



Educational Technology Based on Artificial Intelligence in Supporting Distance Learning in Arabic Language Learning in Higher Education

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ABSTRACT

Nowadays, technological developments are increasingly widespread. In fact, the use of artificial intelligence-based technology is on the rise. Artificial intelligence technology is a managed tool that can facilitate human work. Artificial intelligence technology gets a high position in the educational process and even experiences development from time to time, namely from the school level to the college level. As the development of artificial intelligence technology began to be applied in the learning process. The purpose of this research is to find out that artificial intelligence technology can support distance learning in Arabic language learning in college and greatly help students in doing assignments. The method in this study is to use quantitative research methods where the data obtained is through the distribution of a questionnaire in which there are statements that will be answered by students. The questionnaire was distributed by utilizing the Google Form application. The results of this study explain that artificial intelligence technology is very suitable to be applied in the distance learning process and can support learning activities carried out in Arabic language learning in college. The conclusion of this research is that technology based on artificial intelligence is very appropriate to be used in the distance learning process, namely in Arabic language learning, because the use of intelligence technology is more effective and efficient and greatly helps humans in doing work. The limitation of this study is that researchers only conducted this research at the college level which in fact the learning process is carried out remotely. The researcher hopes that future researchers can develop the Arabic language learning process at a more advanced stage. This study also recommends that future researchers make this research a reference in conducting research related to artificial intelligence technology.

Keywords: *Artificial Intelligence, Distance Learning, Technology*

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PENDAHULUAN

The increasing development of technology makes its users also increase (Lell & Kachelrieß, 2020). This can be seen in several aspects such as education, society, culture, politics and economy. The most prominent one is in terms of education. It can be seen that every level of education uses technology. With this technology, it is hoped that it can change and improve the quality of education (Lell & Kachelrieß, 2020). The existence of this technology makes the learning process continue to change. From the beginning, which only utilized makeshift facilities and infrastructure, it has now turned to the use of increasingly modern technologies (Kumar dkk., 2021). The technology used has a different level of difficulty depending on how the user uses it. If you have explored technology in depth, of course, these difficulties can be overcome. Technology in the world of education certainly provides convenience for each user.

The technology that must be mastered from time to time certainly continues to change. With these changes, it has a great influence on the world of education (Lauder dkk., 2018). In the world of education this continues to be a topic of conversation because it is not easy to apply the use of technology in accordance with its function. In the learning process in this day and age, it not only requires a student to be able to use technology appropriately but also requires educators to be more in-depth in understanding the use of technology, because an educator will be the one who will teach, guide, and direct students in using the technology. How will a learner understand and understand while the educator does not understand. So here educators must explore technology more because it will play an important role so that students do not abuse technology.

Arabic language learning is a learning process related to the structure of language (Mega Primaningtyas & Cahya Edi Setyawan, 2019). Arabic is a very important language to master. Language is fundamental to human life, not only for communication but also for the absorption of knowledge. The need for mastery of foreign languages is increasing due to the amount of information circulating in foreign languages, including Arabic. In the process of learning Arabic, there are several obstacles that arise both linguistically and non-linguistically as well as learning methods that still use conventional methods (Li dkk., 2020; Muhimmatul Choirh, 2021). Along with the development of technology, technology is considered to be a solution to the problems that arise in Arabic language learning (Jamil & Agung, 2022). This is because technology can create interactive learning media, especially android-based learning applications.

The learning process is a process of interaction, communication, and everything that happens during learning. Teaching and learning activities will take place if the components of learning are fulfilled. In learning, of course, it requires technologies that can later facilitate and assist students in doing lecture assignments. The learning process will help students learn well. The essence of the learning process that takes place is the delivery of learning materials appropriately. In the learning process, it will shape the

personality, attitude, insight, and identity of a learner. The learning process that takes place is accompanied by the use of technology. As technology develops today, it changes the style of education with the aim of providing convenience for each user. A concrete example that can be seen is that the distance learning process can be carried out everywhere because of the existence of technology in the world of education based on artificial intelligence. Artificial intelligence is a technology that is deliberately created to facilitate human work. The learning process is not only carried out in schools but also outside of school. Long distances are no longer a barrier in carrying out the learning process.

When the learning process takes place there is interaction between educators and students. The interaction that occurs is facilitated first with learning media (Jamil & Agung, 2022). The purpose of the media used is to achieve maximum and optimal learning objectives. Learning media can be used as a reference or benchmark for the extent to which the learning process runs successfully and reaches the desired target. To achieve goals in the learning process, many have used digital media based on artificial intelligence technology such as computers. Artificial intelligence technology helps and facilitates students in doing assignments and is very instrumental in adding insight and social knowledge (Miller, 2019). The point is that the learning process using artificial intelligence technology in the form of computers will be much more interesting, more effective, more supportive of learning, and more able to attract attention than learning using old methods that look boring.

Review of Literatur

1. Distance Learning

Distance learning is a learning system that is carried out because it is limited by long distances or there are obstacles that make it impossible to carry out the learning process face-to-face. Since the distance learning system was implemented, education personnel have always tried and looked for new ways and innovations so that the subject matter is still conveyed. Until there are technologies that can make it easier for educators to carry out learning (Marek dkk., 2021). Distance learning is no longer an obstacle for an educator in carrying out the learning process because there are many technologies that can be used in learning that can make it easier for educators to interact and communicate with students even though the distance is very far (Yasin dkk., 2023). The media that can be used in distance learning are Google Meet, Google Classroom, Zoom and others. While the tools used in distance learning can be cellphones, laptops or computers. Distance learning has been widely applied in schools to universities. The purpose of distance learning is to deliver learning materials to students who are intended for learning methods that are not face-to-face. With distance learning, learning materials are still delivered to students.

The distance learning process has advantages and disadvantages. The advantages of distance learning include being easily accessible, more effective to use, and does not require a special room to carry out the learning process. While the disadvantages of

distance learning include being constrained by the internet network, learning material is difficult to digest and understand, lack of supervision in learning, feeling burdened by the cost of expensive internet packages, loss of concentration and focus on learning, decreased enthusiasm for learning students, lack of mastery of technology by some people, facilities such as cellphones or laptops that are not yet owned by some people, and can damage vision because the eyes continue to stare at the cellphone screen or laptop screen that is being used. Although there are shortcomings in the learning process that is carried out remotely, it continues to be followed up by the government such as providing quota assistance in the form of internet packages to every student in college so that the learning process continues as it should.

In distance learning, an educator can provide and deliver variations of learning by using technology-based media so that the learning material presented can attract attention and create a sense of focus to continue to pay attention to the learning until the end. Distance learning can save time and look more effective if used in accordance with its function (Sanga & Brogdon, 2021). Distance learning is unique in that it can accommodate a large number of people while learning. This is one way to gain experience while working and studying (Jarrahi, 2018). The steps that must be prepared by an educator and lecturer in distance learning are planning in advance, determining the material to be delivered, determining the indicators that support learning, and determining the strategy used in delivering the material later.

2. Artificial Intelligence Technology

Artificial intelligence technology in English is known as Artificial Intelligence Technology. Artificial intelligence technology can be interpreted as a field of technology that moves in the world of education in the form of a tool such as a computer that can provide convenience for students (Gunning dkk., 2019). The goal of artificial intelligence learning is to assist humans in overcoming various problems that arise in learning and in completing tasks (Barredo Arrieta dkk., 2020). Artificial intelligence technology has a very important role, especially in education (Dwivedi dkk., 2021). For example, using artificial intelligence technology can help students in inputting or entering large amounts of data, as well as analyzing the data obtained precisely in a fast time (Allam & Dhunny, 2019). This artificial intelligence produces accurate data and is very effective in the use of time (Shi dkk., 2021). Intelligence gets a leading position in data management and data analysis.

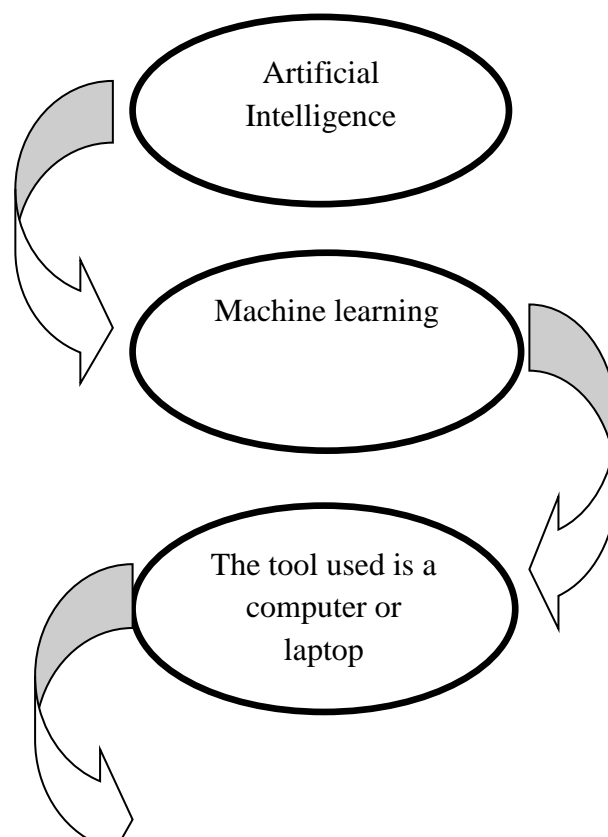
There are several opinions of previous researchers about the utilization of artificial intelligence-based educational technology. First, according to (Barredo Arrieta dkk., 2020), application of machine learning concepts, deep learning and neural networks, this field needs to be developed so that it can be adapted in other Arabic language proficiencies such as *Maharah al-Istima'* (listening proficiency), *Maharah alQira'ah* (reading proficiency) and *Maharah al-Kitabah* (writing proficiency). Although there are various issues and challenges in the development of Arabic language software with AI technology. Second according to (Dosilovic dkk., 2018), This research discusses Arabic Natural Language Processing (ANLP) but these issues and challenges need to be

addressed by researching the problem with experts in the field of AI (Artificial Intelligence) and the field of computer assisted language learning (CALL), the field of innovation and Arabic language education technology and others, to find solutions to issues and challenges in the development of Arabic language education software based on AI technology (Artificial Intelligence).

The research conducted by this researcher is different from the research conducted by previous researchers. In this research, the application of artificial intelligence technology or AI (Artificial Intelligence) in higher education can better support distance learning, especially in Arabic language learning. In research researchers also prove that the use of AI (Artificial Intelligence) is very effective to use and has a positive influence on students who do distance learning. Many students have felt the benefits of AI (Artificial Intelligence) as in distance learning. Distance is no longer a barrier to the learning process.

METHODS

In conducting research, a researcher must determine what methods will be used in his research. This is so that the researcher can get a clear picture of the problems he will research and know the steps in the research he is doing to be in accordance with the procedure. The type of research method used in the researcher's research this time is using quantitative research methods. Quantitative research methods are methods that emphasize the use of relevant theories. Basically, quantitative research methods use a deductive-inductive approach. In quantitative research, data can be generated which will later be used as results which must be accurate, and precise in their calculations. Quantitative research not only describes the data but also the state of the subjects and objects of research that have been observed and analyzes and compares based on the actual facts that occur in the field. The purpose of analyzing the data that has been obtained so that conclusions can be drawn later which can be used as accurate information.



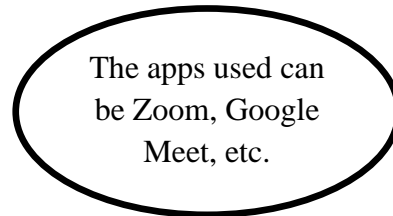


Figure 1: Key Concepts of Artificial Intelligence in education

a. Type of Research

This type of research is survey research. In this survey research, the data collection technique uses more questionnaires than interviews or observations. In the researcher's research the data obtained through filling out a questionnaire. Survey research is a type of research that uses a quantitative approach.

b. Population and sample

Population is the subject of research as a whole which includes living things, objects, symptoms, values, tests, in research. The sample is a small part of the population used to research and can already represent the population.

c. Research Instrument

Data in quantitative research is collected through a research tool called a research instrument. Research instruments are divided into two, namely test instruments and non-test instruments. With the help of instruments, results can be obtained that are useful for drawing conclusions later. The use of instruments must be accurate and relevant so that the results obtained from research can be justified. In this researcher's research, namely using a test instrument, namely by making a questionnaire containing statements through Google Form.

d. d. Data Collection Technique

Based on the type of research that researchers do, the technique used in data collection is through filling out a questionnaire. In the questionnaire there is a questionnaire that will be given to students. The purpose of distributing this questionnaire is to find information about the application of Adaptive Learning in Arabic language learning. In the questionnaire there are 5 categories of assessment which will be asked to students who fill out the questionnaire by checking one of the answers in accordance with the actual situation.

e. Research Data Analysis Technique

Data analysis is a method used by researchers to process and process the data that has been obtained in order to obtain valid results and be easily understood by

people. Data analysis techniques in quantitative research are carried out in two ways, namely descriptive statistics and inferential statistics.

RESULTS AND DISCUSSION

AI (Artificial Intelligence) is one of the technologies that can be applied in distance learning to support the learning process (Gunning & Aha, 2019). Artificial intelligence generally only looks like a tool, but its role in education is very important. This artificial intelligence if used in accordance with its function can ease someone in doing tasks. Even the use is very effective when viewed in terms of time. This artificial intelligence is only a tool made to facilitate human work (Hilburg et al., 2020). This artificial intelligence has been used and applied during the covid 19 pandemic in the past 2 years (Li et al., 2020). The occurrence of covid 19 is a barrier in the learning process, because learning that is usually face-to-face cannot be carried out and must carry out the learning process remotely (Vaishya et al., 2020). However, this can be resolved with the existence of artificial intelligence technology that can make it easier to do distance learning with the help of computers.

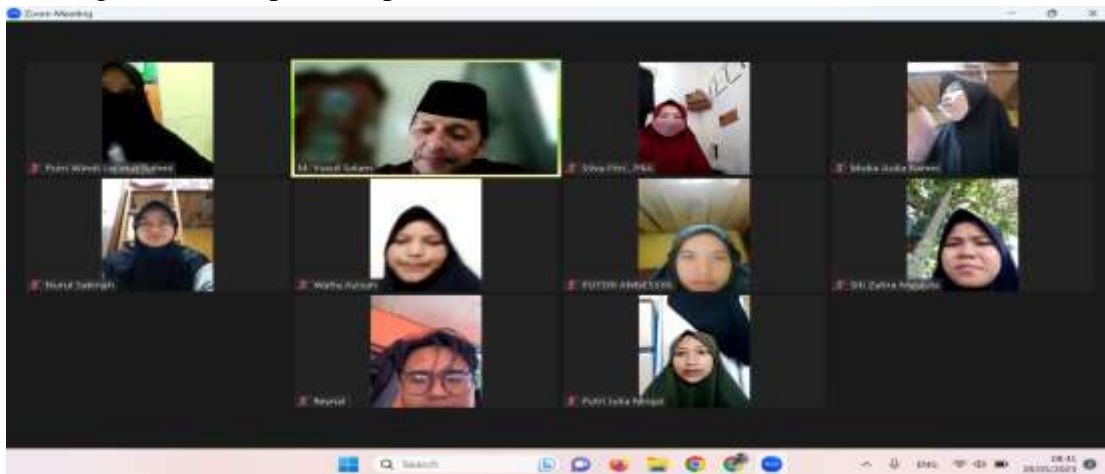


Figure 1: Distance learning process



Figure 2: Distance learning process

In Figure 1 above we can see that the ongoing learning process is a distance learning process using artificial intelligence technology by utilizing tools such as computers. In the picture, a lecturer and his students are doing distance learning. Distance learning carried out in the picture above is by utilizing an application in the form of zoom. There are so many benefits that can be felt with the existence of artificial

intelligence technology. Not only does it make it easier for students to do their assignments, but it also makes it easier for lecturers, of course, to carry out distance learning and complete other tasks. Artificial intelligence technology will provide many benefits when used by responsible individuals as in the picture above.

At this stage of the research, researchers did not go directly to the college level to conduct research. But by distributing a questionnaire. To get good results and feasible to use in learning processes, processes are needed, namely the description of media feasibility, description of material feasibility, and description of the feasibility of the language used. This feasibility description aims to test and find out the shortcomings of the existing media, materials and language. The description of feasibility is needed and very important to obtain and obtain concrete data regarding the number of students, the ability of students, the weaknesses of students and many others. The data test was carried out by filling out a questionnaire from Google Form. The questionnaire contains 15 statements in which it contains artificial intelligence technology or AI (Artificial Intelligence). From the results of filling out the questionnaire that has been filled in by students and female students in universities, the following data can be obtained.

N O	Statement	Jawaban				
		SS	S	RR	TS	STS
1	I feel that the use of technology can increase intelligence.	50%	50%			
2	I feel that technology can support distance learning.	55%	40%	5%		
3	I feel that the development of technology is very influential for the development of learning.	35%	65%			
4	I think distance learning using technology is very suitable.	35%	55%	10%		
5	I feel that artificial intelligence can support distance learning.	45%	45%	10%		
6	I feel that with the use of technology the limitations of distance learning can be overcome.	50%	50%			
7	I feel that technology can change and overcome problems in learning.	40%	50%	10%		

8	I feel that the development of the learning process must be accompanied by technology.	50%	40%	10%		
9	I feel that with technology the learning process can run well.	45%	50%	5%		
10	I feel that technology can create teaching materials using interactive applications.	40%	55%	5%		
11	I feel that with the development of increasingly sophisticated times can present artificial intelligence technology.	40%	60%			
12	I feel that artificial intelligence technology is suitable for distance learning.	40%	60%			
13	I feel that artificial intelligence technology can create an interesting learning process.	40%	50%			
14	I feel that artificial intelligence can help the learning process.	40%	50%			
15	I feel that the ability of students can improve with the existence of artificial intelligence technology.	40%	55%	5%		

Figure 1: Data from the questionnaire

Description:

SS = Strongly Agree

S = Agree

RR = Undecided

TS = Disagree

STS = Strongly Disagree

The table above is data obtained from filling out a questionnaire containing statements filled out by students in higher education. The statement consists of 15 statements relating to Artificial Intelligence Technology in distance learning. The assessment stage consists of 5 categories, namely strongly agree, disagree, undecided, disagree, and strongly disagree. The results of the highest student assessment of the

questionnaire that has been given are 65% in the agree category. The second highest assessment result is 60% with the agreed category. From the results of filling out the questionnaire, it can be concluded that the distance learning process using artificial intelligence technology applied in learning Arabic in college greatly facilitates and assists students in completing course assignments and is very supportive for the continuity of the distance learning process. Because Artificial Intelligence Technology provides many conveniences for students such as making it easier for students to complete assignments, making it easier when doing distance learning, increasing student interest in learning, motivating students to be more creative and innovative, and using time more effectively.

CONCLUSION

Based on the results of research and discussion conducted by researchers above by filling out a questionnaire through Google Form regarding educational technology based on artificial intelligence in supporting distance learning in Arabic language learning in college, it can be concluded that artificial intelligence technology or better known as Artificial Intelligence Technology is a technological system that has human-like intelligence, because artificial intelligence technology works like learning, analyzing data, calculating large amounts of data. Artificial intelligence can even beat human ability in calculating and analyzing data when viewed in terms of completion time and data accuracy. Artificial intelligence technology has a positive impact on the continuity of the distance learning process, making it easier for students to do assignments, access learning materials, and many others.

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