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# A Comparative Study on Effectiveness of Online and Offline Learning in Higher Education

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## ABSTRACT

The objective of the study is to assess the effectiveness of online and offline learning through higher education. The sudden outbreak of Covid-19 in various part of the world in 2020 has severely affected the educational institutions in various countries. Students were affected in the way to accept the hybrid form of learning and also grasp the interest towards the classes that were conducted online. The study aims to investigate the effectiveness of online and offline education in higher education. The study was carried out in India, Indonesia, Malaysia and other countries with 100 respondents among which major responses were from the youth population studying in Bachelor's program, Diploma and Master's mostly. The findings indicated that the effectiveness of online education is dismal, as students find it difficult to adjust to the online mode of education and the offline mode of education remains the most preferred mode of education.

**Keywords:** Higher Education, Offline Learning, Online Learning

## INTRODUCTION

In the digital era 2021, the education system has developed many ways to expand the learning material for students to study. The most traditional way is physical learning, face-to-face or offline method. Leisi Pei and Hongbin Wu, (2019) stated that student motivation, technical issues, time management and limited internet access are identified as major contribution of offline education, which is still the most popular teaching method. In the offline teaching model, students are required to attend class in person to improve the effectiveness of face-to-face teaching. According to the technological advances,
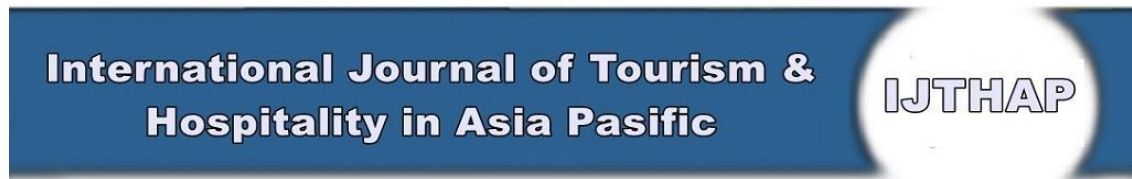
offline learning is not the only method to study, there is also online learning method. Apart from various problems, online learning has provided benefits for expanding the scope of education, so even though face-to-face teaching and learning process is constrained due to the Covid 19 pandemic, the process can be shifted to online method. Higher education required serious consideration to address issue related to online teaching. Wright (2017) conducted a study on 112 students and found higher preference for classroom learning, because face-to-face interactions with peer and lecturers make them understand the materials better.

The Covid-19 pandemic has changed the process of teaching and learning in higher education and interaction between the student and teachers (Ahmad, Saffardin & Teoh, 2020; Juliana, Saffardin & Teoh, 2021; Juliana, Fairos & Teoh & Kee, 2020). As a result of this pandemic, universities are limited in carrying out exclusive activities (Sobiah, Hasanein & Abu Elnasr, 2020). Many countries' have taken steps to prevent the wider spread of virus (Teoh, Gan & Seow, 2021). The institutions make an effort to keep the education process and education around the world continuity going, by using online learning (Ali, 2020; Teoh & Kee, 2020). The data will be collected using a survey form from various colleges and universities in various countries to determine the efficacy of study through online learning and offline learning.

**Literature Review**
According to Allo (2021), the impact of pandemic on education has become an important topic for researchers, considering the situation caused by Covid 19 virus. Besides, students give positive perception about e-learning and find it useful. Allo (2021) conducted a survey involving 424 universities around the world, which showed that education has been affected by the Covid 19 pandemic situation and online learning is very necessary to carry out educational activities (Suresh, Priya, & Gayathri, 2018). Teachers must be able to adapt to technological developments in the educational process, convey knowledge by e-learning (Sun, Tang, & Zuo, 2020). Khafit, Sulastri and Fauzan (2020) found that perceived usefulness, perceived ease of use, self-confidence, and subject matter norms have a significant positive effect on the use of e-learning in students. Some important features in the online process must be implemented to maximize learning in certain situations. Those important features are the administration and development of internet infrastructure to prevent interruptions, especially during video conferencing, the use of friendly tools to assimilate and understand students' information, provision of reliable, interactive and diverse electronic resources, the use of social networks to build students' online communities to reduce their feelings of isolation (Huang, Tlili, Yang, Chang, Wang, Zhuang, & Liu, 2020).

In research conducted by Dhawan (2020), online learning is as panacea in times of Covid 19 crisis and notes how online education system are being forced to engage in pandemics around the world while others still stuck with offline system. Dhawan (2020) has reported that Ed-tech start-ups are growing rapidly in delivering online learning and integrating multimedia. People experience various technologies difficulties as well as students lack motivation. This is a significant challenge for online education. However, with Ed-Tech start-up, students and teachers have the opportunity to learn comfortably, effectively and interactively, and solve many problems with better research with better

technologies. The study of Parkes, Stein and Reading (2015) examined how equipped higher education institutions adopt e-learning and state that, while students are ready to cope with technologies employed in online schools, they are not as ready as they appear to be. The students did not have enough knowledge to think critically in managing the skills of technologies used during online learning including organizing methods, accuracy and concise response and summarization of thoughts.

According to Rachmah (2020), more students favour offline than online instruction, because students would understand better the materials being taught through offline teaching method. Listening abilities of students improve better in offline classroom. In research conducted by Allen, Bourhis, Burrell, and Mabry (2002), stated that replacing offline learning would result the decreased level of students' satisfaction because of various expectations over a system of learning. However, they said that distance learning is usually just as effective as offline learning, and this does not trigger attitudes to fall.

Brown and Liedholm (2002) demonstrated in their study that the outcomes of their GPA and ACT were somewhat better for the students in an online method than the offline method. A student investigation compared the outcomes discovered in microeconomics. This gap was more pronounced on hard problems and less significant on basic problems. One reason was that half of the online students reported having spent less than three hours a week and none reported having spent more than seven hours a week. At least three hours a week, half of the students have finished each subject. In another analysis, time gaps for class or active participation showed different result when it was observed (Hiltz, Turoff, 2000). Brown and Liedholm (2002) have found that the performance of women in the standard format was considerably lower than the percentage of men, with six percentage points worse than those performed by male students.

## RESEARCH METHOD

The study examined how higher education is effective both in online learning and offline learning mode. For this investigation, the online survey was carried out using Google Form, because the questionnaire is the most suitable way and effectively to collect information or data (Lim & Teoh, 2021; Ooi & Teoh, 2021). A survey is a research instrument that contains several questions to collect information from interviewees. Questionnaires can be regarded as an interview in writing. They can be done by phone, by post, by computer or by face to face (McLeod, 2018). A self-structured questionnaire was designed in four sections. In the first section, each respondent needs to fill out their demographic information. The fundamental goal of the second, third and fourth sections are to know the respondents' views on the effectiveness of online learning and offline learning via the higher education, and on how often students spend a week studying. The Likert scale questions were used for the Fourth sections to get the responses on the effectiveness of online learning and offline learning through higher education.

In addition to primary data, existing literature provided additional insight into the study area. In order to reinforce and combine information already investigated, or case study on online and offline learning, we additionally gather information from a website, book or journal. This survey aims to gather data from different countries of the students at the
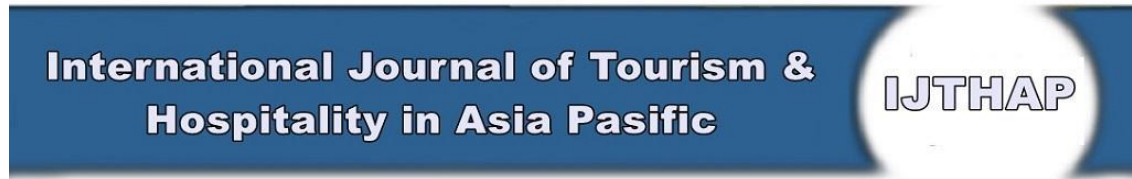
different colleges and institutions from India, Indonesia, and Malaysia in order to learn their views and observations.

## RESULTS AND DISCUSSION

**Table 1.** Summary of Respondents' Demographics

| Response | Frequency | Percentage |
|---|---|---|
| **Gender** | | |
| Male | 48 | 48% |
| Female | 52 | 52% |
| **Age** | | |
| 17 to 20 years old | 27 | 27% |
| 21 to 24 years old | 67 | 67% |
| 25 to 28 years old | 3 | 3% |
| 29 to 32 years old | 1 | 1% |
| >32 years old | 2 | 2% |
| **Nationality** | | |
| India | 39 | 39% |
| Indonesia | 7 | 7% |
| Malaysia | 53 | 53% |
| Others | 1 | 1% |
| **Qualification** | | |
| Diploma | 26 | 26% |
| Bachelor of Degree | 48 | 48% |
| Master | 22 | 22% |
| PHD | 4 | 4% |
| Others | 3 | 3% |

Table 1 presents a summary of the respondent' profile. There are 100 respondents who filled the survey. As much as 52% of the respondents were female and 48% were male. 67% of the respondents were from the age range of 21 years old to 24 years old. These results show that most youths were still studying in higher education through online learning or offline learning during the pandemic situation. About one half were from

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Malaysia (53%), followed by India (39%), Indonesia (7%) and others (1%). 48% were studied in Bachelor of Degree, 26% were studied in Diploma, 22% were studied in Master, and 4% were study PhD.

**Table 2.** Summary of respondents' Effectiveness of Online Learning Through Higher Education

| Response | Frequency | Percentage |
|---|---|---|
| **I never face technical problems during online learning.** | | |
| Strong Disagree | 13 | 13% |
| Disagree | 32 | 32% |
| Neutral | 34 | 34% |
| Agree | 19 | 19% |
| Strongly Agree | 2 | 2% |
| **Online learning technologies provide benefits to the student.** | | |
| Strong Disagree | 8 | 8% |
| Disagree | 12 | 12% |
| Neutral | 32 | 32% |
| Agree | 39 | 39% |
| Strongly Agree | 9 | 9% |
| **Students agree with "Online Learning Tools help improving students' academic performance".** | | |
| Strong Disagree | 8 | 8% |
| Disagree | 17 | 17% |
| Neutral | 42 | 42% |
| Agree | 25 | 25% |
| Strongly Agree | 8 | 8% |
| **Online Learning Tools help in saving time while studying.** | | |
| Strong Disagree | 12 | |
| Disagree | 9 | 9% |
| Neutral | 27 | 27% |
| Agree | 41 | 41% |
| Strongly Agree | 11 | 11% |
| **Students prefer online learning during the COVID-19 pandemic.** | | |
| Strong Disagree | 8 | 8% |
| Disagree | 4 | 4% |
| Neutral | 19 | 19% |
| Agree | 40 | 40% |
| Strongly Agree | 29 | 29% |
| **Students prefer online lectures over physical lectures in the future.** | | |
| Strong Disagree | 20 | 20% |
| Disagree | 22 | 22% |

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| | | |
|---|---|---|
| Neutral | 30 | 30% |
| Agree | 22 | 22% |
| Strongly Agree | 6 | 6% |
| **The online classes materials are useful, accurate, and interesting.** | | |
| Strong Disagree | 9 | 9% |
| Disagree | 16 | 16% |
| Neutral | 37 | 37% |
| Agree | 31 | 31% |
| Strongly Agree | 7 | 7% |
| **During the Covid19 emergency, were all learning activities carried out well through online (structured, on schedule, coordinated)** | | |
| Strong Disagree | 8 | 8% |
| Disagree | 12 | 12% |
| Neutral | 32 | 32% |
| Agree | 39 | 39% |
| Strongly Agree | 9 | 9% |
| **Students are not annoyed by studying online due to the current COVID-19 situation** | | |
| Strong Disagree | 12 | 12% |
| Disagree | 15 | 15% |
| Neutral | 29 | 29% |
| Agree | 40 | 40% |
| Strongly Agree | 4 | 4% |
| **In your opinion, online learning is more important compared to offline learning in the current situation.** | | |
| Strong Disagree | 9 | 9% |
| Disagree | 13 | 13% |
| Neutral | 21 | 21% |
| Agree | 33 | 33% |
| Strongly Agree | 24 | 24% |



Online Learning
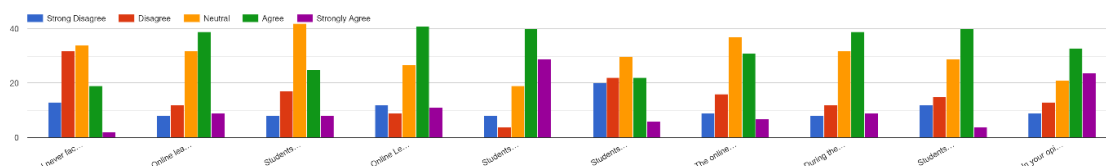
Table 2 shows a summary of respondents' effectiveness of online learning through higher education. According to the data above, as much as 32% respondents chose disagree compared to 19% of respondents who chose agree that "I never face any technical problem in online learning". This indicates that there are 32% of the respondents have faced technical problem during online learning. For the second question, as much as 39% respondents agree that online learning technologies provide benefits to the student compared to the 12% respondents who disagree that online

learning technologies provide benefits to the student. However, for the third question, as much as 42% students chose neutral on "Online Learning Tools help to improve student's academic performance. According to the result for question four, as much as 41% of respondents agree that online learning tool help to save time in studying compared to the 12% respondents who disagree. During the pandemic in the current situation, question five gave the answer that as much as 40% respondents prefer using online learning to offline learning, however in question six, as much as 30% of respondents chose neutral. Next, in question regarding to "online class materials are useful, accurate, and interesting" as much as 37% of respondents chose neutral. For the question eight and nine, the result shows that there are 39% of respondents agree that all learning activities carried out well through online (structured, on schedule, coordinated) and 40% of the respondents agree that students are not annoyed by studying online due to the current COVID-19 situation. Then, as much as 33% respondents agree that online learning is more important compared to offline learning in the current situation.

**Table 3.** Summary of Respondents' Effectiveness of Offline Learning in Higher Education

| Response | Frequency | Percentage |
|---|---|---|
| **Students will more be focusing during offline learning compare to online learning.** | | |
| Strong Disagree | 9 | 9% |
| Disagree | 9 | 9% |
| Neutral | 24 | 24% |
| Agree | 34 | 34% |
| Strongly Agree | 27 | 27% |
| **Students will more direct interaction in offline learning compare to online learning.** | | |
| Strong Disagree | 7 | 7% |
| Disagree | 8 | 8% |
| Neutral | 22 | 22% |
| Agree | 33 | 33% |
| Strongly Agree | 33 | 33% |
| **Offline learning will make students active during the class compare to online learning.** | | |
| Strong Disagree | 9 | 9% |
| Disagree | 12 | 12% |
| Neutral | 18 | 18% |
| Agree | 34 | 34% |
| Strongly Agree | 27 | 27% |
| **During offline learning, is it students will be guided directly and easier to understand compared to online learning?** | | |
| Strong Disagree | 6 | 6% |
| Disagree | 10 | 10% |
| Neutral | 21 | 21% |
| Agree | 36 | 36% |

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| | | |
|---|---|---|
| Strongly Agree | 28 | 28% |
| **Offline learning doesn't make students bored compare to online learning.** | | |
| Strong Disagree | 7 | 7% |
| Disagree | 9 | 9% |
| Neutral | 32 | 32% |
| Agree | 35 | 35% |
| Strongly Agree | 19 | 19% |
| **Online learning has more benefits compare to offline learning.** | | |
| Strong Disagree | 9 | 9% |
| Disagree | 22 | 22% |
| Neutral | 38 | 38% |
| Agree | 22 | 22% |
| Strongly Agree | 11 | 11% |
| **Students believe offline learning will not be disrupted learning activities.** | | |
| Strong Disagree | 8 | 8% |
| Disagree | 13 | 13% |
| Neutral | 41 | 41% |
| Agree | 25 | 25% |
| Strongly Agree | 14 | 14% |

Offline Learning
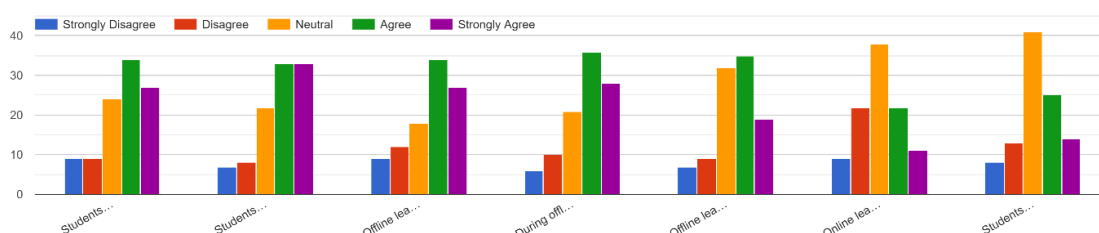


Table 3 has presented the summary of respondents' effectiveness of offline learning in higher education. For question one, the result has shown that 34% of respondents strongly agree that students will be more focused and only 9% of respondents who disagree with it. According to the result, question two have 33% strongly agree student have more direct interaction during offline learning compared to online learning. Thus, it can be concluded that students will focus more on physical class and interact with their lecture and friends directly. During offline class, as much as 34% respondents agree that physical class would make students more active and only 9% of respondents have strongly disagreed that physical class would make students more active (in question three). However, based on the result in question four, there are 36% of the students agree that students would be guided directly and easier to understand material through offline class compared to online learning. Next, there is a higher number of respondents who agree (35%) than disagree (9%) that offline learning does not make students bored compared to online learning. Other than that, in question six many students chose neutral (38%) which online learning has more benefits compared to offline learning which
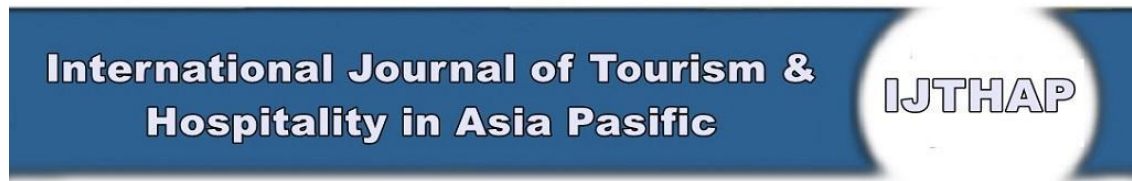
strongly disagrees only have 9%. On the other hand, there are 41% of students were also chosen neutral in question seven, which is that students believe offline learning will not disrupt learning activities and there is also only 8% strongly disagree that students believe offline learning would not disrupt learning activities.

**Table 4.** Summary of Respondents' Spending Time on Study

| Response | Frequency | Percentage |
|---|---|---|
| **After Covid-19, how many hours will you spend on online learning in one week.** | | |
| <4 hours | 28 | 28% |
| 4-8 hours | 22 | 22% |
| 8-12 hours | 19 | 19% |
| >12 hours | 31 | 31% |
| **Before covid-19, how many times that you will spent through the offline class in one week?** | | |
| <4 hours | 25 | 25% |
| 4-8 hours | 20 | 20% |
| 8-12 hours | 22 | 22% |
| >12 hours | 33 | 33% |

Based on table 4 that has presented the data of respondents spending how many times on study in a week. From the result, it can be concluded that before the pandemic covid-19 and after the pandemic, the student has spent time on the study for more than 12 hours in a week, and the percentage is 31% and 33%.

**Discussion**
In early 2020, the global pandemic (Covid-19) broke out and seriously affected educational advances around the world, which simultaneously boosted the development of online learning. The study aims to analyse the effectiveness of online and offline learning to students at universities and colleges education. The study was carried out in India, Indonesia, Malaysia and other countries with 100 respondents among which major responses were from the youth population studying in Bachelor, Diploma and Master program. The findings suggested that the effectiveness of online education is dismal as students find it difficult to adjust to the online method of education and the offline method of education remains the most preferred method of education.

The findings from Table 2 show that during the pandemic or in the future, online learning would be more effective. The majority of the students feel that online learning technologies will provide them with a lot of benefits to learn and improve their academic performance because physical work or class would be replaced by technologies in the future. The online learning platform was successfully tested by students in translation of material equivalent to students who took Face to Face courses (Herman & Banister, 2007). Previous studies show that online learning platforms improve learning process when it is used as complementary instruments for formal teaching (Suresh, Priya, & Gyathri, 2018).

However, for students who stay far from their college or university, the more effective the learning tools for them is online learning. Based on the results, the findings show that a higher number of students feel that online learning tools would help them to save their time while studying. Instead of being at a certain location, online learners may contact the teachers, talk to classmates, study resources and full tasks from any accessible point of the Internet (Richardson & Swan, 2003). This flexibility gives young people much-needed mobility and helps to attract them to the educational process.

The desire to utilize e-learning platforms is impacted by the simplicity of use perceived by the platforms and the perceived utility of those tools, according to the Technology Admission Model (TAM) (Zare, Sarikhani, Salari, & Mansouri, 2016). Based on the findings from our results, it can be suggested that many students also feel that online learning materials are very useful, accurate, and interesting. Moreover, other studies reveal multiple advantages of online learning such as improved results on information assimilation (Stern, 2004), adapting the courses to the abilities and objectives of students (Babu & Sridevi, 2018), flexibility and centring (Al-Dosari, 2011) and reducing inequality to space and time (Arkorful & Abaido, 2014).

Based on the findings, many people agree that offline learning can be more effective in the class because it provides students direct interaction with their teachers and classmates, beside students would understand the materials better than in the online learning. For other students, that might be a value of traditional class learning of the F2F interaction, the discussion of the class before and after, organic teacher-student relationships and communal learning (Rovai & Jordan, 2004). When it comes to online learning, the class interaction cannot be done easily, because online learning is on the virtual not like offline learning is the physical study and more give students interaction to understand the materials detail. According to our findings, the student would more focus during the offline class due to the lack of the external things that would distract students' concentration.

## CONCLUSIONS

The face-to-face learning process or offline method has been shifted by the online learning process due to the Covid-19 pandemic. In every country around the world, many students and teachers are forced to use online learning tools to teach their students. Hence, many teachers and students have changed their ways in the learning methods, and they also suggested that online learning is much better than offline learning during the pandemic Covid-19 situation. Online learning is enormously beneficial in these times of lockdown and limitations. The teaching-learning activities are done satisfactorily. However, the network problem becomes the main problem in online learning method.

In addition, based on the result before the outbreak of covid-19, we found that many students would like to prefer offline learning compared to online learning. The student prefers offline learning since they can focus, activate, and enjoy throughout the session by understanding the content better and do communication easily. Due to numerous issues, online learning was not successful. The quality of internet networking is very influential on the success of the online method. Students often do not understand the

material taught by teachers and they can meet directly or face-to-face to solve the problem of misunderstanding.

Apart from this, many of the students in higher education agree that the online learning tools help to improve students' academic performance because it helps them do the task more efficiently and can always playback the video of the online learning tools that have been recorded to help to improve the academic performance. The online learning tools have helped the students in saving time while studying. However, when there is an offline learning class before covid-19 or an online class after covid-19, the student also has to spend almost the same time on the online class and offline class more than 12 hours per week.

On the other hand, the quality of the online educational process is based on several factors such as teacher's level of education using technology, teaching style, interaction with students, strategies that capture students' attention, encouraging student with teacher contacts, cooperation, rapid feedback, active learning, and time spent on tasks. The quality is dependent on various factors. This of the factor can help the student can get more improvement when through the online educational process and help them to get a good quality on the online education.

While all of the research included demonstrating that online learning is better than offline learning using higher education methodologies, neither of the included research revealed online learning to be less successful than offline learning strategies, regardless of statistical approaches used. We need to know that online learning is a valid strategy for higher education instruction and has its advantages for enhancing the education of students. In order to protect the success of online learning, we need to systematically examine the design principles of digital learning materials, learning objectives and preferences and characteristics of students.

Furthermore, well-being among lecturers need to be enhanced as it brings direct impact on the online and offline learning (Teoh & Yaakob, 2021). Hence, organizational factors, such as psychosocial safety climate, that are related to employees' well-being can be studied in the future research (Teoh & Kee, 2020), with the mediating factors of job demands and work engagement (Teoh & Kee, 2018; Teoh & Kee, 2019).

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