by their institution

Characteristics	University A (n = 219)		University B (n = 363)		University C (n = 292)		Total (n = 874)	
	N	%	N	N	%	%	N	%
Gender	219	100	363	100	292	100	874	100
Male	58	26	111	31	98	34	267	31
Female	159	73	252	69	192	65	603	69
Prefer not to say	2	1	-	-	2	< 1	4	< 1
Year of study	219	100	363	100	292	100	874	100
Year 1	50	23	79	22	83	28	212	24
Year 2	83	37	208	57	106	37	397	45
Year 3	43	20	76	21	91	31	210	24
Year 4 or above	43	20	-	-	12	4	55	7

Age range	219	100	363	100	292	100	874	100
18 years old	6	3	7	1	7	2	20	2
19-20 years old	122	56	281	78	220	75	623	71
21-22 years old	68	31	56	16	46	16	170	20
23 years or above	23	10	19	5	19	7	61	7
Nationality	219	100	363	100	292	100	874	100
Thai	184	84	292	80	277	95	753	86
Foreign*	35	16	71	20	15	5	121	14
Preferred mode	219	100	363	100	292	100	874	100
Virtual classroom	54	25	94	26	90	31	238	27
Traditional classroom	165	75	269	74	202	69	636	73

* Foreign degree student, however, nationality not further specified.

Research Instrument

The questionnaire was separated into three individual sections containing a total of 27 items and it was adapted from an earlier case study (Fuchs & Karrila, 2021). The first section of the questionnaire sought to collect data on the participant's socio-demographic profile. The second and third sections contained each ten (10) items, wherein the participant was able to express their view on a 5-point Likert-type scale with pre-coded responses for Not Important at All (1), Not Very Important (2), Somewhat Important (3), Very Important (4), and Extremely Important (5) in the second section. Similarly, the third section had pre-coded Likert-type responses for Not at All Satisfied (1), Not Very Satisfied (2), Somewhat Satisfied (3), Very Satisfied (4), and Extremely Satisfied (5). Otherwise, the items in the second and third sections were similar to compare the perceived importance and performance for each item (Table 2). The structure and content of the administered questionnaire were examined for validity by three university lecturers and tested with ten students for comprehension of the questions. These preliminary examinations yielded minor revisions to enhance the clarity of the questionnaire.

Table 2.
Itemization of individual questions from the questionnaire

Sequence	Question
Item 1	The teacher begins the class with a review of the previous class
Item 2	The teacher presents the material in an interesting and engaging way
Item 3	The teacher presents the material in an organized and coherent way
Item 4	The teacher is knowledgeable about the content of the course
Item 5	The teacher is friendly and patient with the students
Item 6	The course material is well and professionally prepared
Item 7	The course material is easy to access in the LMS
Item 8	Students are engaged to actively participate in the discussion
Item 9	I am learning something which I consider valuable
Item 10	I am finding the course challenging and stimulating

Data Analysis

The collected data were examined using the open-source statistical software JASP to obtain for each item an average value (Mean), standard deviation (SD), minimum value (Min), maximum value (Max), the proportion of the data (i.e., a fraction of cases without missing data) and distribution of data. Furthermore, correlation analysis was performed to determine the relationship between perceived importance and perceived performance. The data analysis and findings are discussed and interpreted in later sections of this paper.

Ethical Considerations

Before attempting the questionnaire, the participants were informed about the aim and purpose of the study. Moreover, it was made clear to the participants that their participation is voluntary and that they had the right to withdraw at any stage. Furthermore, it was explained

to the students that their participation would have no impact on their academic performance. The collected data would be treated as confidential (i.e., anonymized in all reporting). For ethical considerations and to protect the identity of the participants, some specific information in the socio-demographic profile was generalized before disclosure in this paper, namely some specific minority nationalities were labeled as "foreign" instead of displaying the particular nationality as this could potentially allow exposing the identity of the participant.

Results

To test the first research objective, all eligible responses (n = 874) were analyzed by item for their perceived importance rating and perceived performance rating. Table 3 reports the mean values (Mean) for each item, as well as the standard deviation (SD). Moreover, the perceived satisfaction is calculated by subtracting the mean rating of perceived importance (i.e. [I]) from the mean rating of perceived performance (i.e. [P]). The mean ratings for perceived importance range from 3.998 (Item 10; "I am finding the course challenging and stimulating") to 4.314 (Item 4; "The teacher is knowledgeable about the content of the course"). Furthermore, it can be stated that the students value all ten items as very important according to the analysis of responses. The SD for all items (i.e. perceived importance and perceived performance) ranges moderately between .858 (lowest) to 1.188 (highest) indicating that the data is relatively closely clustered around the mean.

The highest importance ratings were received for item 4 (4.314) and item 5 (4.304) indicating that students place high importance on the teacher's knowledge about the course content, as well as being friendly and patient with the students. Contrary to these results, the lowest mean ratings were received for item 10 (3.998) and item 1 (4.113) indicating that students place less importance on a review of the previous class or that the course content is intellectually stimulating and challenging. Generally, it is noteworthy to mention that all ten items for perceived importance result in higher mean ratings

Table 3.
Importance-performance analysis of perceived satisfaction based on empirical data

No.	Importance [I]		Performance [P]		Satisfaction = [P] – [I]
	Mean	SD	Mean	SD	
Item 1	4.113	.937	3.995	.977	-.118
Item 2	4.244	.890	3.453	1.188	-.791
Item 3	4.153	.877	3.942	.973	-.211
Item 4	4.314	.858	4.096	.961	-.224
Item 5	4.304	.890	4.038	.917	-.266
Item 6	4.235	.914	3.951	.990	-.284
Item 7	4.232	.927	3.995	.962	-.237
Item 8	4.134	.941	4.021	.933	-.113
Item 9	4.183	.915	3.993	.927	-.190
Item 10	3.998	1.033	3.965	1.007	-.033
Total*	4.191[a]	.923	3.945[b]	1.000	-.246

* Total mean rating is the aggregate sum of all ten items divided by the number of responses.
[a] Mean indicating the perceived importance; [b] Mean indicating the perceived performance.

compared to the same items for perceived performance. This signifies that the students' expectations were not met, and therefore, leaving the students unsatisfied by definition.

Furthermore, a comparison of mean ratings for the perceived importance [I] and perceived performance [P] by institution indicates a few noteworthy findings (Table 4). First, University A (i.e. Prince of Songkla University) and University B (i.e. Khon Kaen University) have very similar mean ratings, wherein the sample from University C (i.e. Mae Fah Luang University) consistently had higher mean ratings for [I] and [P]. Second, the perceived importance rating [I] across all three institutions was higher than the rating of perceived performance [P]. Although, the corresponding mean rating of [P] indicates a result of 'very satisfied', if examined as standalone. However, in contrast to the perceived importance [I], the students were unsatisfied, since

the performance rating was below the importance rating. Third, the mean rating for item 2 (2.908; The teacher presents the material in an interesting and engaging way) from University C indicates a strong contrast to the results from other items.

Table 4.
Importance-performance analysis by their respective institution based on empirical data

No.	Mean rating	University A (n = 219)	University B (n = 363)	University C **(n = 292)**
Item 1	Importance	3.731	4.008	4.531
	Performance	3.521	3.906	4.462
Item 2	Importance	4.032	4.157	4.510
	Performance	3.621	3.791	2.908
Item 3	Importance	4.055	4.050	4.356
	Performance	3.795	3.766	4.271
Item 4	Importance	4.370	4.124	4.507
	Performance	4.119	3.807	4.438
Item 5	Importance	4.269	4.171	4.497
	Performance	4.050	3.769	4.363
Item 6	Importance	4.119	4.110	4.476
	Performance	3.836	3.614	4.455
Item 7	Importance	4.132	4.107	4.462
	Performance	3.868	3.722	4.432
Item 8	Importance	3.982	3.923	4.510
	Performance	3.813	3.815	4.432
Item 9	Importance	3.950	4.058	4.514
	Performance	3.758	3.871	4.322
Item 10	Importance	3.584	3.992	4.315
	Performance	3.539	3.860	4.414
Total	Importance	4.022	4.070	4.468
	Performance	3.792	3.792	4.250

All the conditions of the Pearson correlation coefficient were consistent and based upon good practice by Benesty et al. (2009). Overall, there is a statistically significant correlation between the perceived importance of elements associated with emergency remote teaching and the perceived performance of these elements (< .001). According to Benesty et al. (2009), an r-value between .1 and .3 signifies a small correlation, wherein a medium correlation is quantified with an r-value between .3 and .5. Lastly, a large correlation corresponds with an r-value of .5 or higher. Based on the pair-wise combinations, a large correlation exists between perceived usefulness and perceived engagement (.777). The scatter plots (Figure 1) show the density of responses and how they fit the straight line. Furthermore, the Shapiro-Wilk test for bivariate normality was done and reported in Table 5.

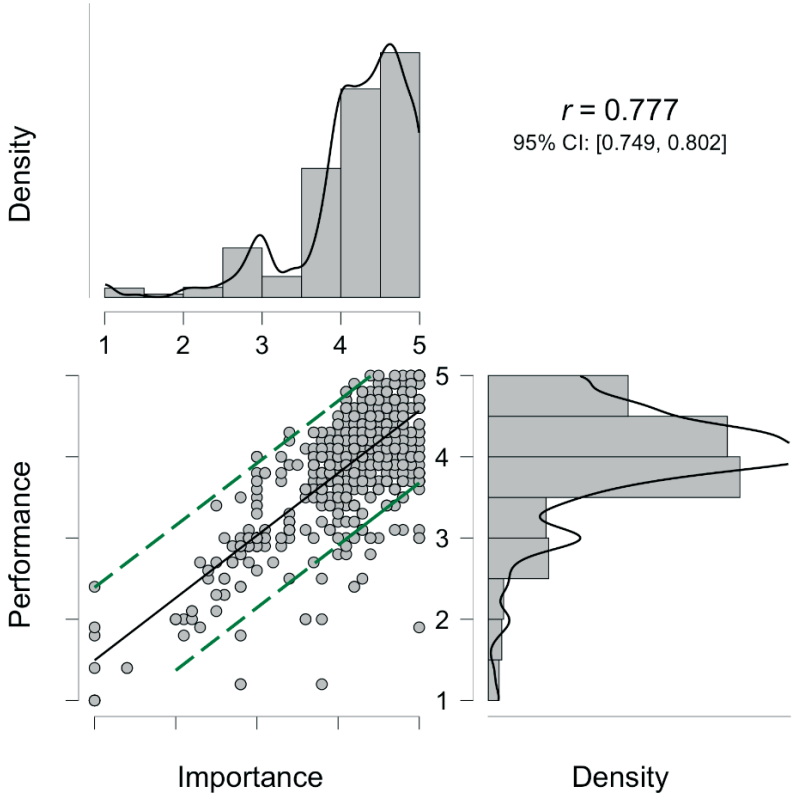
Table 5.
Pearson's correlation (r) between perceived importance and perceived performance based on empirical data

Pair-wise correlation	r	p	Lower 95% CI	Upper 95% CI	Shapiro-Wilk
Perceived importance – perceived performance	0.777*	< .001	0.749	0.802	0.937

* p < .001 indicating a statistically significant collection between the factors.

To recapitulate, the perceived importance and perceived performance of specific elements related to emergency remote teaching during Covid were calculated and reported in Table 3. Moreover, perceived satisfaction is the computed result by subtracting the mean rating of perceived importance from the mean rating of perceived performance. In this study, the students' satisfaction was not met, therefore, leaving the students unsatisfied with their experience of emergency remote teaching. Furthermore, a comparison between the institutions revealed that students from all three universities had higher expectations (i.e., perceived importance) than the quality of teaching they received (i.e. perceived performance). Lastly, there is a statistically strong correlation between the perceived importance towards the perceived performance indicating there is a stronger linear relationship between the two variables.

Figure 1.
Correlation scatter plot displaying the strength, direction, and form of the relationship between perceived importance and perceived performance



Discussion and Conclusion

As a result of the global pandemic, institutions in higher education introduced emergency remote teaching to convey their curricula to their students. The study aimed to empirically investigate how undergraduate students perceived ERT, and if these perceptions vary in different regions in Thailand. Frequently, numerous faculty members commented (personal communication, July 5-7, 2020) that online

teaching is generally of superior quality compared with face-to-face teaching. The two most common reasons expressed for this belief are that students will not learn that way and that students are not engaged. Research has shown that these concerns are oftentimes unfounded (Moorhouse, 2020). While it is beyond the scope of this study to examine why students are potentially less engaged during online teaching/learning, it can be noted that students' expectations at three large institutions in higher education within Thailand were not met.

An attribute that was consistently rated with the highest importance by the surveyed undergraduate students indicated the significance of the teacher's ability to be patient, friendly, and knowledgeable with their students. Similarly, Dvoráková et al. (2021) report that the sudden shift towards ERT increased students' anxiety. It is not farfetched to assume that this abrupt transition led to increased stressed levels also for teachers, which possibly explains the gap between the need for patience and friendliness by students and the teachers that failed to deliver. The ability of the instructor to adapt to this shift of responsibility from student to teacher is an important factor in determining the overall satisfaction with ERT (Carrillo & Flores, 2020). Furthermore, the results of the study suggested that the students were generally unsatisfied with their experience of emergency remote teaching.

Everyone involved in the temporary, but sudden shift toward virtual learning must recognize that these crises cause disturbances for students, staff, and educators alike (Bond et al., 2021). Therefore, an adjustment of expectations would be necessary to manage performance more realistically under these circumstances. A substantial increase in perceived importance and perceived performance was observed at the third sample (University C) which was collected in the third quarter of 2021, wherein the previous samples were taken in previous quarters. It could be argued that students in the third sample had more time to adjust to the new environment compared with their peers in earlier quarters, who were still adjusting to this new paradigm of teaching/learning. Nevertheless, in all of these cases, it should be noted that perceived importance always outranked perceived performance irrespective of the institution or the time of sampling.

Remote learning is new and difficult for both teachers and students. Teachers, like their students, feel stressed and unprepared for online instruction, according to Trust and Whalen (2020). They also face internet connectivity challenges and confusing educational policies. As a result, to improve remote learning, the obstacles encountered by both students and professors must be acknowledged, and solutions must be developed (Silletti et al., 2021). According to Hodges and Fowler (2020), there is a strong likelihood of future crises necessitating the adoption of remote classrooms. As a result, instead of the bad class designs that are currently in use, it is time to build online learning settings in which students can actively participate. In response to the research question, it can be stated that students are largely unsatisfied with emergency remote teaching, however, the results also suggested that there is no despair and the observed gap between perceived importance and perceived performance is relatively narrow.

The study, while arguably limited in scope to three institutions, has some distinctive characteristics to offer a significant contribution to this new field of knowledge. Moreover, there are a few noteworthy limitations that the reader should consider when evaluating the results of the study. While limitations offer an opportunity for future research, it should be said that the data was collected in three different quarters (between 1Q2021 and 3Q2021). The combination of such elements may have skewed the outcomes in the study, therefore, findings cannot be generalized, but they allow for comparisons with other studies situated in contexts other than the one in this research. Another limitation of the study is the omission of students' views and perceptions of the process of moving to emergency remote teaching. Gathering qualitative data their perspective on specific elements of the questionnaire would offer further insight about the different aspects covered in this study and complement those that were left out of the scope of the research.

References

Alby, F., Zucchermaglio, C., & Marino, F. (2021). Teaching and Learning during the Covid-19 Pandemic: University Students' Perspective on

Phase 3. *Qwerty. Open and Interdisciplinary Journal of Technology, Culture and Education*, *16*(2), 10-29. https://doi.org/10.30557/QW000041

Anthonysamy, L., Koo, A. C., & Hew, S. H. (2020). Self-Regulated Learning Strategies and non-Academic Outcomes in Higher Education Blended Learning Environments: A One Decade Review. *Education and Information Technologies*, *25*(5), 3677-3704. https://doi.org/10.1007/s10639-020-10134-2

Baepler, P., Walker, J. D., & Driessen, M. (2014). It's not about Seat Time: Blending, Flipping, and Efficiency in Active Learning Classrooms. *Computers & Education*, *78*, 227-236. https://doi.org/10.1016/j.compedu.2014.06.006

Bangert, A. W. (2006). The Development of an Instrument for Assessing Online Teaching Effectiveness. *Journal of Educational Computing Research*, *35*(3), 227-244. https://doi.org/10.2190/B3XP-5K61-7Q07-U443

Benesty, J., Chen, J., Huang, Y., & Cohen, I. (2009). *Pearson Correlation Coefficient.* In I. Cohen, Y. Huang, J. Chen & J. Benesty (Eds.), *Noise Reduction in Speech Processing* (Springer topics in signal processing, 2, pp. 1-4). Springer Berlin. https://doi.org/10.1007/978-3-642-00296-0_5

Bond, M., Bedenlier, S., Marín, V. I., & Händel, M. (2021). Emergency Remote Teaching in Higher Education: Mapping the First Global Online Semester. *International Journal of Educational Technology in Higher Education*, *18*(1), 1-24. https://doi.org/10.1186/s41239-021-00282-x

Brill, T. M., Munoz, L., & Miller, R. J. (2019). Siri, Alexa, and Other Digital Assistants: A Study of Customer Satisfaction with Artificial Intelligence Applications. *Journal of Marketing Management*, *35*(15-16), 1401-1436. https://doi.org/10.1080/0267257X.2019.1687571

Busacca, B., & Padula, G. (2005). Understanding the Relationship between Attribute Performance and Overall Satisfaction: Theory, Measurement and Implications. *Marketing Intelligence & Planning*, *23*(6), 543-561. https://doi.org/10.1108/02634500510624110

Carrillo, C., & Flores, M. A. (2020). Covid-19 and Teacher Education: A Literature Review of Online Teaching and Learning Practices. *European Journal of Teacher Education*, *43*(4), 466-487. https://doi.org/10.1080/02619768.2020.1821184

Deng, J., & Pierskalla, C. D. (2018). Linking Importance-Performance Analysis, Satisfaction, and Loyalty: A Study of Savannah, GA. *Sustainability*, *10*(3), 704. https://doi.org/10.3390/su10030704

Dvoráková, K., Emmer, J., Janktová, R., & Klementová, K. (2021). From F2F to ERT: University Students' Perception of Remote Learning dur-

ing the First Covid-19 Lockdown. *Journal on Efficiency and Responsibility in Education and Science*, *14*(2), 89-100. http://dx.doi.org/10.7160/eriesj.2021.140203

Fuchs, K. (2021). Advances in Tourism Education: A Qualitative Inquiry about Emergency Remote Teaching in Higher Education. *Journal of Environmental Management and Tourism*, *12*(2), 538-543. https://doi.org/10.14505//jemt.v12.2(50).23

Fuchs, K., & Karrila, S. (2021). The Perceived Satisfaction with Emergency Remote Teaching (ERT) amidst Covid-19: An Exploratory Case Study in Higher Education. *The Education and Science Journal*, *23*(5), 116-130. https://doi.org/10.17853/1994-5639-2021-5-116-130

Fuchs, K., & Karrila, S. (2022). Satisfaction with Remote Teaching in Thai Higher Education. *The Education and Science Journal*, *24*(2), 206-224. https://doi.org/10.17853/1994-5639-2022-2-206-224

Gelles, L. A., Lord, S. M., Hoople, G. D., Chen, D. A., & Mejia, J. A. (2020). Compassionate Flexibility and Self-Discipline: Student Adaptation to Emergency Remote Teaching in an Integrated Engineering Energy Course during Covid-19. *Education Sciences*, *10*(11), 304. https://doi.org/10.3390/educsci10110304

Gligor, D., Bozkurt, S., & Russo, I. (2019). Achieving Customer Engagement with Social Media: A Qualitative Comparative Analysis Approach. *Journal of Business Research*, *101*, 59-69. https://doi.org/10.1016/j.jbusres.2019.04.006

Hodges, C. B., & Fowler, D. J. (2020). The Covid-19 Crisis and Faculty Members in Higher Education: From Emergency Remote Teaching to Better Teaching through Reflection. *International Journal of Multidisciplinary Perspectives in Higher Education*, *5*(1), 118-122. https://doi.org/10.32674/jimphe.v5i1

Hodges, C. B., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The Difference between Emergency Remote Teaching and Online Learning. *Educause Review*, *27*, 1-12.

Matzler, K., Sauerwein, E., & Heischmidt, K. (2003). Importance-Performance Analysis Revisited: The Role of the Factor Structure of Customer Satisfaction. *The Service Industries Journal*, *23*(2), 112-129. https://doi.org/10.1080/02642060412331300912

Moorhouse, B. L. (2020). Adaptations to a Face-to-Face Initial Teacher Education Course "Forced" Online due to the Covid-19 Pandemic. *Journal of Education for Teaching*, *46*(4), 609-611. https://doi.org/10.1080/02607476.2020.1755205

Muhsin, S., Nurkhin, A., Pramusinto, H., Afsari, N., & Arham, A. F. (2020). The Relationship of Good University Governance and Student Satisfaction. *International Journal of Higher Education*, *9*(1), 1-10. https://doi.org/10.5430/ijhe.v9n1p1

Osman, A. R., & Saputra, R. S. (2019). A Pragmatic Model of Student Satisfaction: A Viewpoint of Private Higher Education. *Quality Assurance in Education*, *27*(2), 142-165. https://doi.org/10.1108/QAE-05-2017-0019

Otto, A. S., Szymanski, D. M., & Varadarajan, R. (2020). Customer Satisfaction and Firm Performance: Insights from over a Quarter Century of Empirical Research. *Journal of the Academy of Marketing Science*, *48*(3), 543-564. https://doi.org/10.1007/s11747-019-00657-7

Petillion, R. J., & McNeil, W. S. (2020). Student Experiences of Emergency Remote Teaching: Impacts of Instructor Practice on Student Learning, Engagement, and Well-Being. *Journal of Chemical Education*, *97*(9), 2486-2493. https://doi.org/10.1021/acs.jchemed.0c00733

Pezeshki, R. E., Sabokro, M., & Jalilian, N. (2020). Developing Customer Satisfaction Index in Iranian Public Higher Education. *International Journal of Educational Management*, *34*(7), 1093-1104. https://doi.org/10.1108/IJEM-11-2018-0378

Silletti, F., Ritella, G., Iacobellis, B., Semeraro, C., Episcopo, E., Cassibba, R., & Coppola, G. (2021). Distance Learning in Higher Education during the First Pandemic Lockdown: The Point of View of Students with Special Educational Needs. *Qwerty. Open and Interdisciplinary Journal of Technology, Culture and Education*, *16*(2), 30-46. https://doi.org/10.30557/QW000042

Stratton, S. J. (2021). Population Research: Convenience Sampling Strategies. *Prehospital and Disaster Medicine*, *36*(4), 373-374. https://doi.org/10.1017/S1049023X21000649

Suikkanen, J. (2011). An Improved Whole Life Satisfaction Theory of Happiness. *International Journal of Wellbeing*, *1*(1), 149-166. https://doi.org/10.5502/ijw.v1i1.6

Tabatadze, S., & Chachkhiani, K. (2021). Covid-19 and Emergency Remote Teaching in the Country of Georgia: Catalyst for Educational Change and Reforms in Georgia? *Educational Studies*, *57*(1), 78-95. https://doi.org/10.1080/00131946.2020.1863806

Trust, T., & Whalen, J. (2020). Should Teachers Be Trained in Emergency Remote Teaching? Lessons Learned from the Covid-19 Pandemic. *Journal of Technology and Teacher Education*, *28*(2), 189-199. https://www.learntechlib.org/primary/p/215995/

Weerasinghe, I. S., & Fernando, R. L. (2017). Students' Satisfaction in Higher Education. *American Journal of Educational Research*, *5*(5), 533-539. http://pubs.sciepub.com/education/5/5/9

Wilcox, B., & Vignal, M. (2020). Recommendations for Emergency Remote Teaching Based on the Student Experience. *The Physics Teacher*, *58*(1), 374-375. https://doi.org/10.1119/10.0001828

Xie, J., & Rice, M. F. (2021). Instructional Designers' Roles in Emergency Remote Teaching during Covid-19. *Distance Education*, *42*(1), 70-87. https://doi.org/10.1080/01587919.2020.1869526