Original Research Article

EXPLORING SOME ACADEMIC DISHONESTY IN REMOTE ONLINE EXAMSOF VIETNAMESE HIGH SCHOOL STUDENTSIN THE CONTEXT OF THECOVID-19 PANDEMIC

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ABSTRACT

The outbreak of the Covid-19 pandemic in early 2020 has forced the generaleducation system in many countries to switch to online learning, leading to the fact that tests have also been moved to remote online exams. With this test method, the problem of academic dishonesty while taking exams of high school students has emerged as an issue that needs to be studied. Therefore, this study explores the pervasiveness and legitimacy of nine academic dishonesty of Vietnamese high school students participating in remote online exams during the Covid-19 pandemic, divided into two groups: cheating (7 acts) and plagiarism (2 acts). To achieve the research objectives, descriptive statistics, ANOVA, Spearman and Welch correlation analysis were used to analyse the data. The analysis results show that, in general, the pervasiveness of dishonest acts is assessed at a fairly common level, while the legitimacy of these acts is assessed at a fairly illegal level. Regarding gender, there is a difference in the assessment of the pervasiveness of some dishonest acts between male and female students, and there is a slight difference in the assessment of the legitimacy of dishonest acts between male and female students. Regarding the relationship between pervasiveness and legitimacy of the behavioural groups, the analysis results show a positive correlation generally. The research results are not only useful evidence for Vietnamese educators and managers about the issue of academic dishonesty in remote online exams conducted in the context of social distancing due to the Covid-19 pandemic, but also Aprovide suggestions for improving the quality of remote online exams by reducing academic dishonesty.

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Keywords: Academic dishonesty, remote online exams, online learning, Covid-19, Vietnam

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1. INTRODUCTION

The Covid-19 pandemic that broke out in early 2020 has become a global health emergency, leading to extraordinary socio-economic changes in every country in the world [1], including the education system [2]. For Vietnamese education, this pandemic has made the education system facesignificant challenges in ensuring and maintaining educational activities while ensuring people's health. Faced with that complicated situation, the Vietnamese Government urgently implemented social distancing solutions[3]. Consequently, most schools across the country at all learning levels switched to online learning with support from the integration of technologies applied as a core solution to ensure program-based research and learning for all to learn without interruption [4]. In order to maintain the continuity of the program as well as the schools'learning and teaching plan, the test of the learners is also changed to the online test method. This test method developed and became a popular and important testing method during the period of social distancing [5]. One point to note is that the online test method applied by high schools in Vietnam is the remote form, also known as remote online exams, or referred to with a similar term as remote e-exams. This is the commonly used testing method during the close of schools due to the impact of the COVID-19 pandemic spreading around the world [6]. The term "remote online exams" can be understood as checking the learning results of learners through virtual and online platforms, in which learners conduct their own exams at home or any location outside the school with school or teacher supervision or online monitoring tools[7].

The important benefits of remote online exams in this crisis context are undeniable. However, there are still issues with ensuring fairness and accurate assessment of students' learning outcomes in this test method. That is the problem of preventing or minimising academicdishonesty in online exams in general and remote online exams in particular. Academic dishonesty in testing/exams/assessment of learning outcomes through online methods is becoming more and more common and tends to continue to grow [8,9], especially easily recognised at the general education level [10]. According to published results of a survey, about 73.6% of students said that it is easier to perform academic dishonesty in online exams than in regular exams [11]. Agreeing with this view, teachers believe that academic dishonesty is easier and more common in online courses because there is no direct contact with students [12,13].

According to the classification of Pavela (1997), dishonesty in online exams of general school students is shown through four behaviours: i/ cheating - learners actively cheating by using documents and information or other help; ii/ plagiarism - learners using and presenting other people's work without citing the sources; iii/ fabrication- inventing or quoting information that does not exist; iv/ facilitating academic dishonesty - intentionally helping others to perform dishonest acts in testing. The issue of dishonesty in online exams in general and remote online exams, in particular, has been studied by the authors in many aspects; cheating is the most commonly studied issue among all topics identified [15]. In the context of the Covid-19 pandemic, several authors focused on understanding and analysingthe problems of cheating in remote online exams[16,17]. Several other scholars focused on methods to reduce cheating in online tests [18,19] and proposed technologies to help prevent this problem [20,21,22]. Others combine techniques and handheld devices to help learners commit their cheating in both

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supervised and unsupervised online exams [23]. Manystudies were focused on technical challenges rather than ethical and social issues [15]. In addition, the issue of learners' motivation to attend online courses was also begun to be studied [24] to lay the foundation for future research and behaviour-based considerations to offer solutions to prevent cheatingin online exams rather than imposing institutional sanctions [25]. When looking at school teachers' views on academic dishonesty in online exams, studies reported some of these teams' greatest concerns about the potential forstudents' cheating, then the issue of technology reliability, and finally, the ease of use of software systems with proficient ICT skills [26]. Other teachers indicated that they find digital grading easier and preferable to paper grading [27].

In Vietnam, the rapid and unexpected outbreak of the pandemicled to the passiveness and lack of preparation in the organisation of online teaching as well as remote online exams in most high schools in localities implementing social distancing measures. The implementation of the test of high school students in Vietnam by remote online methods is an activity conducted primarily on a large scale with urgent preparation time. Because of this, the numberof learners in all grades who commit dishonest acts in remote online exams in both supervised and unsupervised methods has tended to increase during the recent Covid-19 period[28]. This paper explores the pervasiveness and legitimacy of academic dishonesty by Vietnamese high school students when participating in remote online exams during the Covid-19 pandemic. Within the research scope, the authors focus on understanding the pervasiveness and legitimacy of cheating and plagiarism - two out of four dishonest acts following Pavela's proposal (1997) - by Vietnamese high school students to provide discussions and recommendations to minimise dishonest acts of high school students when conducting remote online exams in the next period. To achieve the above objectives, the paper identifies the following research questions:

Research Questions

1. How is the pervasiveness of cheating and plagiarism in remote online exams due to the Covid-19 pandemic among Vietnamese high school students? Is there a difference in the pervasiveness of cheating and plagiarism by gender groups?
2. Howis the legitimacy of cheating and plagiarism in remote online exams due to the Covid-19 pandemic among Vietnamese high school students? Is there a difference in the legitimacy of cheating and plagiarism by gender groups?
3. Is there a relationship between the pervasiveness and the legitimacy of the above academic dishonesty in remote online examsdue to the Covid-19 pandemic of Vietnamese high school students?

The research results will provide useful evidence for Vietnamese teachers about the status of some dishonestacts in students' online examsimplemented in the context of social distancing due to the Covid-19 pandemic. These findings also help to strengthen the evidence for researchers about learning and teaching in the online environment in general and student performance assessment in particular in terms of academic dishonesty in testing. From these valuable results, the study also proposes to educators, managers and online learning service (or Learning Management System software) providers some suggestions to improve the future quality of remote online exams and similar contexts, andreduce academic dishonesty practices, explicitly cheating and plagiarism, by improving the methods of remote online exams andincreasing the monitoring capability of tools that support remote online exams.

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2. METHODOLOGY

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2.1 Instrument

One of the fundamentalissues in collecting information by questionnaire on sensitive issues, such as academic dishonesty in studying and testing.Respondents' anxiety about their activities in areas of potential disclosure that they believe could have negative consequences for themselves [29]. Although researchers do have statements or procedures to ensure the confidentiality of respondents, several studies have shown that respondents always seem not to put their trust in such assurances. As a result, in many cases, when asked directly about sensitive conduct or matters, they refuse to provide information [30], or information is distorted[31].

Research by Tourangeau and Yan (2007) on sensitive questions in sociological investigation shows that sensitive questions should not be asked directly. Theyshould be asked indirectly based on similar situations that the respondent is not the subject. One of the questioning techniques that have been successfully used in a wide range of research on sensitive topics is the scenario-based approach to question design. Therefore, in order to minimise the inaccuracy in asking directly for information about academic dishonesty in remote online exams, the research team used this question design technique, in which the academic dishonesty in the actual test, specifically in this study, cheating and plagiarism, of students can be eliminated from indirect questions in each specific situation [10].

Based on the questionnaire of Blau and Eshet-Alkalai (2017) on academic dishonesty of high school students in learning in digital and non-digital environments, the research team has designed the tool with the specific content shown in Table s1 below.

Table 1. Measure tool ofcheating and plagiarism acts in remote online exams of high school students

Items	Scenarios
HV01	An posts or places unauthorised learning materials during remote online exams in visible places.
HV02	During the process of taking remote online exams, An sends the answers to his test mates via text messages, Zalo, Messenger, Whatsapp,...
HV03	During the process of taking remote online exams, An sends some notes to answer the test to his test mates via text message, Zalo, Messenger, Whatsapp,...
HV04	During the process of taking remote online exams without using open documents, An uses second devices such as smartphones, ipads, laptops, or other computers to search for answers online.
HV05	An sends requests to groups and forums to ask for help answering test questions during remote online exams.
HV06	During remote online exams, An receives support from his parents, siblings, neighbours,... to answer the test questions
HV07	An automatically adjusts the camera angle to avoid teacher supervision.
HV08	In the remote online exam using open documents on the internet, An "copy & paste" the entire document contents into his test without editing in his own language.

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HV09	In the remote online exam using open documents on the internet, An "copy & paste" the entire document contents into his test without citing the source.

This tool includes 09 situations showing 09 academic dishonesty acts in remote online exams of two groups according to Pavela's classification (1997). The first seven cases are used to measure cheating acts, and the last two are to measure plagiarism in remote online exammethods of high school students. Each situation is answered by students to measure the independent variable of the study, that is the pervasiveness and the perception of the legitimacyof those acts. Students responded to the pervasiveness of academic dishonesty in remote online exams by answering the question: "How common are the following acts of An amongyour classmates?". Next, the students' views regarding the legitimacy of academic dishonesty in remote online exams were measured in each situation by the question: "In your opinion, how legitimate are the following acts of An?".The answer options in both questions are designed using a 5-level Likert scale, specifically, the pervasiveness from 1 (definitely uncommon) to 5 (definitely common); the legitimacy from 1 (definitely not legitimate) to 5 (definitely legitimate).

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In the survey instrument, the questionnaire used the 5-level Likert scale. Therefore, Interval = (Maximum - Minimum)/n = (6-1)/6 = 0.8. Thus, the significance of levels of the interval scale is determined in Table 2 below.

Table 2. The significance of levels of the interval scale

Level	Range	Pervasiveness	Legitimacy
1	1.00 – 1.80	definitely uncommon	definitely not legitimate
2	1.81 – 2.60	quite uncommon	quite not legitimate
3	2.61 – 3.40	quite common	quite legitimate
4	3.41 – 4.20	Common	Legitimate
5	4.21 – 5.00	definitely common	definitely legitimate

2.2 Sample

The survey subjects are high school students (including 10th, 11th and 12th grade) in Hanoi city who have performed remote online exams due to the impact of the Covid-19 pandemic to exploreacademic dishonesty. The study used convenience samplingwith the obtained results of 158 questionnaires. After data cleaning, the data used for the study analysis were 139 questionnaires that met the criteria because the rejected questionnaires did not guarantee the authenticity of the data [33]. Table 2 describes the characteristics of the gender sample of students participating in the questionnaire. The data show that the proportion of female students (55.4%) is higher than the proportion of male students (44.6%) (detailed in Table 2).

Table 3. Research sample

Gender	Number	Percentage (%)
Male	62	44.6
Female	77	55.4
Total	139	100.0

2.3 Data collection

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The team transferred the toolonline using the Google Forms tool. All questions are required to be answered to prevent respondents from missing the question. Then, the online questionnaire was sent directly to the survey respondents through head teachers, and verbal consent was obtained from the participating students. Data collection for the study was conducted over a six-day period from March 29 to April 3, 2022.

2.4 Data analysis

To answer the research questions, the team applied statistical analysis methods. First, descriptive statistical analysis methods are used to determine the pervasiveness of academic dishonesty in exams, as well as to determine the legitimacy of academic dishonesty from their perspective. Next, ANOVA analysis was performed to explore whether the pervasiveness and legitimacy of dishonest acts differed according to the students' genders. Finally, to determine the link between the pervasiveness and legitimacy of academic dishonesty, the team used the Spearman correlation analysis method between these two factors.

3. RESULTS

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3.1How is the pervasiveness of academic dishonesty? Is there a difference in the pervasiveness of academic dishonesty in remote online exams by gender groups?

Through data analysis, it was found that respondents rated it at a quite common level for the overall assessment of the average pervasiveness of dishonest acts, with an average score of about 2.61. However, for each act of dishonesty, the pervasiveness rating by respondents ranged from 2.47 - 2.76. This assessment level is quite uncommon (average score from 1.81 to 2.6) and quite common (average score from 2.61 to 3.4).

Thus, it can be seen that HV01 to HV04 and HV07 are dishonest acts rated at a quite common level on average; the remaining HV05, HV06, HV08 and HV09 are dishonest acts rated as quite uncommon on average.

For the group of cheating acts, HV01, HV04 and HV02, are the acts that all respondents rated as the highest average score, the lower as HV07 and HV03. In addition, all five of these acts were rated at a quite common score. Particularly, HV05 and HV06 in this group are two acts that are rated as quite uncommon in academic dishonestyacts when performing remote online exams.

For the group ofplagiarism, the results show that both HV08 and HV09 are rated quite uncommon by respondents, with ratings of 2.48 and 2.47 points, respectively.

In addition, the analysis results show a difference in the assessment of the pervasiveness of academic dishonesty between male and female students. While male students rate the average pervasiveness of these dishonest acts at 2.72 - this is a quite common rating; the female students only rated them with the average pervasiveness of 2.52 - which is an uncommon rating. Furthermore, looking at the data analysis table, on average, male students tend to rate the pervasiveness of dishonest acts higher than female students in most of the assessed items.The only exception is that HV03 is rated less common among male students than female students, and HV02 and HV08 are acts that both groups rated the same level of pervasiveness.

The data in Table 3 also show that HV05 and HV07 are the two acts with the highest difference in the two groups of students, with an average score

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difference of 0.59 and 0.45 points, respectively. HV06, HV04, HV01 and HV09 had a slight difference in the assessment of male and female students, ranging from 0.12 to 0.28 points. Of these four acts, except for HV06, there are slight differences between the three acts, HV04, HV01 and HV09, but the two groups still rate them at the same level on the rating scale. The remaining three acts,HV02, HV03 and HV08, have no difference in assessing the pervasiveness of academic dishonesty between male and female students.

Table 4. The pervasiveness of dishonest acts

Items	Total	Male	Female	Male - Female
Total	2.61	2.72	2.52	0.20
HV01	2.76	2.87	2.68	0.20
HV02	2.71	2.71	2.71	0.00
HV03	2.62	2.60	2.64	-0.04
HV04	2.75	2.87	2.65	0.22
HV05	2.55	2.87	2.29	0.59
HV06	2.49	2.65	2.36	0.28
HV07	2.67	2.92	2.47	0.45
HV08	2.48	2.48	2.48	0.00
HV09	2.47	2.53	2.42	0.12

The results of the ANOVA analysis in Table 4 show that there are two acts, HV05 and HV07, with Sig < 0.05, so it can be concluded that there is a statistically significant difference in the pervasiveness of academic dishonesty between male and female students in the two acts. The act HV05 - An sends requests to groups and forums to ask for help answering test questions during remote online exams - has (F(1,137)=10.696, P=.001), and HV07- An automatically adjusts the camera angle to avoid teacher supervision - has (F(1,137)=5.726, P=0.018).

Table 5. Results of ANOVA analysis on the pervasiveness of academic dishonesty in remote online exams by gender groups

		Sum of Squares	Df	Mean Square	F	Sig.
Total	Between Groups	1.392	1	1.392	1.777	.185
	Within Groups	107.284	137	.783		
	Total	108.676	138			
HV01	Between Groups	1.315	1	1.315	1.073	.302
	Within Groups	167.851	137	1.225		
	Total	169.165	138			
HV02	Between Groups	.001	1	.001	.001	.980
	Within Groups	166.488	137	1.215		
	Total	166.489	138			
HV03	Between Groups	.054	1	.054	.043	.836

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	Within Groups	170.738	137	1.246		
	Total	170.791	138			
HV04	Between Groups	1.687	1	1.687	1.295	.257
	Within Groups	178.500	137	1.303		
	Total	180.187	138			
HV05	Between Groups	11.764	1	11.764	10.696	.001
	Within Groups	150.682	137	1.100		
	Total	162.446	138			
HV06	Between Groups	2.722	1	2.722	2.390	.124
	Within Groups	156.012	137	1.139		
	Total	158.734	138			
HV07	Between Groups	7.011	1	7.011	5.726	.018
	Within Groups	167.766	137	1.225		
	Total	174.777	138			
HV08	Between Groups	.000	1	.000	.000	.985
	Within Groups	154.705	137	1.129		
	Total	154.705	138			
HV09	Between Groups	.468	1	.468	.444	.506
	Within Groups	144.137	137	1.052		
	Total	144.604	138			

3.2How is the legitimacy of academic dishonesty? Is there a difference in the legitimacy of academic dishonesty in remote online exams by gender groups?

Through data analysis on the legitimacy of academic dishonesty in remote online exams, it was found that the average rating of acts from HV01 to HV09 ranged from 2.04 to 2.15 points. - this is a quite not legitimacy rating (between 1.81 - 2.6 points). The most illegitimate rating is for the acts HV01, HV04, HV08 and HV09, respectively - in both cheating and plagiarism groups.

For the cheating group, the acts were rated as quite illegitimate, in which HV03, HV06 and HV07 were the acts that respondents rated as being higher than the remaining acts.For the plagiarism group, both two acts were rated as quite illegitimate by respondents.

In addition, the results also found a slight difference in the assessment of the legitimacy of academic dishonesty between male and female students, ranging from 0.06 - 0.24 points. In particular, male students tend to rate the legitimacy of these acts higher than female students in all 09 assessed acts. Of these acts, the highest difference in assessment between these two groups of students is in HV02 and HV01, with the range of 0.24 - 0.23 points, and the lowest in HV09 with 0.06 points.It can be said that in this act, there is almost no difference in assessment between male and female students.

Table 6. The legitimacy of academic dishonesty in remote online exams

Items	Total	Male	Female	Male - Female

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Total	2.10	2.19	2.03	0.16
HV01	2.04	2.16	1.94	0.23
HV02	2.09	2.23	1.99	0.24
HV03	2.14	2.21	2.09	0.12
HV04	2.06	2.16	1.99	0.17
HV05	2.12	2.18	2.08	0.10
HV06	2.15	2.29	2.04	0.25
HV07	2.15	2.23	2.09	0.13
HV08	2.05	2.13	1.99	0.14
HV09	2.06	2.10	2.04	0.06

The results of ANOVA analysis in the table below show that theacts,HV03, HV04, HV05, HV07 and HV09, with Sig > 0.05, so it can be concluded that there is no statistically significant difference in the legitimacy of academic dishonest in the groups of cheating and plagiarism between the two groups of male and female students in these acts.

Table 7. Results of ANOVA analysis on the legitimacy of academic dishonesty in remoteonline examsby gender groups

		Sum of Squares	Df	Mean Square	F	Sig.
Total	Between Groups	.884	1	.884	1.101	.296
	Within Groups	109.992	137	.803		
	Total	110.876	138			
HV03	Between Groups	.484	1	.484	.413	.521
	Within Groups	160.638	137	1.173		
	Total	161.122	138			
HV04	Between Groups	1.043	1	1.043	.875	.351
	Within Groups	163.374	137	1.193		
	Total	164.417	138			
HV05	Between Groups	.340	1	.340	.294	.589
	Within Groups	158.581	137	1.158		
	Total	158.921	138			
HV07	Between Groups	.625	1	.625	.582	.447
	Within Groups	147.202	137	1.074		
	Total	147.827	138			
HV09	Between Groups	.115	1	.115	.099	.753
	Within Groups	158.302	137	1.155		
	Total	158.417	138			

Results of the Welch analysis below show that the Sig of the measured dishonest acts, HV01, HV02, HV06 and HV08, are all greater than 0.05. So it

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can be concluded that there is no statistical difference in the level of legitimacy of dishonest acts in groups of cheating and plagiarism between male and female students in these acts.

Table 8. Welch analysis results on the legitimacy of academic dishonesty in remote online exams by gender groups

		Statistic	df1	df2	Sig.
HV01	Welch	1.402	1	113.884	.239
HV02	Welch	1.977	1	110.950	.162
HV06	Welch	1.884	1	108.504	.173
HV08	Welch	.614	1	116.856	.435

3.3 What is the relationship between the pervasiveness and the legitimacy of academic dishonesty?

The Spearman correlation analysis method was performed to determine the association between the pervasiveness and the legitimacyof acts. The results show that, in general, there is a positive correlation between the pervasiveness and legitimacy of academic dishonesty in remote online exams, with r = 0.305, p < 0.01. This is the level average correlation. It can be understood that when the pervasiveness of academic dishonesty increases by one unit, the legitimacy of these dishonest acts tends to increase by 0.305 units.

Looking at each group of acts, for the cheating group, the analysis results in Table 9 show that there are 03 acts, HV01, HV02 and HV04, with no statistically significant relationship between the legitimacy and the pervasiveness because the Sig of these 03 acts is greater than 0.05. The remaining acts, HV03, HV05, HV06 and HV07, have a statistically significant relationship between legitimacy and pervasiveness because the Sig of these 04 acts is less than 0.05 with the correlation of these 04 acts, respectively, r = 0.246; 0.169; 0.295 and 0.344.

For the group of plagiarism, both acts have a statistically significant correlation between legitimacy and pervasiveness, with Sig less than 0.05 and r as 0.262 and 0.212, respectively.

In general, among all acts with significant correlation, only HV07 has the highest correlation value between pervasiveness and legitimacy, with r = 0.344, a confidence intervalof 99% - that's the average correlation. The remaining acts have a weak correlation.

Table 9. Correlation analysis results between the pervasiveness and legitimacy of academic dishonesty in remote online exams

		Pervasiveness									
		Total	HV01	HV02	HV03	HV04	HV05	HV06	HV07	HV08	HV09
Legitimacy	Total	**.305****	0.163	.211*	.265**	.195*	.178*	.332**	.361**	.302**	.221**
	HV01	.265**	**0.161**	.187*	.316**	.180*	0.165	.315**	.275**	.242**	.215*
	HV02	.223**	0.094	**0.125**	.177*	0.156	0.147	.242**	.260**	.297**	.248**
	HV03	.274**	.168*	.245**	**.246****	.254**	0.135	.371**	.281**	.231**	0.121
	HV04	.284**	0.149	.188*	.308**	**0.139**	0.161	.303**	.306**	.253**	.230**
	HV05	.312**	0.142	.231**	.248**	.217*	**.169***	.288**	.363**	.319**	.183*
	HV06	.260**	.169*	.173*	.182*	0.145	0.134	**.295****	.300**	.220**	.226**

HV07	.299**	.179*	.269**	.222**	0.163	.230**	.345**	**.344****	.274**	.190*
HV08	.229**	0.057	0.154	.233**	0.166	0.067	.334**	.309**	**.262****	.171*
HV09	.276**	0.108	.230**	.259**	0.142	0.142	.311**	.308**	.334**	**.212***

** p> 0.05, * p <= 0.05, ** p <= 0.01*

FINDINGS OF THE STUDY

4. DISCUSSION AND CONCLUSION

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Research has shown the current status of the pervasiveness and legitimacy of groups of cheating and plagiarism acts in remote online exams of high school students in Vietnam due to the Covid-19 pandemic. By using a scenario-based approach to design the questionnaire, the research team modified the questionnaire of Blau and Eshet-Alkalai (2017) on the dishonesty in learning of high school students in the digital environment to build a tool to collect data from high school students on this issue. Several statistical analysis methods were used to analyse the collected data. First, the descriptive statistical analysis method is used to determine the pervasiveness of dishonest acts in remote online exams, as well as to determine the legitimacy of dishonest acts from the students' perspectives. Then, the ANOVA analysis was performed to explore whether the pervasiveness and legitimacy of academic dishonesty differed according to the gender groups. Finally, to determine the correlation between the pervasiveness and legitimacy of academic dishonesty, the team used Spearman correlation analysis between these two factors. The research findingswill be discussed below.

Firstly, about the pervasiveness of two groups of dishonest acts in remote online exams, the analysis results show that, in general, the pervasiveness of dishonest acts is assessed as quite common (average score of 2.61). Some previous studies have also demonstrated that some academic dishonesty acts in remote online exams, such as cheating, are easier to perform than in traditional offline exams [34]. However, cheating motivations in online and offline exams are not significantly different [35]. More specifically, the results on the group of cheating indicate that the most common acts are: Students look for answers in learning materials placed in locations that cameras cannot monitor; Students send test answers to each other through an intermediary device, use devices and search tools on the internet to find answers, as well as adjust the camera's rotation angle to avoid remote supervision from teachers. These acts of cheating with high pervasiveness are also found in studies of online testing or assessment during distance learning due to the impact of the Covid-19 pandemic [36,5,16].Meanwhile, the analysis results for acts of plagiarismshow that acts belonging to this group are not common in remote online exams. This is understandable because in this context, the remote online exams of high school students in Vietnam are all closed-ended and time-limited exams. Meanwhile, the analysis results on the legitimacy of these acts are rated as quite illegitimate (average score of about 2.10). This result is consistent with the discovery of Blau and Eshet-Alkalai (2017) on the group of cheating but is not consistent with the group of plagiarism in digital settings. This shows that high school students in Vietnam have a fairly good perception of the legitimacy of dishonest acts in online testing. However, this issue requires future empirical studies with a larger sample structure to provide solid evidence for this statement.

Secondly, in terms of gender, for the pervasiveness of dishonest acts in remote online exams, the results have shown that there is a difference in the assessment of the pervasiveness of some dishonest acts in remote online

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exams between male and female students. In which, male students tend to rate the pervasiveness of these acts higher than female students in most of the assessed behaviours. However, the ANOVA analysis in Table 4 shows that there are only two acts of sending requests to groups and forums on the internet to receive support for answers and self-adjusting the camera's rotation angle in the process of doing the test (Sig < 0.05) is statistically significant in the pervasiveness of these acts between these two groups of students. Meanwhile, the research results of Kapardis and Spanoudis, (2021) on cheating in e-examinations during the Covid-19 period show no difference in cheating in particular and academic dishonesty in general in remote online exams between male and female students. This is also confirmed by the quantitative data in the study on the factors affecting exam dishonesty byElsalem et al. (2021). Thus, with these study findings, the pervasiveness of dishonest acts in online testing requires more empirical research to confirm gender differences or influenceleading to these behaviours. Regarding the legitimacy of dishonest acts in remote online exams, the analysed data showed a slight difference in the assessment of the legitimacy of dishonest acts between male and female students, with the tendency of male students to rate the legitimacy of all 09 acts higher than female students. However, according to the analysis results by both ANOVA and Welch methods, this difference is not statistically significant regarding the legitimacy of dishonest acts between male and female students in these behaviours.

Thirdly, on the correlation between the pervasiveness and the legitimacy of act groups, the analysis results show that, in general, there is a positive correlation ($r = 0.305$, $p < 0.01$). This is the average correlation. This suggests that when the frequency of dishonest behaviours or the pervasiveness of these behaviours increases, it will lead to students thinking that these behaviours have a higher level of legitimacy. According to Duhigg (2012), the formation of habits in life as well as in work is explained by a three-step neurological pattern that forms the core of every habit, including Cue - Routine - Reward. Bad behaviours, if given the opportunity to perform and then receive rewards, will create bad habits. This is an important and alarming discovery for educators, teachers as well as school administrators who need to pay attention to take measures to prevent and minimise the possibility of committing students' academic dishonestybecoming their habits. Specifically, with the group of cheating, the analysis results in Table 9 show that only 04 acts, HV03, HV05, HV06 and HV07, have a statistically significant relationship between legitimacy and pervasiveness. variable (Sig < 0.05), with the correlation level of these 04 acts as r = 0.246; 0.169; 0.295 and 0.344, respectively. Meanwhile, for the group of plagiarism, both acts have a statistically significant relationship between legitimacy and pervasiveness, with Sig < 0.05 and r = 0.262 and 0.212, respectively. These findings may suggest that these dishonest acts need more attention so that timely interventions can be taken to prevent these acts from being performed in online testing. In particular, the act of self-adjusting camera angle to compete for remote surveillance has the highest correlation between pervasiveness and legitimacy (r = 0.344 and 99% confidence interval). Thus, there should be stricter regulations on the application of monitoring systems in supervised online exams and improving the effectiveness of these monitoring systems.

The study findings are not only useful evidence for educators, managers and teachers in Vietnam about the current status of some academic dishonesty acts in students' online tests conducted in the context of social distancing due to the Covid-19 pandemic, but also help to suggest ways to improve the quality of

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remote online exams by reducing academic dishonesty. Along with that, the use of technologies in reducing dishonest acts in remote online exams in particular and online testing, in general, is also suggested based on the research results, which will increase the reliability of more accurately assessingstudents' learning outcomes, thereby contributing to improving the quality of online teaching and learning. This requires the participation and coordination of researchers on testing and assessment in education, schools, teachers and units providing tools/software to support testing implementation in online environments.

Although this study has contributed to the theory and practice of online testing/assessment in emergency situations and increased understanding of the field in the academic community, it still has some limitations. First, the convenience sampling method lacks clear generalisability [39]. Second, the study has not made a comparison between different regions such as rural, urban and areas to provide a more comprehensive picture of the use of remote online exams across Vietnam. Therefore, as aforementioned, larger-scale studies are highly needed to investigate this issue further.

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APPENDIX

Appendix 1. The results of Leveve analysis on the pervasiveness of academic dishonesty in remote online exams

	Levene Statistic	df1	df2	Sig.
Total	.089	1	137	.766

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HV01	.723	1	137	.397
HV02	.004	1	137	.953
HV03	.056	1	137	.813
HV04	.000	1	137	.994
HV05	.189	1	137	.664
HV06	.370	1	137	.544
HV07	1.913	1	137	.169
HV08	.798	1	137	.373
HV09	.023	1	137	.880

Appendix 2. The results of Leveve analysis on the legitimacy of academic dishonesty in remote online exams

	Levene Statistic	df1	df2	Sig.
Total	3.822	1	137	.053
HV01	5.859	1	137	.017
HV02	7.955	1	137	.006
HV03	1.700	1	137	.194
HV04	2.490	1	137	.117
HV05	.756	1	137	.386
HV06	9.794	1	137	.002
HV07	2.139	1	137	.146
HV08	4.375	1	137	.038
HV09	1.340	1	137	.249

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