



Senior High School Students' Attitude Towards the Implementation of Emergency Remote Teaching amidst the Pandemic*

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Article Information	ABSTRACT
Received: 26.05.2021	The effects of the COVID-19 pandemic on students are not equal because of some factors, including cognitive and non-cognitive acquisition. Also, the availability of educational tools and connectivity dramatically affected the students and added to the existing academic gap. This study determined the attitude of Senior High School students (SHS) at Western Institute of Technology, Philippines, towards the implementation of emergency remote teaching (online delivery mode) amidst the pandemic. The qualitative analysis was used to gather the attitudes of respondents. The number of respondents and the interview length were determined when the point of saturation was reached. The formulated researcher-made questionnaire in the quantitative analysis was based on the results of the qualitative analysis. The total collected responses were 329 via Google form. The summary of thematic analysis recorded five (5) statements of apprehensions and five statements (5) of openness. The results of the central tendency showed that the majority of the students, regardless of gender, grade level, and strand had higher confidence about the listed apprehension than the listed openness. Statistical analyses showed that students' responses in the listed openness regardless of gender, grade level and strand had no significant difference (p>0.05). Statistical analyses of listed openness were not consistent with the listed apprehension. In conclusion, the implementation of emergency remote teaching (online delivery mode) brought advantages and disadvantages to the students during the pandemic.
Accepted: 26.06.2022	
Online First: 28.01.2023	
Published: 31.01.2023	
Keywords: Emergency remote teaching, online learning, COVID-19 pandemic, senior high school students	
doi: 10.16986/HUJE.2023.477	
Article Type: Research Article	

Citation Information: Billonid, J. G., Jagolino, BJ L. P., Dañas, P. C. T., Francisco, K. J., Blancada, J. G., & Arlao, D. S. (2023). Senior high school students' attitude towards the implementation of emergency remote teaching amidst the pandemic. *Hacettepe University Journal of Education*, 38(1), 78-89. doi: 10.16986/HUJE.2023.477

1. INTRODUCTION

The impact of the Coronavirus Disease 2019 (COVID-19) pandemic temporarily resulted in the closure of the educational institutions (Di Pietro et al., 2020). The sudden modification of the face-to-face teaching method to other learning modes was implemented to limit the spread of Coronavirus (Valverde et al., 2020). In this situation, the effects of COVID-19 on students will not be equal because of some factors, including the problem of cognitive and non-cognitive acquisition (Di Pietro et al., 2020). Also, the availability of educational tools and connectivity dramatically affected the students and added to the existing academic gap (Edge foundation, 2020). The same conclusion was generated by Onyema et al. (2020), wherein the study stated that online education was affected by different factors such as poor infrastructures, networks, power, inaccessibility and

* This paper was presented as an oral presentation at International Multidisciplinary Research Conference on Education, Sciences, and Arts (IMReCESA 2021), held on April 22-24, 2021.

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unavailability issues, and poor digital skills. The effects of the mentioned factors are also reflected in the research conducted by YoungMinds showed that the closing of institutions affected young people's mental health (Edge foundation, 2020).

In March 2020, the Philippines' president, Rodrigo Duterte, decided to undergo the Luzon archipelago enhanced community quarantine. This announcement caused curfews, checkpoints, and travel restrictions to be employed (Tee et al., 2020). Implementation of preventive health protocols caused a vast amount of disruption to family households, organizations, schools, and the community. The "normal" nature of the everyday activities of each individual was changed drastically by the spread of the virus (Usher, 2020). With the occurrence of the COVID-19 pandemic, its impact affects the Philippine educational systems, wherein changes are steadily occurring at this pace. In this situation, educational institutions and the government decided to use other learning modes, including emergency remote teaching, to avoid further delay, which is the most acceptable way globally. The shift toward online education during the pandemic of COVID-19 has led many studies to focus on students' perceived learning outcomes and their satisfactory level in this new learning environment (Barber, 2020). To date, limited to no data is available in the Philippines about the students' attitude after implementing emergency remote teaching (online delivery mode) during the pandemic. Thus, this study was conducted to determine the attitude of Senior High School students from the Western Institute of Technology (WIT), the Philippines, after seven (7) months of implementation of emergency remote teaching (online delivery mode).

1.1. Statement of the Problem

This research study aims to determine the attitude of Senior High School (SHS) students of Western Institute of Technology, Philippines, towards the implementation of emergency remote teaching (online delivery mode) amidst the pandemic. Specifically, this study aims to answer the following questions:

1. What are the attitudes of senior high school students towards the implementation of emergency remote teaching during a pandemic?
2. What is the attitude of senior high school students if assessed using the researcher-made questionnaire?
3. Is there a significant difference in the attitude of senior high school students if assessed using the researcher-made questionnaire and if categorized according to gender, strand, and grade level?

1.2. Purpose of the Study

Understanding the attitude of a student's contentment in emergency remote teaching (online delivery mode) is necessary for today's situation. Student engagement in online delivery mode may be more ambiguous and complex to understand than face-to-face classroom settings. Instructors may feel unable to gauge student engagement and respond accordingly without face-to-face interaction (Cole, 2019). This study assessed students' genuine attitudes about implementing emergency remote teaching (online delivery mode) during the pandemic. Through the present study, the issue of the gap in education and is experienced by students can be acknowledged by educational stakeholders. The results of this study significantly contribute to the teaching and learning process in emergency remote teaching. It will be an excellent step to assess the attitudes of students about the new "normal" setup and improve the existing teaching and learning process.

2. METHODOLOGY

2.1. Research Design

This research applied qualitative and descriptive-quantitative research design to determine the attitude of SHS students towards the implementation of emergency remote teaching (online delivery mode). In this study, qualitative and quantitative research designs provide in-depth information about the students' attitudes by conducting virtual one-on-one in-depth interviews and surveys (Aliaga & Gunderson, 2005).

2.2. Research Instrument

In the qualitative analysis, the questions asked in the interview are semi-structured and open-ended related to attitude (DeJonckheere, 2019). The qualitative part of this study is limited only to determining the attitude in terms of openness and apprehension of students towards the implementation of emergency remote teaching (online delivery mode). The Google Meet and OBS Studio are used to record the conversation during the online interview. The data from the qualitative analysis were validated using quantitative analysis if a large-scale population represents the results. In the quantitative part, this study employed a researcher-made questionnaire based on a thematic analysis of the qualitative research design of this study. The researcher's questionnaire's factors were predetermined using the thematic analysis (Xu & Zammit, 2020). The validity and reliability of the questionnaire were tested using face validity (Taherdoost, 2016), content validity (Ibiyemi et al., 2019), and Cronbach alpha (Guillasper et al., 2020). In face validity, two experts from the Language Department checked the questionnaire. The content validity ratio (CVR) was used to quantify the content validity.

Five experts from the Department of Social Sciences were requested to specify whether an item is necessary to be included in a set of items or not. Experts were asked to score each item from 1 to 3 with a three-degree range of "not necessary, useful but not essential, and essential, respectively." The content validity ratio varies between 1 and -1. A high score indicates further agreement of the panel members on the necessity of an item in an instrument. The formula for content validity ratio is $CVR = (N_e - N/2)/(N/2)$, in which the N_e is the number of panelists indicating "essential" and N is the total number of panelists (Ibiyemi et al., 2019). After checking the validity of the questionnaire, the pilot test was conducted. The results of pilot testing were used to test the reliability of the questionnaire via Cronbach alpha. The Cronbach alpha of 0.7 is considered acceptable in this study (Guillasper et al., 2020).

The survey was designed in a self-report context (Billonid et al., 2020). It is digitally created online as Google Form, designed to be accessible and acquire responses anytime (Sathishkumar et al., 2020). The scale was based on a 5-point Likert scale: 1- strongly disagree, 2- disagree, 3-uncertain, 4-agree, and 5- strongly agree. Ten (10) items of the questionnaire determined the openness and apprehension of students towards emergency remote teaching (online delivery mode). The summary of the methodology is presented in Figure 1.

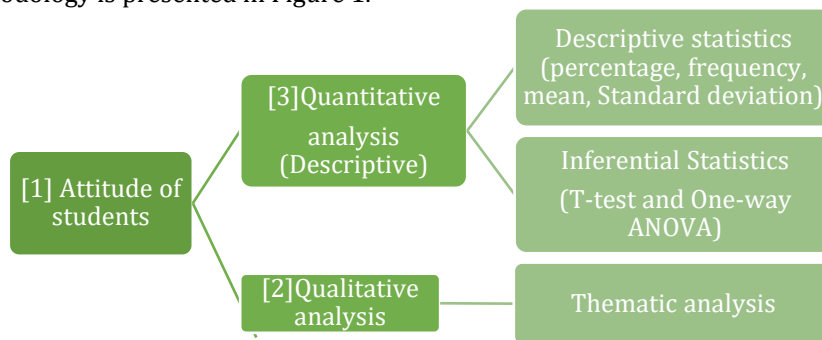


Figure 1. Summary of methodology

2.3. Participants

The researchers conducted a one-on-one in-depth interview with twelve (12) Senior High School Students at the Western Institute of Technology, Philippines. The number of respondents and the interview length were determined when the point of data saturation was attained. The data saturation is achieved when the new data collected are redundant to previously collected data or no new information or theme is observed (Saunders et al., 2018). In this study, the roles of data saturation are divided into two: (1) the judgment of the number of respondents was made by the researcher based on analytical themes; and (2) the judgment of the length interview was made by each participant's account and confirmed by the researcher based on strands within individual accounts. The data from the qualitative analysis were validated using quantitative analysis if a large-scale population represented the results. The collected responses are 60% (329 respondents) out of the total population (Table 1).

Table 1.
The Distribution of Respondents by Gender, Grade Level, and Strand is Presented in Frequency and Percentage

	Frequency	Percentage (%)
Gender		
Male	131	39.8
Female	198	60.2
Total	329	100
Grade level		
Grade 11	141	42.9
Grade 12	188	57.1
Total	329	100
Strand		
Accountancy, Business, and Management (ABM)	53	16.1
Humanities and Social Sciences (HUMSS)	34	10.3
Science, Technology, Engineering, and Mathematics (STEM)	205	62.3
Technical-Vocational-Livelihood (TVL)	37	11.3
Total	329	100

2.4. Analysis of Data

The data collected were analyzed using descriptive and inferential statistics. The descriptive statistics measured the mean, percentage, and standard deviation using Microsoft Excel 2010. In the inferential statistics, the T-test and One-Way ANOVA were calculated using the SPSS v. 20.

3. FINDINGS

The thematic analysis results showed that students' responses were divided into two, openness and apprehension towards the implementation of emergency remote teaching (online delivery mode). In the openness, five (5) statements were recorded (I believe that emergency remote teaching can help students be more independent [S1], I believe that emergency remote teaching can promote interaction with teachers and fellow students [S2], I believe that emergency remote teaching can lessen educational expenses [S3], I believe that emergency remote teaching can lessen the spread of Covid-19 [S4], and I believe that emergency remote teaching can promote quality time with family [S5]). In the apprehension, five (5) statements also were recorded in this study (I believe that emergency remote teaching can harm the health (eyestrain and stress) [S6], I believe that emergency remote teaching is affected by internet connectivity problems [S7], I believe that emergency remote teaching can result to higher financial expenses for data, gadgets, and the internet [S8], I believe that emergency remote teaching can bring about less learning as there are numerous aggravations around (house commotions, immediate request from guardians, social media distraction) [S9], and I believe that emergency remote teaching can promote tardiness [S10]) (Figure 2).

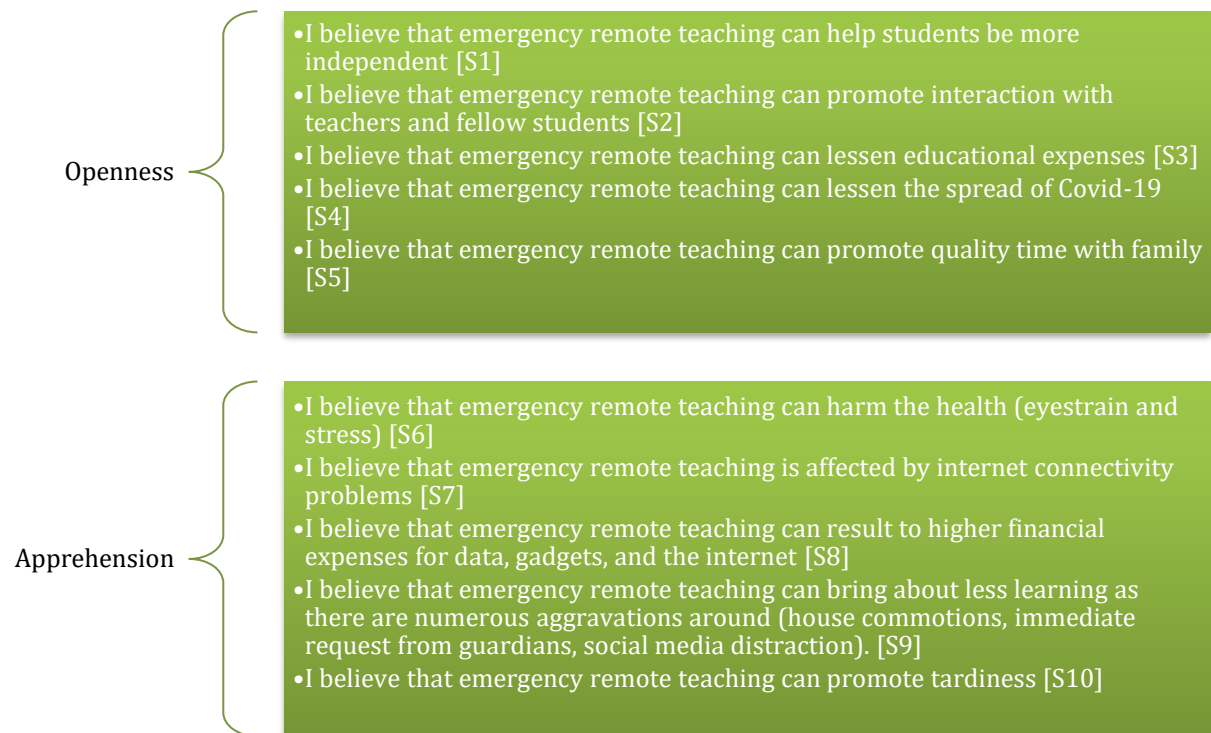


Figure 2. The listed openness and apprehension from the thematic analysis.

The heatmap in this study was used as a visualization technique to show the percentage of responses. The result in the Heat map of grade-level showed that in Category 1 (Openness), "uncertain and agree" generated a higher percentage compared to the other responses, which are indicated by the red color (Figure 3). This result is confirmed in statement number one (1) (I believe that emergency remote teaching can help students be more independent), wherein the highest percentage generated in grade 11 was 46.1% that answered: "agree." The result found the same trend in grade 12, wherein the highest percentage generated was 34.6% that answered: "agree." The results in statement number two (2) (I believe that emergency remote teaching can promote interaction with teachers and fellow students) were not the same as number one, wherein the highest percentage generated in grade 11 was 53.2% that answered "uncertain." The result observed the same trend in grade 12, whereas the highest percentage was 37.2%, which answered "uncertain." In statement number three (3), the highest percentage generated by grade 11 respondents showed that 39.7% were "uncertain" that emergency remote teaching could lessen educational expenses. Compared to grade 12, the result found a different trend, whereas the highest percentage were those who answered that they "disagree" that emergency remote teaching can lessen educational expenses, followed by "uncertain, agree, strongly disagree, and strongly agree" (29.3%, 27.1%, 22.3%, 15.4%, and 5.9%, respectively). Statement number four (4) (I believe that emergency remote teaching can lessen the spread of Covid-19) showed that the highest percentage in grade 11 were those who answered: "agree" that emergency remote teaching can lessen the spread of Covid-19, followed by "strongly agree, uncertain, disagree, and strongly disagree" (45.4%, 41.8%, 10.6%, 1.4%, 0.7%, respectively). The result found that grade 11 was replicated in grade 12. In statement number five (5) (I believe that emergency remote teaching can promote quality time with family), grade 11 generated the highest percentage of 36.9% who answered that they were "uncertain" that emergency remote teaching could promote quality time with family. However, a different trend was noticed in grade 12, whereas the highest percentage was 35.1% that answered: "agree" (Figure 3).

		S1 (%)	S2 (%)	S3 (%)	S4 (%)	S5 (%)	S6 (%)	S7 (%)	S8 (%)	S9 (%)	S10 (%)
Grade 11	SD	1.4	2.8	6.4	0.7	4.3	0.7	1.4	0.7	1.4	1.4
	D	7.8	14.9	23.4	1.4	11.3	2.8	0.0	0.7	2.1	2.8
	U	36.2	53.2	39.7	10.6	36.9	13.5	5.0	9.2	28.4	33.3
	A	46.1	27.7	24.8	45.4	34.8	29.8	23.4	34.8	41.8	40.4
	SA	8.5	1.4	5.7	41.8	12.8	53.2	70.2	54.6	26.2	22.0
Grade 12	SD	2.7	9.6	15.4	0.0	5.3	1.1	0.0	0.5	1.1	1.1
	D	16.0	25.5	29.3	1.6	13.3	1.6	0.5	0.5	1.1	1.6
	U	34.0	37.2	27.1	11.2	28.7	7.4	6.9	8.5	18.1	21.3
	A	34.6	25.0	22.3	47.3	35.1	25.0	22.9	26.1	37.8	42.0
	SA	12.8	2.7	5.9	39.9	17.6	64.9	69.7	64.4	42.0	34.0

Figure 3. Heat map showing the percentage of responses based on the Likert scale and categorized according to Grade level. The following initials mean: (SD) strongly disagree; (D) Disagree; (U) Uncertain; (A) Agree; and (SA) Strongly agree. Color: Red means high percentage, and green means low percentage.

The statistical analysis of openness showed that there was no significant difference in the responses between grade 11 and grade 12, with a mean of 3.46 ± 0.55 and 3.34 ± 0.65 , respectively ($p > 0.05$) (Figure 4). If the mean will be interpreted according to the Likert scale, this result showed that the students, regardless of grade level, are “uncertain” about the listed openness to emergency remote teaching. These results are consistent with the other variables tested in this study.

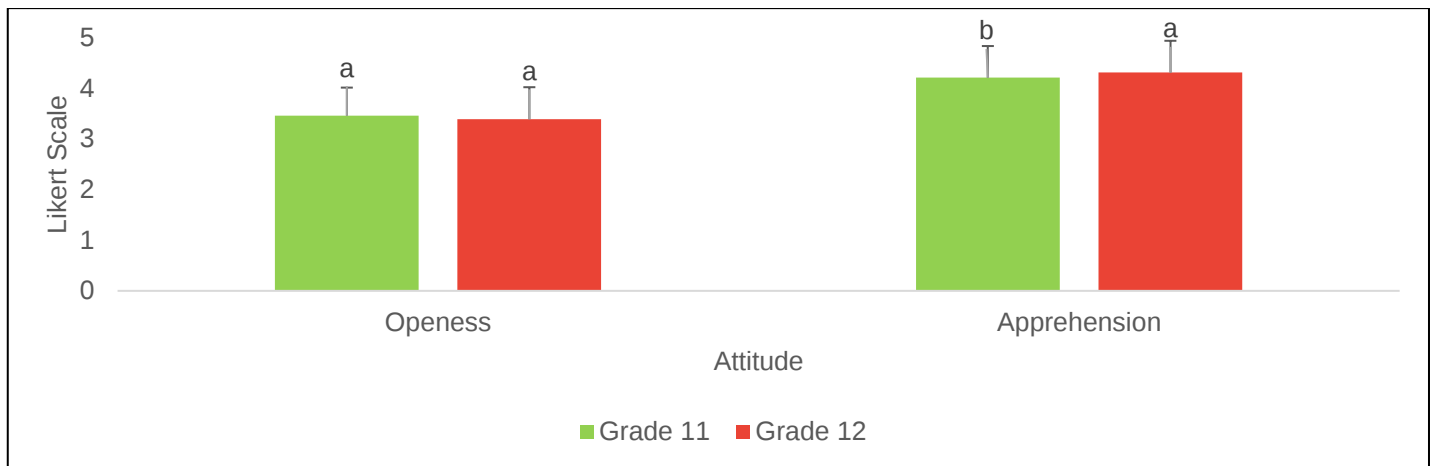


Figure 4. Mean with SD of responses based on Likert scale and categorized according to grade level. Values with the same superscript are not significantly different ($p > 0.05$).

The result in the Heat map of Category 2 (Apprehension) showed that “strongly agree and agree” generated a higher percentage compared to the other responses, which were indicated by the red color (Figure 3). This result is confirmed in statement number six (6) (I believe that emergency remote teaching can harm the health), wherein 53.2% of grade 11 who answered “strongly agree” was calculated as the highest percentage. The same pattern was presented from Grade 12, whereas the highest percentage generated were those who answered “strongly agree followed by agree, uncertain, disagree, and lastly strongly disagree” (64.9%, 25.0%, 7.4%, 1.6%, 1.1%, respectively). In statement number seven (7) (I believe that emergency remote teaching is affected by internet connectivity problems), the highest percentage generated in grade 11 were those who answered “strongly agree,” which was calculated as 70.2%. On the contrary, grade 12 respondents generated the highest percentage of 69.7%, who responded: “strongly agree.” In statement number eight (8) (I believe that emergency remote teaching can result in higher financial expenses for data, gadgets, and the internet), the respondents of Grade 11 had the highest percentage of 54.6% who answered: “strongly agree.” In grade 12, the same trend was found among those who responded: “strongly agree” produced the highest percentage, followed by “agree, uncertain, disagree, and strongly disagree” (64.4%, 26.1%, 8.5%, 0.5%, 0.5%, respectively). The results in statement number nine (9) (I believe that emergency remote teaching can bring about less learning as there are numerous aggravations around) showed that 41.8% of grade 11 agreed that emergency remote teaching could bring about less learning as there are multiple aggravations around which is the highest percentage generated. Compared to grade 12, a different trend was found wherein those who responded “strongly agree” generated the highest percentage, followed by “agree, uncertain, disagree, and lastly strongly disagree,” which was calculated as 42.0%, 37.8%, 18.1%, 1.1%, and 1.1%, respectively. Finally, in statement number ten (10) (I believe that emergency remote teaching can promote tardiness), results showed that the highest percentage generated from the Grade 11 were those who responded “agree” that emergency remote teaching can promote tardiness. Moreover, the same trend was found in grade 12, whereas the highest percentage generated was 42.0%, which answered: “agree” (Figure 3).

If the statements were analyzed as one category, the results found a different trend in the apprehension between grade 11 and grade 12, with the mean of 4.21 ± 0.63 and 4.38 ± 0.58 , respectively, wherein the p-value is lower than 0.05. In the

apprehension, though the statistical analysis showed that grade 12 significantly differed compared to grade 11, the interpretations of the mean, regardless of grade level, agreed with the listed apprehension of the implementation of emergency remote teaching (Figure 4). Surprisingly, the results of the quantitative analysis showed that the conflicting attitude of students about the openness of emergency remote teaching amidst the pandemic resulted in an “uncertain” response if the mean of the category was interpreted following the Likert scale. This result was not the same in the apprehension wherein the interpretation of the mean resulted in the response “agree.”

According to Latchem (2014), literature had an inconsistent stand regarding the relationship of gender to online learning. Other findings concluded that gender is irrelevant to the online learning setting. However, there are findings that online learning favors women. Including gender as a variable in this study will help make this issue clearer to the reader, following the notion that males and females have distinct learning needs. In this study, if the responses are analyzed according to gender, the results of the Heat map showed that in Category 1 (Openness), “uncertain and agree” generated a higher percentage compared to the other responses, which are indicated by the red color (Figure 5). If the answers are categorized according to gender, the results showed that in Category 1 (Openness), statement number one (1) (I believe that emergency remote teaching could help students be more independent), the highest percentage generated in female SHS students of WIT was 41.9% who agreed that online class could help students to be more independent.

On the other hand, a different trend was found in male SHS students of WIT, wherein the highest percentage generated are those who responded “uncertain.” Following the results shown in statement number two (2) (I believe that emergency remote teaching can promote interaction with teachers and fellow students), female respondents responded “uncertain,” which was calculated as the highest percentage (44.9%). Compared to male respondents, the same results were found wherein respondents who answered “uncertain” were the highest percentage generated. In statement number three (3) (I believe that emergency remote teaching can lessen educational expenses), the female respondents had the highest percentage of 34.3% who answered they were “uncertain” that emergency remote teaching could lessen educational expenses. On the other hand, the male respondents had the same trend, wherein those who answered “uncertain” had the highest percentage. In statement number four (4), I believe that emergency remote teaching can lessen the spread of Covid-19; female respondents showed the highest percentage of 46.5% that “agree” that emergency remote teaching can lessen the spread of Covid-19. The same result was generated in male respondents, whereby the highest percentage calculated was 46.6%. In statement number five (5) (I believe that emergency remote teaching can promote quality time with family), for the female respondents, the highest percentage generated was 37.4% that answered: “agree.” The male respondents conveyed a different trend, whereas the highest percentage generated was 36.6% that answered “uncertain” (Figure 5).

		S1 (%)	S2 (%)	S3 (%)	S4 (%)	S5 (%)	S6 (%)	S7 (%)	S8 (%)	S9 (%)	S10 (%)
Female	SD	1.0	4.5	10.1	0.0	4.5	0.0	0.5	0.5	1.0	0.5
	D	13.6	26.8	24.7	2.0	13.6	2.0	0.5	0.0	0.5	2.5
	U	31.8	44.9	34.3	11.1	29.3	5.6	3.5	6.1	20.2	24.7
	A	41.9	22.7	26.3	46.5	37.4	25.8	21.7	28.8	37.9	42.4
	SA	11.6	1.0	4.5	40.4	15.2	66.7	73.7	64.6	40.4	29.8
Male	SD	3.8	9.9	13.7	0.8	5.3	2.3	0.8	0.8	1.5	2.3
	D	10.7	12.2	29.8	0.8	10.7	2.3	0.0	1.5	3.1	1.5
	U	39.7	42.7	29.8	10.7	36.6	16.8	9.9	13.0	26.0	29.0
	A	35.9	31.3	19.1	46.6	31.3	29.0	25.2	31.3	42.0	39.7
	SA	9.9	3.8	7.6	41.2	16.0	49.6	64.1	53.4	27.5	27.5

Figure 5. Heat map showing the percentage of responses based on the Likert scale and categorized according to Gender. The following initials mean: (SD) strongly disagree; (D) Disagree; (U) uncertain; (A) Agree; and (SA) Strongly agree. Color: Red means high percentage, and green means low percentage.

If the statements were analyzed as one category, the same trend found in the data of grade level and gender if the mean will be interpreted following the Likert scale. The openness showed an “uncertain” response compared to apprehension with the response of agree. The results of the T-test showed that there was no significant difference in the responses about openness between males and females, with the mean of 3.40 ± 0.60 , 3.38 ± 0.63 , respectively ($p > 0.05$) (Figure 6). This result showed that the students, regardless of gender, are “uncertain” about the listed openness of implementation of emergency remote teaching. These results are consistent with the results on gender.

The result in the Heat map showed that in Category 2 (Apprehension), the responses of “strongly agree and agree” generated a higher percentage compared to the other answers, the red color in the figure indicated this result (Figure 5). The results showed in Category 2 (Apprehension), statement number six (6) (I believe that emergency remote teaching can harm the health (eyestrain and stress), for the female students from the WIT SHS, the highest percentage generated was 66.7% who answered: “strongly agree.” The result found the same trend in male students, wherein the highest percentage generated was 49.6% who responded: “strongly agree.” In statement number seven (7) (I believe that emergency remote teaching is affected by internet connectivity problems), the female respondents generated the highest percentage, which was 73.7% that responded “strongly agree” that emergency remote teaching is affected by internet connectivity problem. Moreover, the same

trend has been observed in male respondents, whereas the highest percentage generated was 64.1% who answered: “strongly agree.”

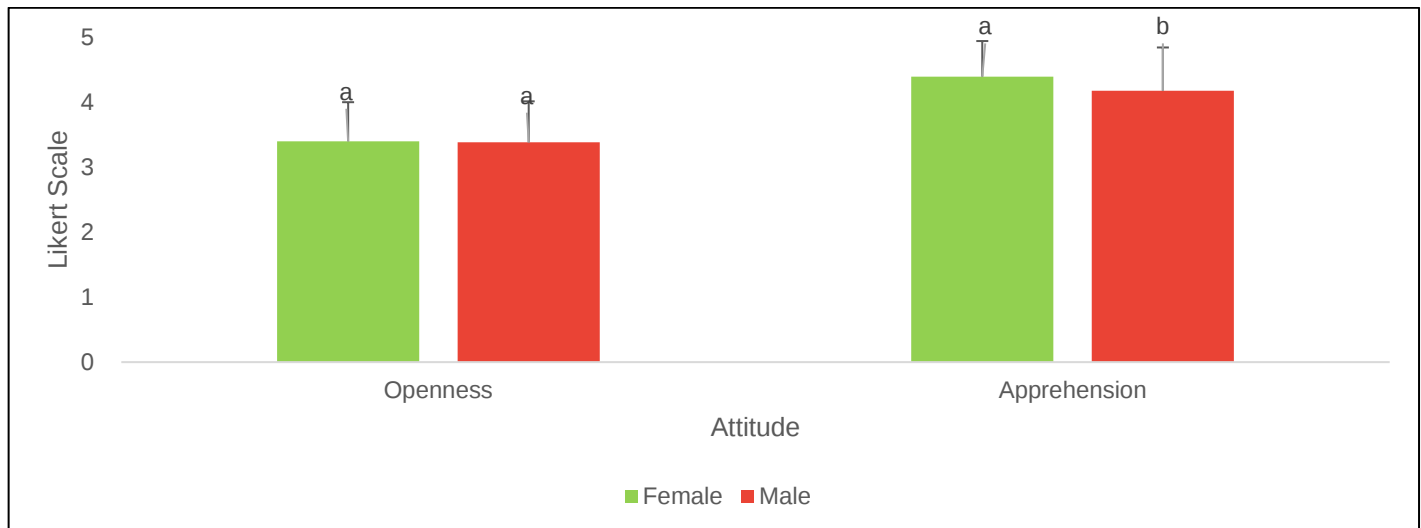


Figure 6. Mean with SD of responses based on Likert scale and categorized according to Gender. Values with the same superscript are not significantly different ($p>0.05$).

The results in statement number eight (8) (I believe that emergency remote teaching can result in higher financial expenses for data, gadgets, and the internet) showed that the female respondents answered “strongly agree” as to the highest percentage (64.6%). As for the male respondents, the same trends were found in the results, wherein those who answered: “strongly agree” generated the highest percentage, followed by “agree, uncertain, disagree, and strongly disagree” (53.4%, 31.3%, 13.0%, 1.5%, 0.8%, respectively). In statement number nine (9) (I believe that emergency remote teaching can bring about less learning as there are numerous aggravations around), the highest percentage generated by female respondents was 40.4%, who answered: “strongly agree.” However, a different trend was noticed in the male respondents, wherein 42.0% “agree” that online class brings about less learning due to commotions. Last but not least, in statement number ten (10) (I believe that online class can promote tardiness), 42.4% of the female respondents responded that they “agree” about online class promoting tardiness. If the results are compared with male respondents, the same trend was identified whereby 39.7% responded: “agree” (Figure 5). If the statements were analyzed as one category, the results found different trends of apprehension between males and females with the mean of 4.39 ± 0.55 and 4.18 ± 0.67 , respectively, wherein the p-value is lower than 0.05. In the apprehension, though the results of statistical analysis showed that the male significantly differed compared to the female, the interpretations of the mean, regardless of gender, agreed with the listed apprehension of the implementation of online learning (Figure 6).

The results in the Heat map of the strand showed that in Category 1 (Openness), the responses of “uncertain and agree” generated a higher percentage compared to the other answers, which were indicated by the red color (Figure 7). If the responses were categorized according to the strand, the results showed that in Category 1 (Openness), statement number one (1) (I believe that online class can help students be more independent), the results identified a similar pattern among the strand’s Humanities and Social Sciences (HUMSS), Science, Technology, Engineering, and Math (STEM), and Technology and Livelihood Education (TVL) wherein all three of them generated a comparable highest percentage that answered “agree” which was calculated as 44.1%, 41.5%, and 37.8%, respectively. The results have different trends in the Accountancy, Business and Management Strand (ABM) strand, whereas it generated the highest percentage of 35.8% that answered “uncertain.” In statement number two (2) (I believe that emergency remote teaching can promote interaction with teachers and fellow students), results showed the same trend among the HUMSS, STEM, and TVL strands wherein those who answered that they are “uncertain” that emergency remote teaching can promote interaction with teachers and fellow students have the highest percentage of 47.1%. Aside from the ABM strand, it showed that 30.2% answered that they “disagree” that emergency remote teaching can promote interaction with teachers and fellow students, which was the highest percentage. In statement number three (3) (I believe that emergency remote teaching can lessen educational expenses), the results showed that there was the same trend between the ABM and the STEM strand, wherein both generated the highest percentage of 26.4% in ABM and 30.7% in STEM that answered: “disagree.”

Meanwhile, the HUMSS and TVL strands have the same trend wherein those who have answered that they are “uncertain” that emergency remote teaching can lessen educational expenses generated the highest percentage of 44.1% in HUMSS and 40.5% in TVL. In statement number four (4) (I believe that emergency remote teaching can lessen the spread of Covid-19), results showed that there is the same trend between ABM (54.7%) and HUMSS (47.1%) strand, wherein both generated the highest percentage that responded: “strongly agree.” Meanwhile, the results found a different trend in the STEM strand compared to the strand, wherein the highest percentage generated by STEM was 51.2% that answered that they “agree” that emergency remote teaching can lessen the spread of Covid-19. The result found a different pattern in the TVL strand among the three remaining strands, wherein 40.5% responded that they are “uncertain” about believing that emergency remote teaching can

lessen the spread of Covid-19, which is indicated as the highest percentage. In statement number five (5) (I believe that emergency remote teaching can promote quality time with family), the result recorded a matching pattern between the ABM and the STEM strand. Both strands generated the highest percentage that answered they “agree” that emergency remote teaching can promote quality time with family, calculated as 37.7% in ABM and 34.6% in STEM. Moreover, the ABM and STEM strands also have a similar pattern of responses arranged in the following manner: “uncertain, strongly agree, disagree, and strongly disagree.” Furthermore, the same trend was also noticed between the HUMSS and the TVL strand, whereas the highest percentage generated by the HUMSS and TVL was 50.0% and 41.2%, respectively; who answered that they are “uncertain” that emergency remote teaching can promote quality time with family (Figure 7).

		S1 (%)	S2 (%)	S3 (%)	S4 (%)	S5 (%)	S6 (%)	S7 (%)	S8 (%)	S9 (%)	S10 (%)
ABM	SD	1.9	13.2	9.4	0.0	5.7	1.9	1.9	1.9	3.8	3.8
	D	18.9	30.2	26.4	3.8	9.4	5.7	1.9	0.0	0.0	3.8
	U	35.8	26.4	24.5	9.4	26.4	7.5	9.4	3.8	17.0	15.1
	A	30.2	26.4	26.4	32.1	37.7	30.2	32.1	35.8	35.8	41.5
	SA	13.2	3.8	13.2	54.7	20.8	54.7	54.7	58.5	43.4	35.8
HUMSS	SD	0.0	2.9	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	D	14.7	11.8	14.7	2.9	2.9	0.0	0.0	0.0	0.0	0.0
	U	26.5	47.1	44.1	11.8	50.0	8.8	5.9	17.6	35.3	29.4
	A	44.1	35.3	26.5	38.2	35.3	41.2	26.5	29.4	38.2	32.4
	SA	14.7	2.9	11.8	47.1	11.8	50.0	67.6	52.9	26.5	38.2
STEM	SD	2.0	4.9	13.2	0.5	5.4	1.0	0.5	0.5	1.0	1.0
	D	11.2	23.4	30.7	1.0	14.6	1.5	0.0	0.5	1.5	2.4
	U	36.6	47.8	31.2	9.8	29.3	7.8	3.9	6.8	20.0	27.3
	A	41.5	22.9	21.0	51.2	34.6	22.9	17.6	26.8	42.0	42.9
	SA	8.8	1.0	3.9	37.6	16.1	66.8	78.0	65.4	35.6	26.3
TVL	SD	5.4	10.8	13.5	13.5	5.4	0.0	0.0	0.0	0.0	0.0
	D	8.1	2.7	16.2	16.2	13.5	2.7	2.7	0.0	5.4	0.0
	U	32.4	45.9	40.5	40.5	40.5	27.0	27.0	13.5	32.4	35.1
	A	37.8	35.1	29.7	29.7	32.4	32.4	32.4	37.8	32.4	40.5
	SA	16.2	5.4	0.0	0.0	8.1	37.8	37.8	48.6	29.7	24.3

Figure 7. Percentage of responses based on Likert scale and categorized according to strand. The following initials mean: (SD) strongly disagree; (D) Disagree; (U) uncertain; (A) Agree; and (SA) Strongly agree. Color: Red means a high percentage, and green means a low percentage

If the responses are categorized according to the strand, results of mean interpretations showed that all strands except for HUMSS are “uncertain” regarding the openness of emergency remote teaching. Based on the results of the Analysis of Variance (ANOVA) of openness, there were no significant differences in the responses among the ABM, HUMSS, STEM, and TVL, with the mean of 3.43 ± 0.69 , 3.59 ± 0.62 , 3.35 ± 0.58 , and 3.39 ± 0.63 , respectively ($p > 0.05$) (Figure 8). These results are supported by gender and grade level variables, and regardless of the categories, students are consistent with their responses.

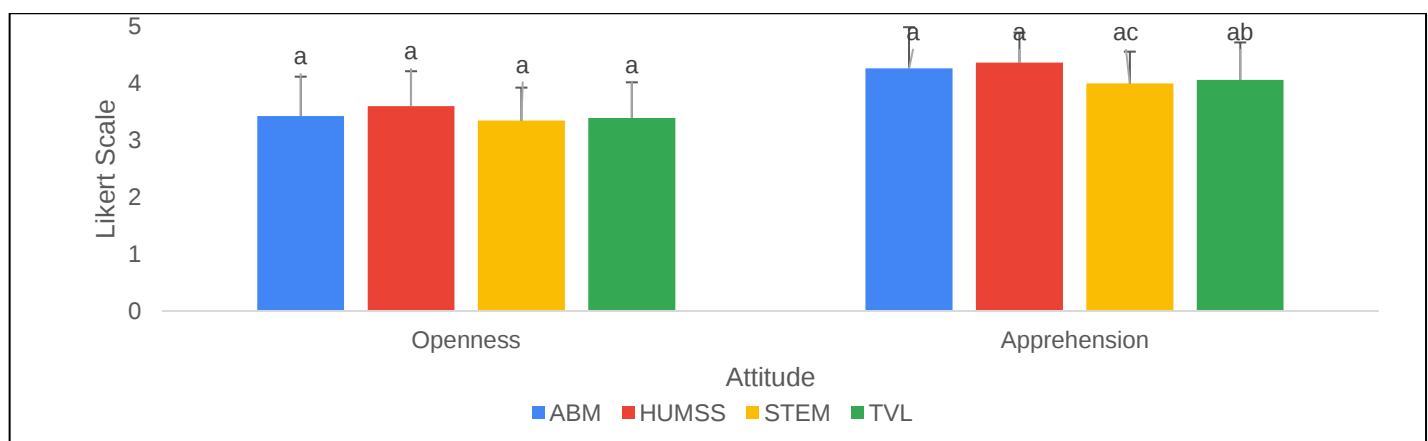


Figure 8. Mean with SD of responses based on Likert scale and categorized according to strand. Values with the same superscript are not significantly different ($p > 0.05$).

The results in the Heat map showed that in Category 2 (Apprehension), “strongly agree and agree” generated a higher percentage compared to the other responses, which are indicated by the red color (Figure 7). The results showed that in Category 2 (Apprehension), statement number six (6) (I believe that emergency remote teaching can harm the health), the results found the same trend, wherein those who answered that they “strongly agree” generated the highest percentage in all strand’s (ABM, HUMSS, STEM, TVL) which calculated as 54.7%, 50.0%, 66.8%, and 37.8%, respectively. In statement number

seven (7) (I believe that emergency remote teaching is affected by internet connectivity problem), all strands have the same trend, wherein the highest percentage generated was “strongly agree,” in which the calculated percentage of each strand are the following: ABM was 54.7%, followed by HUMSS which was 67.6%, then 78.0% from the STEM and finally, 37.8% from the TVL strand. Results in statement number eight (8) (I believe that emergency remote teaching can result in higher financial expenses for data, gadgets, and the internet) was found that all strands have the same trend, wherein those who answered that they “strongly agree” that emergency remote teaching can result to higher financial expenses for data, gadgets, and the internet generated as the highest percentage in all. The highest percentage of every strand in “strongly agree” was estimated as 58.5% in ABM, 52.9% in HUMSS, 65.4% in STEM, and 48.6% in TVL. In statement number nine (9) (I believe that emergency remote teaching can bring about less learning as there are numerous aggravations around), the ABM strand distinguished a different trend among the other strands wherein ABM has the highest percentage in “strongly agree.” In contrast, the HUMSS, STEM, and TVL strands have the same trend, whereas those who responded “agree” was the highest percentage, which was calculated as 38.2%, 42.0%, and 32.4%, respectively. In the TVL strand, two high percentages were identified, whereas both options, “uncertain and agree,” have the same frequency and percentage, which was 12(32%). Lastly, the results showed that in statement number ten (10) (I believe that emergency remote teaching can promote tardiness), apart from the HUMSS strand, the results found a different trend, wherein those who responded “strongly agree” (38.2%) was considered as the highest percentage. In contrast, the strands ABM, STEM, and TVL have the same trend, whereas all three responded “agree” as to the highest percentage, which was 41.5% from ABM, 42.9% from STEM, 40.5% from TVL. If the responses were grouped into one category, in the apprehension, all strands agree about the listed apprehension of online learning if the mean is interpreted according to the Likert scale. The result of openness was not the same in the apprehension, wherein the STEM (4.37 ± 0.56) and TVL (4.06 ± 0.66) have significant differences ($p < 0.05$) (Figure 8).

4. RESULT, DISCUSSION, AND RECOMMENDATIONS

The result of the qualitative analysis was analyzed using thematic analysis. The results showed that the listed openness (Figure 2) is supported in the study of Mirahmadizadeh et al. (2020), wherein results showed that in the conduct of their web-based cross-sectional survey across the countries affected by school closures due to the COVID-19 pandemic, statistically indicated that students have a satisfactory rating (positive & negative emotions) about the imposition of E-learning during school closures. It is shown that students feel enthusiastic about their school and education. Though the researchers also mentioned that the study might not constitute the general population due to some factors (lack of infrastructures, internet connectivity), it is their optimal approach to gathering data. This result was also replicated in the study of Ismaili (2021), wherein the study stated that students' positive attitude toward participating in online learning indicates a good sign for e-learning platforms during emergency remote teaching.

On the other hand, apprehension results (Figure 2) are confirmed in Baloran (2020) study, which was also conducted in the Philippines. The results of the study revealed that most respondents disagreed with implementing online-blended learning during the pandemic. Following Praghlapati's (2020) study, different factors have negatively affected the student's attitude, particularly at home, due to self-isolation, home quarantine, work at home, online learning, and household issues. The same study concluded that students experienced anxiety due to the pandemic. The monitoring of students' mental health based on their attitude towards new modes of learning due to a worldwide pandemic is on attention by the local governments, school districts, and faculties. The same study said that students with on-hand experience with self-isolation or quarantine might be more or less experienced anxiety. Students with upper-hand experience can discern the situation and adapt to the new learning mode. The overall results of the thematic analysis in this study (Figure 2) were supported by Li and Lalani (2020), wherein the study concluded that online education could be either advantageous or disadvantageous depending on the current conditions. The respondents in this study have no equal access to online learning tools. The accessibility of online learning tools can be the reason for the results of the qualitative part of this study. The respondents that have no easy access to the online learning tools lean their attitude on apprehension. On the other hand, respondents that have easy access to the online learning tools lean their attitude on openness.

If the qualitative and quantitative analyses were compared, the implementations of emergency remote teaching (online delivery mode) brought advantages and disadvantages to the students during the pandemic based on qualitative analysis. This result is also reflected in the percentage, wherein most respondents, regardless of gender, grade level, and strand, agree and are uncertain about the listed openness. This result is also supported in the study of Li and Lalani (2020). This result was not consistent with the central tendency (mean), wherein the student's attitude expresses more apprehension towards the implementation of emergency remote teaching if the mean per category is interpreted according to the Likert scale. These conflicting results happened because qualitative analysis captured every detail or attitude of each respondent by exhausting the data that was sometimes neglected in the central tendency because of its majority nature (Daniel, 2016). The results of the mean per category showed that the majority of the students, regardless of gender, grade level, and the strand, were uncertain about the listed openness of emergency remote teaching implementation and had higher confidence about the listed apprehension, which the majority of the students said they agreed about the listed apprehension. The results by Onyema et al. (2020) are similar to the central tendency, wherein the study stated that online education was affected by different factors such as poor infrastructures, network, power, inaccessibility and unavailability issues, and poor digital skills, mentioned as the reasons of respondents in this study why they feel apprehension towards the implementation of emergency remote teaching (online delivery mode). This result is confirmed in the study by Edge foundation (2020), highlighting the availability

of educational tools and connectivity as primary that affects the students and adds to the existing academic gap. The result of the present study is similar to the review paper of Nortvig et al. (2018), wherein the literature showed that many factors influenced the students' learning experiences in E-Learning and Blended Learning. The present study results about the expression of students' apprehension were also supported in the study of Unger and William (2020), wherein the study stated that varied responses were generated towards the implementation of online education, and most of them were expressing anxiety towards it. In this situation, the effects of COVID- 19 on students will not be equal because of the mentioned factors (Di Pietro et al., 2020). These hindrances caused fear, anxiety, uncertainty in a student's attitude, economic distress, social hardships, and educational crisis (Terada, 2020). After the seven (7) months of implementation of emergency remote teaching (online delivery mode), students' attitude expresses more apprehension towards it following the results of central tendency if sampled in a large-scale population. The results of the quantitative part can be explained by the low internet connectivity generally of the Philippines. The problem of internet connectivity can be the reason. However, some students have easy access to online learning tools. However, the students are still affected by the low internet activity reflected in the results of the quantitative part of this study that respondents feel more apprehension about the implementation of emergency remote teaching (online delivery mode).

Furthermore, it was implied that chronic stress is also linked to cognitive effects - problems with attention, concentration, memory, and activity (Gilbertson, 2). The present study results explained that an interference with the students' academic regardless of gender, grade level, and strand results in various negative attitudes and emotions, mainly an apprehension. The result of the present study is supported by the conflicting results from different studies that online education is an advantage (Mirahmadizadeh et al., 2020; Ismaili, 2021) or a disadvantage during the pandemic (Terada, 2020; Unger & William, 2020).

In conclusion, the implementation of emergency remote teaching (online delivery mode) brought advantages and disadvantages to the students during the pandemic based on qualitative analysis, percentages, and supported by the literature. The quantitative analysis results are a concern to the education stakeholders, given that the literature states that mental health and academic achievement are connected. The following are the reflections of researchers in the results of the present study: (1) The education stakeholders such as parents, teachers, and school officials must provide a link to the gap or at least counterbalance the attitude of apprehension of students towards online delivery mode; (2) The parents should be critical in choosing an institution for the admission of the child. If the parents are not capable of providing the tools needed in an online delivery mode, they should consider other institutions that offer different modes of learning; (3) the school admission office must orient the students and the parents that the primary mode of learning used by the school is online delivery mode and they are required to attend the synchronous meeting; and (4) if the above terms are not followed, the teachers must provide a way to counterbalance the educational gap between students who can always attend synchronous meeting and students who can rarely attend the synchronous meeting. However, this term will raise another concern about the fairness of treatment. The fourth term can be avoided if the second and third terms are followed. This study recommends conducting a correlational study between the academic performance and the attitude of respondents towards online learning amidst the pandemic. This recommendation explores the relationship between students' attitudes and academic performance towards emergency remote teaching (online delivery mode) amidst the pandemic. In addition, the researcher would like to recommend conducting an in-depth qualitative study and include the perspective of other education stakeholders regarding the implementation of emergency remote teaching amidst the pandemic.

Research and Publication Ethics Statement

This manuscript has not been published and is not under consideration for publication elsewhere.

Contribution Rates of Authors to the Article

All authors have contributed equally to this study.

Statement of Interest

The authors of this study declare that there is no conflict of interest.

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