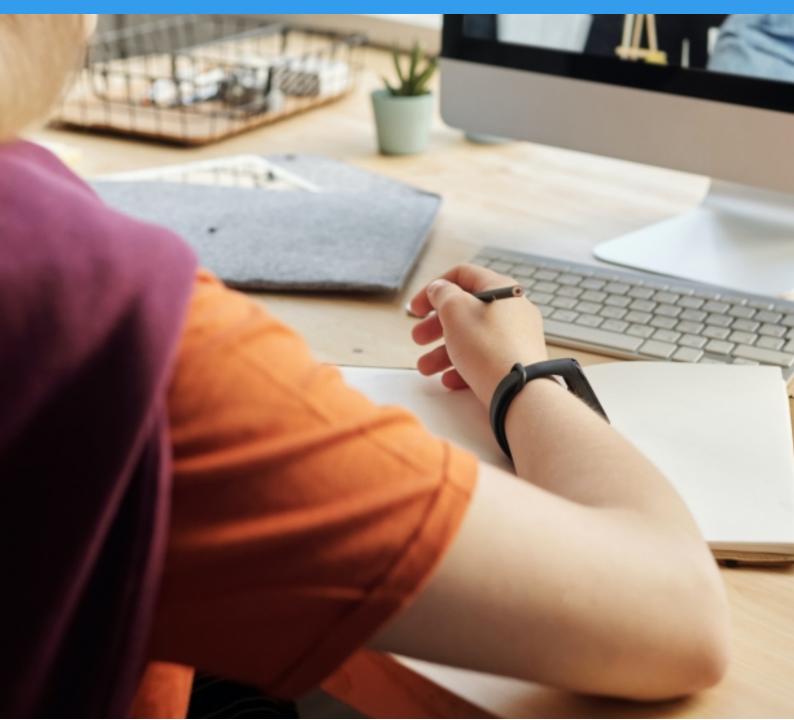# Remote Learning and Productivity Rates: The Experiences of University Students in ASEAN.

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Remote Learning and Productivity Rates:
The Experiences of University Students in ASEAN.

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Acknowledgements

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Abstract

COVID-19 pandemic has changed how students around the world maintain and develop their productivity, especially due to the increased prevalence of remote learning. Students must shift their learning environment from in-person learning to remote learning due to the various lockdown situations as directed by each country's regulations. Consequently, there would be pros and cons of transitioning to remote learning. Common challenges that university students in Southeast Asian countries face during online classes include technical concerns, lack of in-person interaction, distractions, time management, and other issues. Additionally, the most significant advantage of online learning over an offline one is the possibility to access limitless materials and meet individuals from all over the world.

Although there have been numerous studies on productivity and online learning in Western contexts, such as in the US[1] Empirical data on the effect of online learning on quantifiable productivity measures across ASEAN is still lacking. Therefore, this research intends to analyze the impact of remote learning in encouraging their productivity and their motivation to pursue their aspirations. The survey is designated for university students from any ASEAN countries and will be analyzed using a quantitative descriptive analysis method. The data is collected from 204 participants across all ASEAN countries. By the end of this paper, this study provides policy recommendations to alleviate some negative impacts of remote learning and support ASEAN students in being more productive during remote learning.

Keywords: COVID-19, Productivity, Remote Learning, University Students.

Introduction

During the current COVID-19, the role of education has become even more prevalent. As most ASEAN countries have to switch to online learning, education inevitably became a catalyst for digitalization. As suggested by Kravchenko O and others (2019) Digitalization is one of the world's most vital engines of innovation, competitiveness, and economic development.

Conversely, over the last few years, the transfer of knowledge has also been made easier due to technological progress in many countries. With the right measures in place, both education and digitalization have the potential to complement and enhance each other.

As of 9 March 2020, the World Health Organization (WHO) declared the Coronavirus disease (COVID-19) as a pandemic and various restriction policies were enacted across the world. New remote learning and working from home policies were then introduced as measures to contain the spread of COVID-19. Technical concerns, lack of in-person interaction, distractions, time management, and other issues are some of the main challenges that most students confront during online lessons. To catch up with the current learning condition, students need digital inclusion which is defined by four essential aspects: (1) accessibility to the digital world, (2) affordability or financial capability towards the digital access, (3) digital literacy, and (4) the right attitude towards digital opportunities, policies, and safety.

The transformation of learning methods due to the COVID-19 pandemic has considerably impacted how the ASEAN youths spend time learning and working effectively. Osman et al. (2021) define employee productivity as "an efficiency evaluation of an employee or a group of employees". It also argues that students' productivity could affect their achievement, especially in the pandemic period when the learning method shifted instantly from face-to-face meeting to a virtual remote learning. According to the report from the World Economic Forum (WEF) released in 2020 about the impact of social distancing among ASEAN youth, 84% of the respondents (among 68,574 participants between age 16 and 35 from six countries in ASEAN) stated that they do not feel comfortable using digital tools—which may cause difficulties when working online, and 69% agreed that working or learning remotely is very difficult. Several countries including Myanmar (24.4%), Philippines (17.7%), and Laos (1.7%) are below the world average when it comes to the proportion of households with internet access. However, remote learning has offered significant advantages due to the massive development of digital platforms, infrastructures, and tools. Thus, even students who stated that they learned less during the remote learning period claim to have received a wider access to a limitless knowledge or materials. As reported by Hermanto et al. (2021), 91.6% of students stated that remote learning helped them acquire knowledge and skills through various sources. This means that online learning only potentially benefits ASEAN students' productivity by providing opportunities to gain access to new information.

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Introduction

The ability and attitude towards the digital world which is implied by the digital literacy skills have also affected ASEAN university students' productivity. Kusumastuti and Nuryani (2019) explained that a person with a high level of digital literacy will be more likely to work effectively because he or she is well-prepared in analyzing, synthesizing, evaluating, criticizing and developing digital content and any other digital platforms. Consequently, that person is more adaptable to meeting the requirements in any organizations or companies, especially in the current Industrial 4.0 Revolution. Recognizing the importance of digital literacy, governments have invested in education and launched many projects to improve the level of digital literacy skills. The digital literacy level among ASEAN countries varies albeit less noticeable, from Singapore in the first rank to Cambodia in the eighth rank. 65.4% of Singaporeans are confident in government-provided websites and applications. In addition, the government initiated free Wi-Fi hotspots. On the other hand, the Cambodian government has not allowed free access to public Wi-Fi hotspots including in the cities—which causes a great challenge for employees to work.

Studies such as Hermanto et al. (2021) and Osman et al. (2020) have discussed the benefits and challenges of online studies among ASEAN university students. However, empirical data on the effect of online learning measures on quantifiable productivity measures across all ASEAN is still lacking. A study by Stewart et al. analyzed the relationship between time management skills among American students and the number of online courses taken, GPA, and employment rate. Similar approach could also be used in the context of ASEAN students to accurately measure productivity. Besides, the idea that these measures of productivity might vary from country to country has also not been explored in previous studies and so far, there are not many international studies related to this topic.

By analyzing the impact of online learning in encouraging ASEAN university students' productivity, as well as their motivation to pursue their aspirations during the remote learning period, this research aims to determine the impact of remote learning due to the COVID-19 outbreak.

Background

As a diverse region, education has a crucial role in bridging the gap between the more developed and the less developed countries in ASEAN.

As said by Horace Mann, a 19th Century American Educator, "education, beyond all other devices of human origin, is the great equalizer of the conditions of men, the balance-wheel of the social machinery". In a study conducted in China by Choy LHT and Li VJ (2017) Education has been shown to promote urbanization. A better quality of education among students in developing ASEAN countries such as Indonesia, Vietnam, Lao, etc. can therefore lead to more urbanization in these countries, hence giving them the opportunity to catch up with other more developed nations.

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Methodology

Respondents

This quantitative research uses random sampling techniques. This research was disseminated to 204 university students across ASEAN countries using an online questionnaire. The data analysis technique used in this study is the descriptive statistical analysis to describe the relationship between variables. Productivity before and during remote learning is compared using measurement on a scale of one to five and analyzed using the Wilcoxon Test.

Limitations

There are also three limitations to this study. One key limitation of this research is our survey sample. Indonesian university students made up a large majority of the survey respondents (a total of 81.7%). However, students from different countries may possess different learning styles and are affected by different levels of economic and technological development. How they react to remote learning will therefore vary. This causes the finding to be biased towards the Indonesian students and consequently reduces the reliability of the final findings.

On top of that, self-reported data such as the perception of motivation and the measure of productivity may be subject to personal biases such as selective memory and exaggeration. For instance, how a student values his or her own level of productivity may be different from other students. Some students are also more likely to recall their unpleasant experiences during remote learning more than the pleasant ones, causing them to underrate their overall remote learning experience. However, through the provision of standardized surveys, which included the use of neutrally-worded questions, response biases were kept to a minimum. By using a general set of questionnaires for all our survey respondents, the results that we obtained will be more standardized and generalizable as opposed to using some qualitative methods, such as semi-structured interviews.

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Results & Findings

a. Productivity during Remote Learning

This section describes students' productivity in terms of education or involvement on an online platform amid virtual learning. Table 1 demonstrates how much time (in hours) students spend utilizing technological devices during their remote learning. According to the responses, approximately 52.5% of students attended 6 to 10 lectures weekly during the remotely learning period, while 32.2% of the population attended 0 to 5 lectures. 11.7% participated in 11-15 lectures, and 3.5% attended between 16 to 20 lectures.

No. of Hours	No. of Students	Percentage
0-5	69	32.2%
6-10	105	52.5%
11-15	22	11.7%
16-20	7	3.5%
Total	203	100%

Table 1: Weekly hours spent on remote learning.

Results & Analysis

Table 2 shows how ASEAN university students' participation has shifted during online lectures. Based on the responses, the result demonstrated that 38.8% of the respondents experienced an increase of activity in answering the lecture questionnaire and another 47.89% reported increased activity in group discussion participation. Aside from that, 38.8% of the respondents reported an increased concentration while attending online lectures, while a mere 4% reported having less focus. However, only 2% of the participants experienced less active participation during their online classrooms, as compared to their offline classes. Furthermore, that shows the percentage of other suggestions is around 1.48%. These results have shown that a majority of ASEAN university students in the study reported an increase in their level of participation during the remote learning period in comparison to before. On the other hand, lower motivation to study could result in lower level of focus and activity during the remote learning period.

Change in Participation	No. of Students	Percentage
More active in participating in a group discussion	100	47.89%
More focus during online lectures	81	38.8%
More active in answering question from lectures	75	35.9%
Less focus	8	4%
Less active	5	2%
Other	3	1.48%

Table 2: Change in level of participation during remote learning.

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Table 3 indicates students' feelings after their online classes. According to the responses, the most common feelings during online presentations are tiredness and boredom, as demonstrated by 29.5% and 10% of the respondents respectively. Students' reported symptoms which have impacted their remote learning are: physical pain (resulting from prolonged sitting time), physical exhaustion, dizziness, sleepiness, anger, and weakened memory. Moreover, some respondents stated that online sessions put them under too much pressure. Aside from that, it was unbelievable for students who were happy while studying online to obtain only 1%, as the bar chart shows below, but it was for us. Nevertheless, the majority of them are not recommended by 55.5% of people.

Feelings	Frequency	Percentage
Tired	64	29.5%
Bored	23	10%
Confused	4	2%
Uncomfortable	3	1.48%
Happy	2	0.99%
None	111	55.5%
Grand Total	203	100%

Table 3: Feelings after participating in online classes.

Results & Analysis

Table 4 lists some symptoms that students experience during their online classes. The vast majority of the students are stressed (71.7%) and 70.3% reported experiencing eye strain. Aside from that, it is shown that 55.7% and 54.7% of students are anxious and overwhelmed during their online courses respectively. In addition, 35.8% of the students feel isolated during their online classes.

Symptoms	Frequency	Percentage
Stressed	152	71.7%
Eye-strain	149	70.3%
Anxious	118	55.7%
Overwhelmed	116	54.7%
Isolation	76	35.8%

Table 4: Symptoms during participation in online class.

Students were questioned further about their experience while taking online courses by categorizing their experiences as listed in Table 5. These are (1) more homework, (2) more quizzes and/or exams, (3) easier time management, (4) easier material comprehension, (5) more motivation to attend lectures, and (6) more motivation to self-study. Furthermore, as shown in the table, the percentages of students experiencing more homework are 72.2% and those who experience more quizzes and/or exams are approximately 38.7%. Nearly 37.3% of the students find it easier to manage time when studying at home, while 11.8% find it easier to understand the materials and 39.90% more motivated to attend lectures. On top of that, 35.8% of the students suggested that they feel more motivated to self-study during the remote learning period.

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Experience	Frequency	Percentage
More homework	153	72.2%
More quizzes and/ or exams	82	39.90%
More motivation to attend lectures	81	38.7%
Easier to manage time	79	37.3%
More motivation to self-study	76	35.8%
Easier to understand the materials	25	11.8%

Table 5: Experience with remote learning.

b. Productivity in terms of pursuing aspirations

This section explains students' productivity during remote learning in terms of education or career field and the skills related to it. Students were asked about what they think their priority during the remote learning period is. Referring to the responses, as many as 65.02% stated that education is still their main priority, 19.70% of students prioritize looking for a job, 12.32% of students prioritize starting or running a business, and only 2.96% of students prioritize gaining experiences. The data indicates that a majority of the students have not prioritized non-academic activities as mentioned above. In addition, the number of students who are willing to have a job is greater than those who are willing to run a business or become an entrepreneur. Besides, only a few students stated that gaining experience is their current priority.

Another question is whether their motivation in terms of pursuing their goal changes due to the remote learning situation. As presented in Table 6, the majority 39.90% of students felt that they are more motivated while the other 32.51% students felt less motivated and 27.59% felt no change. These results show that the shifting of learning methods from the traditional learning to remote learning affects more students to feel more motivated rather than those who feel less or the same.

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Items	Frequency	Percentage
Priorities		
Education/Training	132	65.02%
Looking for a job	40	19.70%
Starting/running a business	25	12.32%
Gaining experiences	6	2.96%
Total	203	100.00%
Motivation		
More motivated	81	39.90%
Education/Training	53	26.11%
Looking for a job	16	7.88%
Starting/running a business	10	4.93%
Gaining experiences	2	0.99%
Less motivated	66	32.51%
Education/Training	42	20.69%
Looking for a job	13	6.40%
Starting/running a business	9	4.43%
Gaining experiences	2	0.99%
Similarly motivated	56	27.59%
Education/Training	37	18.23%
Looking for a job	11	5.42%
Starting/running a business	6	2.96%
Gaining experiences	2	0.99%
Total	203	100.00%

Table 6: Students' priorities or aspirations and their motivation towards achieving it.

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High demand for the emerging skill sets might be the leading cause of high motivation. However, it is apparent from Table 7 that their overall productivity during pandemic is less than before pandemic happened as shown on the Wilcoxon signed rank test result. Although there was no statistically significant difference of learning productivity because of COVID-19, the result still represents that the negative ranks item (means the decreasing of students' productivity) is higher than the positive ranks (means the increasing of students' productivity). Thus, it seems possible that despite more students' motivation being higher during the pandemic, this does not necessarily mean that they did more non-academical productive activities together with their academic activities in online lectures. This is not surprising because as shown in Table 3, students tend to find online lectures activity quite exhausting and Table 7 also shows that students felt the decrease of productivity during remote learning.

Before-After Pandemic Productivity			
	N	Mean Rank	Sum of Ranks
Negative Ranks	108	108.74	11744.00
Positive Ranks	95	94.34	8962.00
Ties	0		
Total	203		

Table 8: Students' Before and After Pandemic Productivity.

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Table 8 shows that students who are at least interested in one field of education, training, or career is as many as 92.61% whilst the rest 7.39% are interested in more than one field. Further analysis on the interested fields based on the survey responses are mentioned in the table. Even though as many as 11.76% students are still confused about what field will likely suit them, the other major responses above 5% were interested in arts, audio/video technology, and communications (movie or broadcasting industry, public speaker, fashion, content writer, digital design, and others), health science (psychology, health science, and pharmacist), Business, Management, and Administration (entrepreneurship, manager, and administration stuffs course such as office tools course), Science, Technology, Engineering, and Mathematics (biomedical engineering, medical engineering, chemical engineering, scientist, researcher, and others), and information technology (data science, telecommunication industry, and UI/UX designer).

Items	Frequency	Percentage
Picked fields of Education, Training, or Career		
1	188	92.61%
2	12	5.91%
3	3	1.48%
	203	100.0%
Fields		
Arts, Audio/Video Technology, and Communications	29	13.12%
Anything suits me	26	11.76%
Health science	19	8.60%
Business, Management, and Administration	18	8.14%
Science, Technology, Engineering, and Mathematics	14	6.33%
Information Technology	13	5.88%
Human Services	11	4.98%
Language and culture	11	4.98%
Finance	10	4.52%
Social and Economics	9	4.07%
Agriculture, Food, and Natural Resources	8	3.62%
Marketing, Sales, and Service	8	3.62%

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Education and Training	8	3.62%
E-commerce	7	3.17%
Government and Public Administration	7	3.17%
Others	5	2.26%
Leadership	5	2.26%
Manufacturing	4	1.81%
Higher Degree	4	1.81%
Law, Public Safety, Corrections, and Security	3	1.36%
International Relations	2	0.90%
Total	221	100.00%

Table 8: Students' interest in fields of education, training, or career.

As table 9 shows, as many as 54.19% students believe that their new skill is related with their professional priorities or aspirations while 36.45% feel uncertain and the minority 9.35% claim that their new skill is not related to their priorities or aspirations. The second item provides the total of their new skills then it could be seen that 57.14% have learned at least one new skill and the rest 42.86% have learned more than one new skill during remote learning. Moreover, about 72.41% students in majority consider themselves capable of one more new skill and the rest 31.53% consider learning more than one new skill in the future.

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Items	Frequency	Percentage
Skills relation to aspiration		
Yes	110	54.19%
Maybe	74	36.45%
No	19	9.36%
Total	203	100.00%
Total learned skills		
1	116	57.14%
2	64	31.53%
3	17	8.37%
4	6	2.96%
Total	203	100.00%
Total expected skills		
1	72	25.44%
2	64	22.61%
3	44	15.55%
4	35	12.37%
Total	203	100.00%

Table 9: New skills in relation to their professional priorities and aspirations.

Results & Analysis

Students were also questioned further about their skills as shown in table 10. New skills that are learned by more than 5% of respondents are (1) art, design, music, and sport, (2) soft skills, and (3) computer and IT, (4) digital marketing, and (5) language, literature, and writing. On the other hand, some skills which the respondents expect to learn are (1) soft skills, (2) art, design, music, and sport, (3) digital marketing, (4) computer and IT, and (5) language, literature, and writing. Referring to the answers, skills related to art, design, music, and sport are graphic design, photography, content creating, editing, playing music instruments, and others. Leadership, communication, public speaking, time management, teamwork, and others are concluded as soft skills. Programming, coding, office tools, data science, and others are concluded as computer and IT skills. Marketing and copywriting are concluded as digital marketing skills.

Besides, proficient in certain languages, fiction writing, and journalistic are concluded as language, literature, and writing. Based on the analysis, those five skills are considered essential for ASEAN university students nowadays as those skills were mentioned both in the skills they already learned and the skills they want to learn more. Recent studies found that the skills gaps would be greater in the next 5 years and some soft-skill set that could lessen these gaps are critical-thinking, analysis, problem solving, and self-management. The other author also concluded that leadership, social influence, and emotional intelligence as parts of interpersonal skill that might be required the most in the future. Furthermore, technology adoption would be wider and increasing in almost every aspect of life. This leads to the importance of digital ability and digital literacy skills within youths. In relation to these studies and our findings about students' new skills and expected skills, it could be stated that ASEAN university students are able to recognize the skills needed to support their future as defined by the future global condition.

Items	Frequency	Percentage
New skills		
Art, design, music, and sport	88	27.59%
Soft skill	76	23.82%
Computer and IT	41	12.85%
Digital Marketing	37	11.60%
Language, literature, and writing	30	9.40%
Data science, research, and academic writing	11	3.45%

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Finance and Accounting	3	0.94%
Others	2	0.63%
Human Resource	2	0.63%
Engineering	2	0.63%
Project Management	2	0.63%
Total	319	100.00%
Expected skills		
Soft skill	72	25.44%
Art, design, music, and sport	64	22.61%
Digital Marketing	44	15.55%
Computer and IT	35	12.37%
Language, literature, and writing	24	8.48%
Economics and Business Management	11	3.89%
Data science, research, and academic writing	9	3.18%
Others	6	2.12%
Finance and Accounting	6	2.12%
Still uncertain	5	1.77%
Engineering	3	1.06%
Human Resource	2	0.71%
Any skill suits me	2	0.71%
Total	283	100.00%

Table 10: New skills learned during remote learning.

Conclusion & Recommendations

ASEAN university students' productivity during remote learning has been a topic that needs further investigation for their improvement and adaptability in a post-COVID world.

Based on the data provided from this research, ASEAN students are more engaged during remote learning, especially when it comes to group discussion activity (47.89% of total respondents). However, after their online classes, university students have reported relatively high levels of stress (71.7%) and anxiety (55.7%), as well as eye-strain (70.3%). Students also reported receiving more schoolwork than before, when they were in face-to-face classes. Thus, it is recommended that universities pay more attention to students' mental health, such as by allocating breaks in between remote learning classes, reviewing the amount of homework given, and providing avenues for psychological or socio-emotional consultation. This is an important issue for future research because if students' mental and physical health are not secured, they may be consequential problems that would lower productivity rates.

ASEAN students are also more motivated to learn new skills during the pandemic, to expand their knowledge and career options, with some also taking up additional online learning courses. Most university students expect to learn top 5 skills: (1) soft skills, (2) art, design, music, and sport, (3) digital marketing, (4) computer and IT, and (5) language, literature, and writing and most of whom also learned these skills: (1) art, design, music, and sport, (2) soft skills, and (3) computer and IT, (4) digital marketing, and (5) language, literature, and writing. Students in this study claimed a new hybrid study program in Indonesia named "Merdeka Belajar, Kampus Merdeka" as beneficial. It offered multiple programs such as paid internship, paid teaching, research and social development project, and international or domestic student exchange, whereby their attendance could be transferred into academic credits.

This program helped students overcome boredom and repetition - as a result of remote learning - and gave them many new opportunities to develop themselves in both offline and online methods.

Yet, as this study is conducted only a few years after the global COVID-19 outbreak, there may also be a significant degree of lagged effect as various countries are still in the middle of their transition process into remote learning. In the future, depending on each countries' ability to adapt to change and their level of collaboration, the influence of remote learning on ASEAN university students' productivity might change. However, the results of this study are still relevant in providing the fundamental outlook and recognizing the behavioral patterns of current university students in ASEAN.

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