The Influence of Artificial Intelligence in the Pandemic Era in the Field of Education

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ABSTRACT

Learning during the Covid-19 pandemic is currently being carried out online as an effort to limit social distancing during the COVID-19 pandemic. The purpose of this research is to find out how much influence artificial intelligence has in the era of the pandemic in the field of education. This study involved 54 students from several regions in Indonesia. Respondents were asked to fill in open-ended questions related to the research topic through an online form. The results of the study indicate that almost all students are familiar with and use artificial intelligence technology. Other results state that there are still obstacles in online learning such as the availability and condition of the internet network, and technical obstacles. Efforts made to overcome these obstacles include being responsive in interacting with artificial intelligence technology, never giving up in adjusting the availability of access to technology, and continuing to learn independently.

Keywords: Artificial intelligence, Students, Online Learning, Impact

1. INTRODUCTION

Currently the world is shocked by the outbreak of a disease caused by COVID-19 (Corona Virus diseases-19). The virus, which allegedly began to endemic on December 31, 2019 in Wuhan City, Hubei Province, China, is currently spreading to almost all corners of the world very quickly, so that currently WHO has designated this outbreak as a COVID-19 pandemic. The impact in the world of education is that learning no longer takes place traditionally by relying on face-to-face activities in class, but has shifted to PBM activities that are all on-line [1]. As per the assessment of the researchers, it is uncertain to get back to normal teaching anytime soon. As social distancing is preeminent at this stage, this will have negative effects on learning opportunities. Educational units are struggling to find options to deal with this challenging situation. These circumstances make us realize that scenario planning is an urgent need for academic institutions [2]. This is a situation that demands humanity and unity. There is an urgent need to protect and save our students, faculty, academic staff, community, society and nation as a whole.

Rapid developments in technology have made distance education easy [3]. "Most of the terms (online learning, open learning, web-based learning, computer-mediated learning, blended learning, m-learning, for ex.) have in common the ability to use a computer connected to a network, that offers the possibility to learn from anywhere, anytime, in any rhythm, with any means" [4]. Online learning can be termed as a tool that can make the teaching–learning process more student-centered, more innovative, and even more flexible. Online learning is defined as "learning experiences in synchronous or asynchronous environments using different devices (e.g., mobile phones, laptops, etc.) with internet access. In these environments, students can be anywhere (independent) to learn and interact with instructors and other students" [5].

Several arguments relate to e-learning. Accessibility, affordability, flexibility, learning pedagogy, lifelong learning, and policy are some of the arguments associated with online pedagogy. Flexibility is another attractive aspect of online learning. It is said, the online learning mode is easily accessible and can even reach remote villages and remote areas. It is considered a relatively cheaper way of education in terms of lower costs of transportation, accommodation and overall cost of institution-based learning. Assisted by the development of science and technology, so that the term "artificial intelligence" appears which is considered to be able to help humans in carrying out their activities.

Artificial Intelligence (AI), which means a program that can resemble the human brain and can do human work and can be better than what humans do, especially in the current pandemic era [6]. It is through this that we collect several hypotheses obtained after searching for literature data, including the following:

H1: Most students are considered to have understood using artificial intelligence when learning online. Many universities in the world have used Blackboard Learn. This online platform is used by lecturers to release lecture notes, assignments and homework, quizzes, and even tests for students. On the other hand, students can also ask questions about lecture materials, task details, and the assessment mechanism through the same platform [7].

H2: In the current pandemic era, education is greatly helped by the role of artificial intelligence. The use of Cal (Computer Aided Instruction) system, can play a major role in stimulating students' interest and understanding, it provides a variety of external stimuli conducive to knowledge acquisition and conservation, so as to significantly enhance the effect of instruction [8].

H3: Most students use artificial intelligence-based applications when learning online. It can be said that students use artificial intelligence-based applications for online learning, especially for material assistance [9].

2. METHOD

After formulating several hypothetical statements that are suspected to be true, we decided to take sample data through the survey method. We distributed a questionnaire containing several questions about the role of artificial intelligence in online learning. The questions we ask consist of 3 types of methods, first by using a linear scale of 1-5, second by displaying answer choices that are considered appropriate to the question, and third by using a short answer format from each respondent. This survey is expected to be able to show how student respondents can adapt and use artificial intelligence when undergoing online learning. We determine several variables that will be the assessment of each respondent. Some of these variables are considered important, because they will be taken into consideration to determine which hypothesis is correct. The variables that we use are grouped by age, university, and major.

Our target respondents are students from several regions in Indonesia, aged 18-22 years, and currently conducting online learning. Data collection in this study was carried out by distributing online questionnaires using google-form. We asked several questions, related to their daily use of applications with artificial intelligence, and how the impact of these applications. Here are some of the questions we ask.

Table 1 List of questions in the survey "The influence of artificial intelligence on online learning"

No	Questions	Possible Answer
1.	Have you ever heard about Artificial Intelligence? And have you ever used it?	Yes, I heard it / No, I never
2.	Surely choose maximum 4 apps that accompany your	Zoom, Microsoft Teams, Webec, Google Meet/ Duo, Skype, Coursera, Hangout, PlagiarismCheck, CamScanner, Ruangguru, Duolinggo
3.	Have you ever heard or used some of these apps (camscanner, photomath, plagiaryism checker, grammarly, ruang guru, etc)	Ineffective/ Very Effective (Scale 1-5)
4.	How difficult is it to use the app you are using	Ineffective / Very Effective (Scale 1-5)
5	Are there any obstacles in using some of these apps	Ineffective / Very Effective (Scale 1-5)
6	How do you deal with your obstacles?	Short Paragraph
7	What is the positive impact you get during online classes	Short Paragraph

Each respondent is required to answer 7 questions honestly and each answer will determine how the respondents relate and experience online learning with artificial intelligence. The questions in the survey that are distributed are also related to the hypotheses listed in the introductory section, and are expected to be a measuring tool for whether or not the hypothesis is true.

2.1. Analysis

The answers to questions 1, 2 and 5 are checkboxes that can be selected by the audience, a maximum of 4 choices from several available options. The answers to questions 3 and 4 are translated into a numerical score. For question number 3, 1 = Very ineffective, 5 = Very effective; for question number 4, 1 = Very difficult, 5 = Easy; For the answers to questions number 6 and 7 are short answers from the respondents.

3. RESULT AND DISCUSSION

After we collected data from 54 respondents, from students from various campuses in several regions in Indonesia, it was found that the majority of respondents were female, namely 42 out of 54 people or 77.8% and the remaining 12 were male or 22.2%. The age range consists of 18-22 years, but is dominated by the age of 20 years. Previously, in the hypothesis that we summarized, we suspected that at least almost all students in Indonesia were familiar with artificial intelligence technology, but in fact the answers we got were not always in line with our hypothesis.

3.1. The results of the relationship of students with artificial intelligence

Several questions that contain elements of how the relationship between students and artificial intelligence answer the hypothesis that we made.
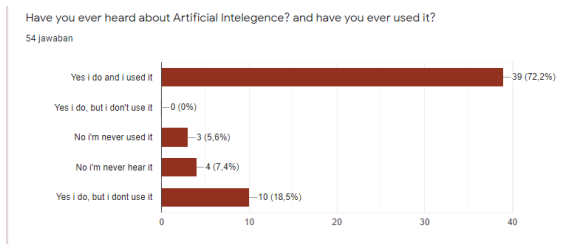

Figure 1 Graph of the relationship between respondents and artificial intelligence.

The graph above shows that there are 39 people or 72.2% of 54 people who know artificial intelligence technology and use it, then there are 10 people or 18.5% who know about artificial intelligence but don't use it, while there are 7 people or 12.96% who don't know and do not use this technology.
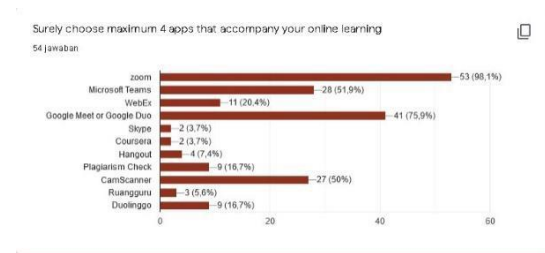

Figure 2 Graph of the use of online learning applications by students

Furthermore, the image above shows several applications that are part of AI that students often use for their learning during this pandemic. The top 3 video conferencing applications selected by students as online learning facilities and the results obtained, show that the Zoom application was selected 53 times or 98.1%, the Google Meet and Google Duo applications were selected 41 times or 75.9% and took the position second, and the Microsoft Teams app was voted 28 times or 51.9%, taking third place.
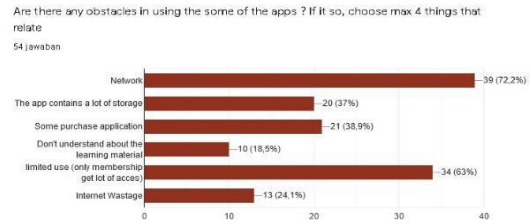

Figure 3 Graph of problems from online learning applications according to students

From the picture above, it is shown that the problems that are often experienced by students when using applications during online learning are. It is shown that as many as 39 or 72.2% of students have problems with the network and 34 or 63% have problems with several applications that require having a member card.

The last two questions in the survey read "How to deal with your obstacles?" and "What is the positive impact you get during online classes, especially from the Artificial Intelligence?" is an open-ended question, and each respondent has given their opinion. Based on the opinion of each respondent, we divided these respondents into 3 categories, which aims to identify the characteristics of each respondent. Some of these characteristics are:

a. **Updated daily**, this group is a group of people who understand interacting with artificial intelligence technology and are accustomed to using it during online learning.

b. **Never give up**, this group tries to adjust to the availability of access to the artificial intelligence technology they use. Prefer free access and try various ways, rather than having to spend money.

c. **Let it be**, this group accepts the facilities as they are. If some access does not support their online learning, they continue to live it as is.

The results of the first graph when it comes to H1 which is considered that almost all students are familiar with and use artificial intelligence technology during online learning, the data shows that the assumption is not true, in fact there are still 12.96% who claim not to know what artificial intelligence technology is. Regarding the hypothesis on H2, the truth can be tested, because the data shows applications based on artificial intelligence can help education in this pandemic era. Artificial intelligence technology, will provide students with a new type of learning environment, according to student learning characteristics, learning history and learning styles, it can use different teaching methods and strategies to better meet the different needs of different learners, to diagnose learner errors, to determine the cause of the error, to produce a suitable and better correction strategy [8]. In hypothesis H3, it is stated that almost all students in several regions in Indonesia use artificial intelligence- based applications when learning. online. As evidenced by the data that has been collected, it shows that almost all respondents use artificial intelligence-based applications. However, even from sophisticated technology, respondents still find some difficulties when using the application. We have highlighted 2 factors that

contribute to the use of artificial intelligence-based applications when undergoing online learning.

  a. *Network issues*

  The data shows that network problems are still the main cause of students using artificial intelligence-based applications. Due to the uneven distribution of internet networks in Indonesia, there are still many areas of Indonesia that have not been reached by telecommunications services, which is understandable considering the vast territory of Indonesia, which is around 7.9 million km2 [9].

  b. *Limited application access facilities* Mostly, the applications that are used when undergoing online learning specialize their users to take the premium part in order to enjoy the facilities. For example, the video calling app Zoom, has a limited time feature for free users.

The data above concludes that there is still a need for socialization about artificial intelligence technology in the field of education which aims to help students and students face learning methods in the pandemic era, especially for the welfare of the internet network to all regions in Indonesia.

4. CONCLUSION

This study aims to determine the effect of artificial intelligence in the pandemic era in the field of education. From the data above, we can conclude that the use of artificial intelligence-based applications when learning online. Data obtained from online form distribution to 54 students in several regions in Indonesia, the survey results show that the most widely used are Zoom applications (98.1%), Google Meet or Google Duo (75.9%), Microsoft Teams as many as (51.9%), CamScanner (50%), WebEx (20.4%), Plagiarism Check and Duolingo (16.7%) and other applications (20.4%). This percentage was obtained from the answers of respondents who used more than one application based on artificial intelligence when conducting online learning during the Covid-19 pandemic. Online learning during the Covid-19 pandemic caused many obstacles for some students. These obstacles arise because students do not understand the material, have difficulty doing assignments properly due to the limitations of the internet network, and face technical obstacles. Various efforts were made by students to overcome the obstacles they experienced by learning independently, trying to be patient, encouraging themselves, and looking for a place that had a stable network.

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