

The effect of technology on Arabic language learning in higher education

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ABSTRACT

Technology is advancing and developing, and we cannot let go of our lives. One of them is in the world of education, the use of technology is often found. teachers combine technological devices in the learning process so that the learning atmosphere becomes more interesting, not only with increasingly open technological developments and the spread of information and knowledge throughout the world across the boundaries of space and time. Thus, technological developments have a positive impact on educators and students. In this study, researchers measured the extent to which the application of this technology in the learning process was highly valued. For this reason, this research aims to find out the impact of technology on Arabic language learning at the Batusangkar Institute State Islamic University. The method used in this research is a survey research method. Data collection uses observation, interviews and questionnaires. Furthermore, the expected result of this research is to find out the role or influence of technology on Arabic language learning activities in higher education. Based on the research results, it can be seen that there is an influence or influence of technology on Arabic language learning at the Batusangkar State Islamic Institute.

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1. INTRODUCTION

The development of technology in this day and age is developing very rapidly [1], [2], so that it can make changes in human life [3]. In such a short time, technology has developed rapidly in the market and its use has increased drastically, making many people unable to escape from its users [4]. Technology in the computer dictionary is defined as an engineering ability based on knowledge of exact sciences and based on technical processes in Today's world [5]. Technology cannot be separated from human life [6]. Because most human activities are being marred by technological developments where something that was once done manually has now turned instant [7]. The development of this technology is increasing every era because its development can change people's lives and bring so much impact on the lives of the community and its

surroundings [8], along with the development of the technological era [9], it can facilitate humans in various ways, such as information technology which can make it easier for humans to obtain information. In a short time, information can be easily obtained and spread throughout the world [10]. In the sector of human life, information technology has unknowingly brought the world into a new era of globalization faster than previously imagined [11], [12].

Information technology is becoming one of the technologies that have a broader influence and implications on human life [13]. Information technology is used to process data, including processing, compiling, storing, obtaining, and manipulating data in various ways to obtain quality information [14]. In addition, information technology is used to generate or organize information into a useful form [15]. Information technology can describe the development of human life, one of which is the development of obtaining and obtaining information from the outside world quickly [16]. In its development, information technology creates a new world that is no longer hampered by the boundaries of information acceptance and has changed everything that was once far away from being close, and abstinence turns into reality [17]. When compared to ancient times, humans only anciently got information from frescoes in caves [18]. But nowadays we can easily access information. Which, the World has shifted from the era of industrialization to the age of information which then created an information society [19]. It is very much different from the ancient human civilization [13].

The development of information technology can change people's views on finding and obtaining information, which is no longer limited to information, newspapers, but also other sources of information but can obtain information through the internet network [20]. The internet network can be used to obtain information easily [21]. The internet is the most modern form of information technology development and is now used by residents around the world. Many changes have occurred in the style and habits of human life because they are caused by the arrival of the internet which brings all its advantages [22]. With the advent of the internet [23], humans can very easily obtain and understand information, and even become wise actors in processing information [24]. Internet content can be accessed freely without paying a fee. Then in our lives in the future, information technology is the most emerging thing in life [25].

The development of information technology in life provides many benefits. One of the areas that get the impact of this information technology is the field of education because at this time the use of teaching aids in schools is related to the advancement of science and technology [26]. With the development of technology [27], education always adjusts to the times to improve the quality of education [28]. Improving the quality of education at this time requires an information technology system to make it easier for educators and students to deliver and receive the material [29]. Information technology is closely related to the world of education which not only serves as a supporting tool but can also be the main tool for success in the world of education [30]. Such as the Internet in the world of education where the internet can make it easier for educators and students to get information [31]. For this reason, educators can be good at utilizing this internet-based technology to apply more effective and efficient learning [32]. Where the use of information technology can be applied through the application of learning media [33].

The development of technology in the world of education has produced many innovations in the learning process [34]. Because education is an effort to develop and cultivate people both physically and mentally [35]. Some experts also think of education as a process of changing the attitude or behavior of a person or group of people in maturing themselves through teaching and practice [36]. According to H. Horne education is a continuous (eternal) process of higher adjustment for the human being who has developed physically and mentally. Education has a positive impact on humans such as eradicating illiteracy and will provide skills [37]. Education is an important factor for society because the quality of society will depend on its education [38]. Education is a very important capital in carrying out social life [39]. In education in Indonesia, we can obtain a lot of knowledge such as knowledge about morals, religion, discipline, and so on. Educational development is mostly carried out in schools or colleges [40]. This education is developing with fairly rapid development. It is also inseparable from the education of the Arabic language where its development is increasing every year [31].

The development of Arabic language education in the world is currently increasingly rapid and in demand by the public [16]. Because Arabic is one of the oldest languages in the world which is still used today is of concern to various circles, especially linguists and historians [21]. It is possible that Arabic became the first language for the first humans so it will attract attention to how this language traveled through a very long period to the present [41]. Arabic is a religious language, namely the language of the Quran and hadith [29]. The development of Arabic is very rapid in the world of education either in schools or, but not only Arabic is also taught through courses or training institutions [19]. In Indonesia, Arabic is one of the languages that must be learned in the world of education other than English. Not only in madrasah or college but even in junior high schools and high schools, there are also already learning the Arabic language [18]. The growing era of Arabic language learning is demanded to be the ability to realize technology in its learning [19]. Because of the phenomenon that many of us encounter now many students who lack interest in

learning Arabic which is caused by difficulty in understanding material and media that are less interesting, therefore teachers/lecturers must be able to develop technology as a medium in learning Arabic to motivate and attract students while learning and make students more enthusiastic to take part in learning [42].

Researchers hope that this research on the influence of technology in Arabic language learning can help students and subsequent researchers to elaborate more deeply on the effects of this technology in Arabic language learning in universities and schools [43], and be able to develop technology-based learning media in Arabic language learning to create a conducive [10], efficient and fun learning atmosphere [25]. Because with this application in learning [42], a more interesting and fun learning atmosphere is created, so that students can easily understand the material being taught [44]. Moreover, in higher education, a lecturer must be able to develop his abilities in the use of this technology, especially in learning Arabic [45]. In this millennial era, the application of technology in learning is very important to support the learning process for students [46]. such as the use of interactive media which is considered capable of supporting the learning process both in schools and universities [46]. Therefore, as an educator, he must be good at processing this technology to be able to provide interesting learning, and educators must be creative in utilizing this technology so that later they are not overwhelmed in providing media in learning for their students [18].

Similar research conducted by Mouheb *et al.* [19] explained that the effect of technology on Arabic language learning can increase the motivation of students [47]. because the effect of technology can involve many senses in learning, a medium and learning resources can provide more effective results in learning [26]. Another research was also conducted by Jannah and Nababan [20] in universities which showed results of the influence of technology in learning can have a positive impact on various aspects of student life, from skills to self-confidence [42]. Another researcher was also explained by Mouheb *et al.* [19], that technology can be used for learning Arabic. Because the influence of technology is very large in the world of education such as the availability of various kinds of learning media [16]. And according to research conducted by M Hasan, the use of technology in the learning process for students can affect the academic performance of students in higher education [36], because in learning student learning achievement is influenced by internal and external conditions [46], internal conditions include physical, social, and psychological conditions, while external conditions include the environment and media in learning [17].

This study aims to analyze and find out how the effects or influences of technology on Arabic language learning in universities [47]. And measuring the extent of the application of this technology in the learning process is highly valued [36]. Because the impact of this technology is felt to be very large for students in universities, especially in learning Arabic [48]. The benefit of this research was carried out to determine the impact of technological developments on students at the Islamic state institute of Batusangkar in the learning process [25]. And this research can produce knowledge for researchers and students about the importance of technology in the teaching and learning process [49]. utilizing technology, the creation of a learning media that is considered effective [50]. So the searchers are interested in raising this matter to find out how much effect or influence technology has as a medium in learning Arabic in higher education [25], [51].

2. MATERIALS AND METHOD

This research applies research methods in the form of surveys. Survey research is research to obtain data on the past and present. This research reveals and identifies the influence/effect of technology in Arabic language learning in universities with the application of technology-based learning media. In addition, to find out the extent of Zynga achievement obtained by students in learning. the place /subject in this study is the Islamic state institute of Batusangkar. The time required in this study was about two weeks, the population in this study was the Islamic state institute of Batusangkar Arabic language students with a sample of 4th semester Arabic Language Education students. Data collection in this study through research instruments in the form of observations, interviews, and questionnaires. This study aims to analyze and find out how the influence of technology as a medium in Arabic language learning in universities and find out how much influence the technology has, especially at the Islamic state institute of Batusangkar. Researchers hope that this research can be analyzed for how and how much influence technology has on learning, especially Arabic language learning in universities. And knowing how much benefit students can get.

3. RESULT AND DISCUSSION

This research was conducted in a university using a survey method with a quantitative approach. The survey research method is research that is used to obtain data that has occurred in the past or present. Research using this technique must prepare several instruments so that the research carried out can be tested for validity [52]. Before conducting research, researchers must prepare instruments in the form of

questionnaires or interviews. The questionnaire is used to find out how students view the influence of media-based technology in Arabic language learning. The things that researchers include there are: whether lecturers use media-based technology in Arabic language learning, how they feel about the use of technology as a medium in Arabic language learning, and whether they can easily accept learning after using technology as a medium in Arabic language learning [53], how their ability to understand the material after utilizing technology as a medium in Arabic language learning [54], whether they are more active in learning after utilizing technology as a medium in Arabic language learning, and whether they are motivated to pay attention to learning after utilizing technology as a medium in Arabic language learning.

Various responses from the object of study include always, often, rarely, and never. And many objects in this study were as many as 15 people. Various questions that the author gives so that the student can express what he feels about learning Arabic. The research used a questionnaire instrument by utilizing google. This is felt to be easier and more practical in distributing questionnaires. Google is a service Google that can make it easier for users to create questionnaires, forms, and others on a digital or online basis. The use of google for making questionnaires in this study greatly facilitates research and also saves time research. Because researchers no longer need to distribute questionnaires directly, it is only enough to go online via mobile phone with the use of WhatsApp. Of course, this is very easy. However, there are several obstacles that researchers experience in making this questionnaire, namely the difficulty in raising questions, and a little confusion with the questions given for fear that they are not by the research objectives. But these obstacles can be resolved properly.

The purpose of this study is to analyze and find out how the influence of technology as a medium in Arabic language learning at the Islamic state university of the Institute of Batusangkar. And the most important thing that researchers hope is that learning will be more effective and the higher interest of students in learning Arabic by utilizing technology as a medium in learning [55]. Effective learning, of course, there must be an influence that supports this. In the learning process, there is a fairly large relationship between educators/lecturers and students/students. the process of interaction between educators and learners. components in the teaching and learning process, including educators, learners, methods, and technology as facilities and objectives. technology has a good impact on the smooth teaching and learning process, such as shortening the time to complete tasks. Make it easier to obtain information. When using distance technology, it is no longer a barrier to communication, even learning can still be done remotely. Not only that, but the effect of technology also affects the environment, such as a reduction in paper use. The results of this analysis are related to the effect of technology as a medium in Arabic language learning at the Islamic state university of the Institute of Batusangkar with six questions, researchers obtained data through a questionnaire distributed to 4th semester Arabic language education students so that the data obtained as in Figure 1.

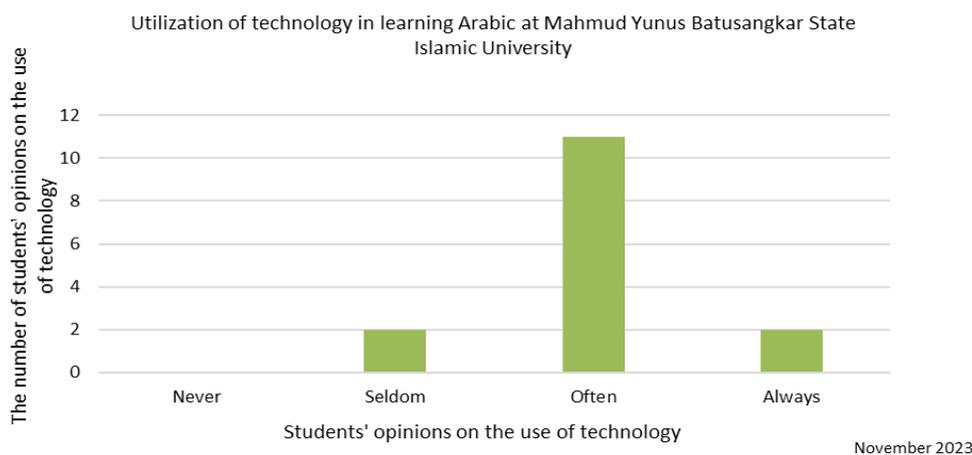


Figure 1. The use of technology in learning

In the two diagrams explain very different differences, in the first diagram it explains that few always use technology in learning Arabic, and in the second diagram it explains that in universities quite always use technology in learning Arabic. Here it can be seen that the use of technology in learning Arabic greatly influences enthusiasm and additional knowledge for students in tertiary institutions, especially at Mahmud Yunus Batusangkar State Islamic University.

Based on the Figure 1, it can be seen that students' views are related to the learning process where lecturers often apply technology as a medium in learning Arabic in higher education. This means that technology has become part of the learning process. There are 73.3% of learnings utilizing the use of technology. The main goal for most countries is to improve the quality of their education. Thus, the Islamic state university of the Institute of Batusangkar, especially in the Arabic language education department, has applied technology in its learning process to improve the quality of its education. This proves that the Islamic state institute of Batusangkar is a university that is not left behind with technology and continues to innovate in developing this technology.

The use of technology certainly affects academic performance, not only that this also affects the academic work of universities. In the educational process should be, the use of technology can help students to achieve and improve their academics, not only the use of technology should increase students' interest in the learning process. Effective learning is created if lecturers can change the views of students/students towards the use of technology as an interesting media and teaching resource. Leonoto *et al.* [56] explained that the ability of educators/lecturers is one of the supports for the academic abilities of students/ students. Things that can improve student learning ability include the teaching style of lecturers, and the facilities available in the teaching and learning process. Students will better understand learning if there are supporting things in the learning. But even though it is like that, students are also required to be able to be independent and creative in the learning process because students are felt to be able to do this. The results of this analysis relate to what students feel in applying technology at the Batusangkar Institute State Islamic University with six questions. Researchers obtained data through questionnaires distributed to Arabic language education students in 4th semester. So that the data obtained as in Figure 2.

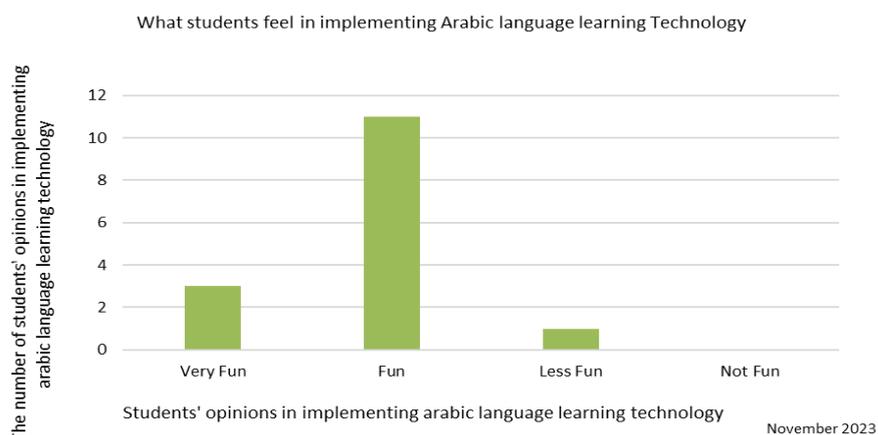


Figure 2. what students feel in the application of technology

In the diagram presented, you can clearly see the difference between the two, in the first diagram explaining the highest value of fun, then followed by very fun, less fun and the last one is not fun. And in the results of the second diagram, it is explained that students find it very enjoyable in using technology in learning Arabic, followed by fun, less fun and finally not fun.

Based on the results of the questionnaire above, some things are felt by students about how to use technology in learning Arabic. Here we can see that students feel happy in learning after the application of technology as a learning medium. Of which there are 73.3% of students feel happy to follow the teaching and learning process. Comfort and feelings of pleasure in learning are very necessary to achieve satisfactory learning results, if students feel that learning is unpleasant, then they will be lazy in following the learning, so they rarely enter classes, often skip class, and do not want to know about the tasks given by the lecturer. For this reason, learning needs innovation by utilizing the use of technology as a medium in learning, especially in Arabic language learning. In learning, a lecturer/educator must be able to be a good example for his students/students, both in terms of appearance, learning style, learning methods, and not forgetting how to teach a lecturer. If in the learning of lecturers/educators there is an application of technology-based learning, students will model this at some point in the learning process.

Technology helps create a variety of learning opportunities that can engage students further. Education is increasingly becoming mobile and educational institutions are looking for ways to improve the experience by applying technology in the learning process. There are several benefits of technology for

students including more accessible education. The United Nations estimates that more than 263 million children are not getting a full education because educational facilities are poor in quality, learning accommodation, and others. So online learning is available in education so that those in remote areas can follow the learning process and make it easier to share cross-border curricula. Then the benefits of technology then more personalized education, although personalized educational experiences are not a new concept, technology can make it easier to achieve. Educators/downs can access various learning media through technology to provide students with different learning experiences according to the established curriculum. The benefits of technology are furthermore, technology is increasingly evolving to bring a deep learning experience to students wherever they are.

The results of this analysis relate to what students learn about new student admissions at the Batusangkar State Islamic Institute with six questions. Researchers obtained data through a questionnaire distributed to 4th semester students of Arabic language education. The data related to student in learning admission is as in Figure 3.

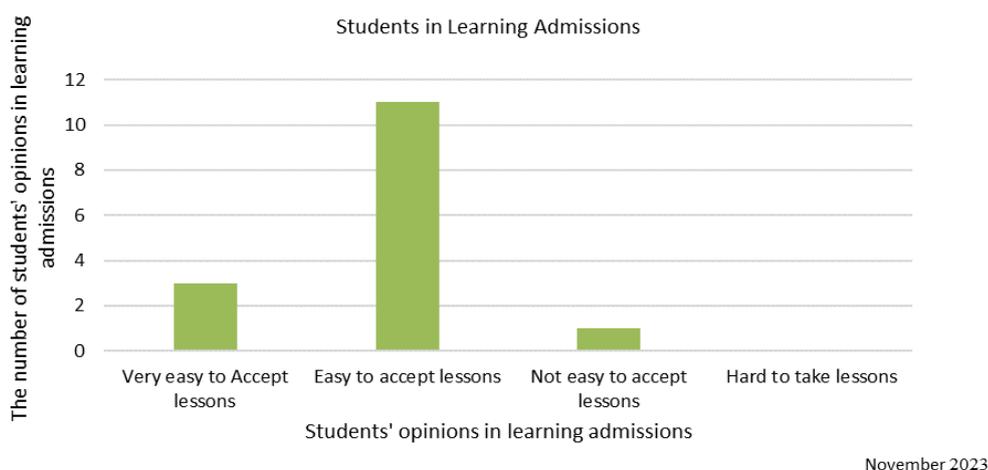


Figure 3. students in learning admissions

In the presentation of the two diagrams, there can be some differences in the results in the acceptance of lessons from students or students. For the first diagram, it explains that it is easy for students to get lessons with a result of 11 answers, and for the second level it is very easy for students to get lessons with a result of 3 answers, and then it is not easy for students to get lessons with a score. answer 0. And for the next diagram, in the second diagram it is very easy for students to get lessons with a total of 10 answers, then students easily get lessons with a result of 7 answers, then it is very difficult for students to get lessons with a number of answers of 2, and the last one is that students don't it is easy to get lessons with the number of answers 1. From the two diagrams above, it can be concluded that students easily get knowledge, because looking at the highest number of answers, namely 11 answers.

The results of the questionnaire above illustrate how students in universities receive Arabic learning materials with the influence of technology as a medium in learning Arabic at the Islamic state institute of Batusangkar. It can be seen from the figure above that students can easily receive Arabic material during the learning process, where 73.3% of objects are easy to receive material during the learning process. This shows that technology as a medium affects students' Arabic language learning. For this reason, in the learning process, it is necessary to have an update, namely the use of technology which has a direct impact on the abilities and enthusiasm of students/students, then students/students will feel interested in participating in learning so that they are easy to accept the learning. However, if in learning there is no application of an update such as in the use of technology as a medium, then students/students will later feel bored and lazy to follow the learning so the lesson is difficult to accept. For this reason, technology greatly affects student learning achievement.

Every teacher/lecturer will want all his students/students to be easy to accept learning. Teaching methods and teaching media are important in the learning process so that students can understand the material well. The results of this analysis relate to the ability to understand Arabic language material at the Mahmud Yunus Batusangkar State Islamic University with six questions. The researcher obtained data

through a questionnaire distributed to students in the 4th semester of Arabic language education. So that the data obtained is as shown in Figure 4.

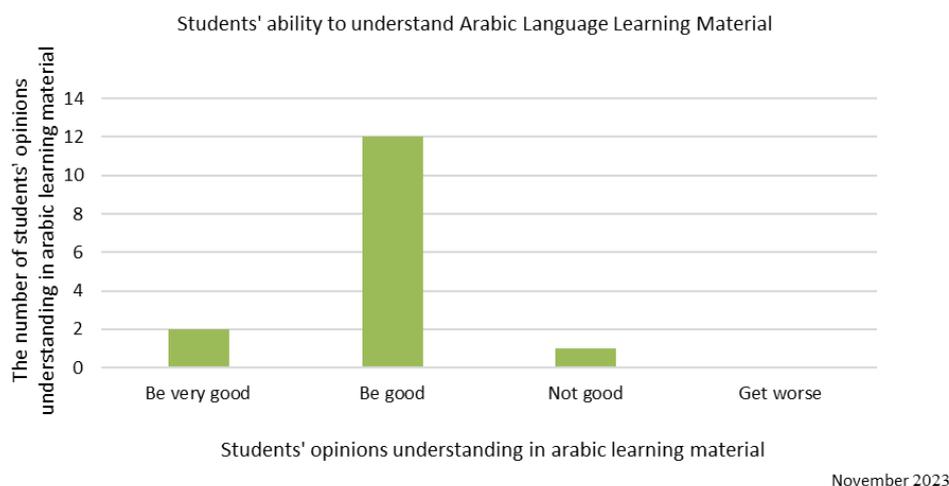


Figure 4. Ability to understand the material

Based on the Figure 4, it is related to the ability of students to understand the meter of Arabic learning with the use of technology as a learning medium at the Islamic state university of the Institute of Batusangkar. There are four respondents chosen by students, namely: very good, good, less good, and worse. The research conducted at the Islamic state institute of Batusangkar stated the results that students' ability to understand Arabic material is good. The data gain was very good at 13.3%, good at 80%, less good at 6.7%, and worse at 0%. Technology as a medium has been assumed by various groups as a device that requires high technology. People who work with educational technology have a penchant for making innovations, and always carry out their innovations in their learning media. When educational institutions such as schools or universities have been in the phase of institutions that implement technology as a medium, the good thing is that educational institutions no longer need to motivate people to use it. The challenge of educational institutions is how to motivate people to use technology as a medium in their learning.

The influence of technology on the world of education is so great we feel, that its influence on the use of learning media is increasingly sophisticated, this is commonplace because each era has its characteristics. This phenomenon corresponds to the sentence of Ali Bin Abi Tholib that "educate your son according to his time". Because today's students are much different from last year's students/ students. Differences between epochs as a matter of course and not to be debated. In ancient times the learning process was carried out manually without the slightest technological influence, this is very much different from today's millennial era. There are so many influences/benefits provided by technology in the context of education, especially in learning Arabic, including increasing the involvement of students/students in learning and helping students/students work through difficult concepts. However, even so, students need to sort out the influence of using this technology, because of the many benefits obtained, not a few negative influences are obtained. For this reason, students/students must be good at using it.

The results of this analysis relate to student activities in learning Arabic at the Mahmud Yunus Batusangkar State Islamic University with six questions. The researcher obtained data through a questionnaire distributed to students in the 4th semester of Arabic language education. So that the data obtained is as shown in Figure 5. Referring to the Figure 5, students are active in the Arabic language learning process at the Islamic state institute of Batusangkar, and after the application of technology as a medium, students become active in participating in Arabic language learning. There are 73.3% of students active in the process. It can be understood that technology affects student activity. In learning, students/students are required to be active, both in asking questions, expressing opinions, and giving responses, especially in learning Arabic, students are required to be active both in terms of maharah kalam, istima', kitabah, and qiraah. Active learning is an effort to strengthen and facilitate the response of students to learning. In active learning, there are activities of speaking, listening, writing, reading, and reflection that accompany students/students towards meaning. Students will try to recognize the content of the lesson, ideas, and various things related to one topic being studied. In active learning, teachers/lecturers act more as

facilitators than knowledge providers. For this reason, the need for the influence of technology as a facility that can be used by teachers/lecturers in learning

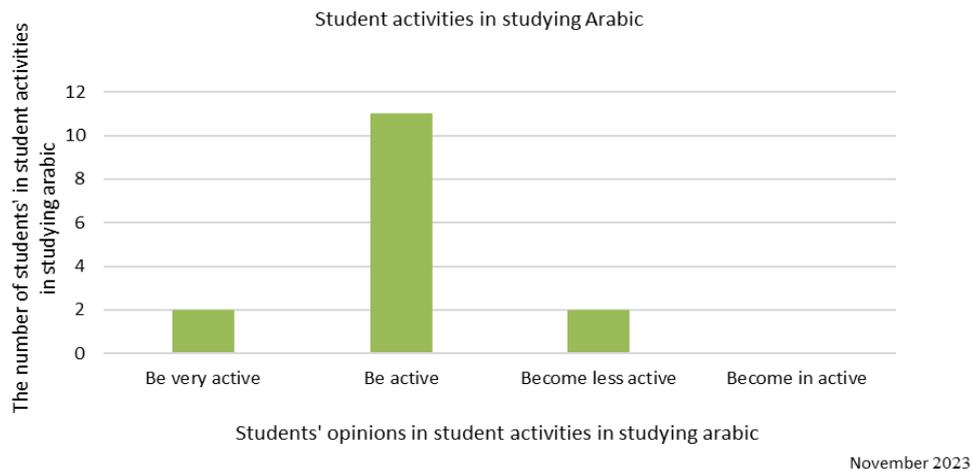


Figure 5. Student activity in learning

According to [57] active learning has several special characteristics that distinguish it from other learning, including emphasizing the learning process, not the delivery of material by teachers/lecturers. This process is an effort to instill the value of hard work in students/ students. Furthermore, students/students should not be passive, but must actively work on something related to the learning material. Furthermore, emphasis is on exploring values and attitudes about learning materials. In this case, students are entitled to receive subject matter that is seen as in line with their outlook on life or reject subject matter that is not in their view of life. Then the principle in active learning is the principle of doing, meaning learning while working learning must make students do something, not just stay still, and stand idly by. The next principle is to use all the tools of the senses, that in learning should activate all the tools of the senses to obtain information or knowledge.

The results of this analysis relate to student activities in learning Arabic at the Mahmud Yunus Batusangkar State Islamic University with six questions. The researcher obtained data through a questionnaire distributed to students in the 4th semester of Arabic language education. So that the data obtained is as shown in Figure 6.

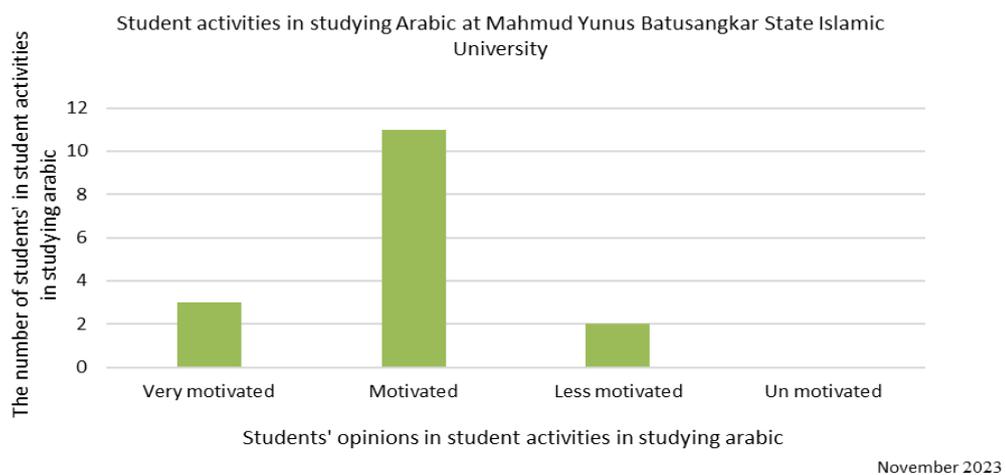


Figure 6. Student motivation in learning

The results of the questionnaire illustrate how motivated students are in the process of learning Arabic. So, the data obtained, included highly motivated 20%, motivated 73.3%, less motivated 6.7%, and

unmotivated 0%. This proves that Arabic education Islamic state institute of Batusangkar students are motivated in the learning process with the presence of technology as a medium. Learning motivation is an encouragement from students to achieve learning goals, for example, understanding the material or developing learning. The motivation of students/students will always be enthusiastic to continue learning without any coercion from any party. There are so many ways to grow this motivation, one of which is the use of technology in learning. Such as the influence of animation video-based technology on students' istima abilities. Students become more motivated to take part in this kind of learning because it is not boring and more interesting

Technology as a medium is one the important roles to improve the quality of human resources in the learning process. The presence of media in learning can help increase students' understanding and motivation by presenting more accurate data or information [58]. It can be said that the media is a tool in the teaching and learning process. In addition, the influence of technology as a medium in learning activities has a great influence on sensory tools, especially those that affect the understanding of the content of the lesson. Learning media, can generate motivation and bring students into an atmosphere of joy and joy [59]. For example, learning media is closely related to the use of technology which can increase enthusiasm and motivation in the learning process. Students become more motivated to improve their ability to speak, write, read, and listen to Arabic material presented by lecturers. This is very helpful in the learning process both in school and in college.

4. CONCLUSION

The influence of technology in learning is among others marked by the interaction between teachers/lecturers and students. The existence of teaching materials, the use of learning media, and methods in learning. Teachers/lecturers act as facilitators and the learning process is flexible both in terms of time and place. The presence of technology gives way to benefits that can overcome problems in learning, especially in learning Arabic. Such as improving language skills, which include listening, speaking, writing, and reading which can be done through technology-based learning. In this case, lecturers are required to be technologically literate so that they can use it to overcome learning difficulties experienced by students and increase student learning motivation. The development of technology has at least had a positive impact in the world of education, including learning Arabic. Managing teaching materials has become easier and more interesting due to the influence of technology. It remains only how teachers/lecturers and students/students in utilizing this technology in the learning process.

The process of learning Arabic with the influence of technology can create interesting, and fun learning. Teachers/lecturers feel very helped by the influence of this technology as a medium in learning, especially Arabic language learning. Likewise, students also feel helped in receiving teaching materials provided by teachers/lecturers with the influence of this technology. However, lecturers or students must be able to filter which technology can be used as a teaching medium with which technology hurts student learning. In utilizing technology, teachers/lecturers need to understand what kind of technology is suitable to be applied to learning, especially Arabic language learning. Sometimes there is an influence of this technology that makes students more spoiled. Like, google translate which can translate language by just copying the text to be translated. This will make students, especially in Arabic learning, lazy to look for word translations because they only rely on google translate. Then lecturers or students must be able to sort out from it the influence of this technology on learning.

REFERENCES

- [1] S. Ra, U. Shrestha, S. Khatiwada, S. W. Yoon, and K. Kwon, "The rise of technology and impact on skills," *Int. J. Train. Res.*, vol. 17, no. sup1, pp. 26–40, 2019, doi: 10.1080/14480220.2019.1629727.
- [2] M. Ritonga, Sobhan, and Bambang, "Utilizing Technology to Improve the Quality of Learning in Indonesia: Challenges and Consequences for Arabic Teachers Arabiyât," *Journal Arabic Education and Arabic Studies*, vol. 9, no. 1, pp. 56–68, 2022, doi: 10.15408/a.v9i1.24516.
- [3] J. Danaher and H. S. Sætra, "Technology and moral change: the transformation of truth and trust," *Ethics Inf. Technol.*, vol. 24, no. 3, p. 35, 2022, doi: 10.1007/s10676-022-09661-y.
- [4] A. Putra, S. Riyadi, and A. Lubis, "The Effect of Using the Traditional and Electronic Virtual Map Strategy on the Comprehension of Grammatical Rules," *Tanwir Arab. Arab. Foreign Lang. J.*, vol. 2, no. 2, pp. 85–97, 2022, doi: 10.31869/afj.v2i2.3285.
- [5] B. Levin-Asher, O. Segal, and L. Kishon-Rabin, "The validity of LENA technology for assessing the linguistic environment and interactions of infants learning Hebrew and Arabic," *Behav. Res. Methods*, vol. 55, no. 3, pp. 1480–1495, 2023, doi: 10.3758/s13428-022-01874-9.
- [6] A. M. D. E. Hassanein and M. Nour, "A Proposed Model of Selecting Features for Classifying Arabic Text," *Jordanian J. Comput. Inf. Technol. JJCIT*, vol. 5, no. 3, pp. 275–290, 2019.
- [7] R. Ahmad, S. Naz, M. Afzal, S. Rashid, M. Liwicki, and A. Dengel, "A deep learning based arabic script recognition system: Benchmark on Khat," *Int. Arab J. Inf. Technol.*, vol. 17, no. 3, pp. 299–305, 2020, doi: 10.34028/iajit/17/3/3.

- [8] M. Ritonga, R. Hakim, T. Nurdianto, and A. W. Ritonga, "Learning for early childhood using the IcanDO platform: Breakthroughs for golden age education in Arabic learning," *Educ. Inf. Technol.*, vol. 28, no. 7, pp. 9171–9188, 2023, doi: 10.1007/s10639-022-11575-7.
- [9] M. Saleh and J. M. Alja'am, "Towards Adaptive Multimedia System for Assisting Children with Arabic Learning Difficulties," in *2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology (JEEIT)*, 2019, pp. 794–799, doi: 10.1109/JEEIT.2019.8717419.
- [10] A. Korichi, "Arabic handwriting recognition: Between handcrafted methods and deep learning techniques," *Proceedings - 2020 21st International Arab Conference on Information Technology, ACIT 2020*, 2020, doi: 10.1109/ACIT50332.2020.9300121.
- [11] A. Alsswey, F. A. El-Qirem and M. H. Al Tarawneh, "Dyslexic Arabic Students in the Arab Countries: A Systematic Review of Assistive Technology Progress and Recommendations," *Int. J. Early Child. Spec. Educ.*, vol. 13, no. 1, pp. 114–120, 2021, doi: 10.9756/INT-JECSE/V13I1.211014.
- [12] Z. Oumaima, M. Abdelouafi, and E. H. Meryem "Text-to-Speech Technology for Arabic Language Learners," *Colloquium in Information Science and Technology, CIST*, vol. 2018, pp. 432–436, 2018, doi: 10.1109/CIST.2018.8596372.
- [13] M. Galal, M. M. Madbouly, and A. El-Zoghby "Classifying Arabic text using deep learning," *J. Theor. Appl. Inf. Technol.*, vol. 97, no. 23, pp. 3412–3422, 2019.
- [14] Koderi, A. Maulana, U. Hijriyah, D. Prasetyo, and Rukimin, "Developing mobile learning media for arabic language instruction at islamic senior high school in lampung Indonesia," *Int. J. Recent Technol. Eng.*, vol. 8, no. 2, pp. 107–112, 2019, doi: 10.35940/ijrte.B1024.0982S919.
- [15] A. P. Andriyandi, W. Darmalaksana, D. S. adillah Maylawati, F. S. Irwansyah, T. Mantoro, and M. A. Ramdhani, "Augmented reality using features accelerated segment test for learning tajweed," *Telkomnika Telecommun. Comput. Electron. Control*, vol. 18, no. 1, pp. 208–216, 2020, doi: 10.12928/TELKOMNIKA.V18I1.14750.
- [16] A. Meftah, Y. Seddiq, Y. Alotaibi, and S.-A. Selouani "Cross-corpus Arabic and English emotion recognition," *2017 IEEE International Symposium on Signal Processing and Information Technology, ISSPIT 2017*, pp. 377–381, 2018, doi: 10.1109/ISSPIT.2017.8388672.
- [17] M. Al-Shenak, K. M.O. Nahar, and K.Mk.H Halawani, "Aqas: Arabic question answering system based on svm, svd, and lsi," *J. Theor. Appl. Inf. Technol.*, vol. 97, no. 2, pp. 681–691, 2019.
- [18] E. S. Wihidayat, Y. D. Utami, and A. Budianto, "Learn Arabic Language App, Mobile Based Application for Self-Directed Learning," *2018 4th International Conference on Education and Technology, ICET 2018*, pp. 13–17, 2018, doi: 10.1109/ICEAT.2018.8693934.
- [19] D. Mouheb, R. Ismail, S. Al Qaraghuli, Z. Al Aghbari and I. Kamel, "Detection of Offensive Messages in Arabic Social Media Communications," *Proceedings of the 2018 13th International Conference on Innovations in Information Technology, IIT 2018*, pp. 24–29, 2019, doi: 10.1109/INNOVATIONS.2018.8606030.
- [20] M. Jannah, and A. A. Nababan "Harfu Jar Detection System in Al-Quran Using Pierce Similarity Algorithm as a Basic Learning Media of Arabic Language," *MECnIT 2020 - International Conference on Mechanical, Electronics, Computer, and Industrial Technology*, pp. 349–354, 2020, doi: 10.1109/MECnIT48290.2020.9166632.
- [21] B. Haidar, M. Chamoun, and A. Serhrouchni, "A multilingual system for cyberbullying detection: Arabic content detection using machine learning," *Adv. Sci. Technol. Eng. Syst.*, vol. 2, no. 6, pp. 275–284, 2017, doi: 10.25046/aj020634.
- [22] E. M. S. S. Elawadi, Z. Ab. Halim, N. A. Al-Sammaraie, and Y. A. El-Ebiary, Bishwajeet Pandey, "The impact of e-learning in teaching arabic language for non-native speakers," *Int. J. Recent Technol. Eng.*, vol. 8, no. 2, pp. 1159–1162, 2019, doi: 10.35940/ijrte.B1214.0782S319.
- [23] B. E. Wardana, N. Usman, X. Guilin, and D. Jiao, "Analysis of Quality Management of Islamic Education at the Pabelan Islamic Boarding School, Mungkid District, Magelang Regency," *J. Int. Inspire Educ. Technol.*, vol. 2, no. 3, pp. 136–150, Agu 2023, doi: 10.55849/jiit.v2i3.466.
- [24] J. Zhao, X. Xu, H. Jiang, and Y. Ding, "The effectiveness of virtual reality-based technology on anatomy teaching: a meta-analysis of randomized controlled studies," *BMC Medical Education*, 2020, doi: 10.1186/s12909-020-1994-z.
- [25] T. Kanan *et al.*, "A review of natural language processing and machine learning tools used to analyze Arabic social media," *2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology, JEEIT 2019 - Proceedings*, pp. 622–628, 2019, doi: 10.1109/JEEIT.2019.8717369.
- [26] M. Hamzah, M. T. A. Ghani, W. Ab Aziz Wan Daud, and S. Ramli, "Digital game-based learning as an innovation to enhance student's achievement for arabic language classroom," *Int. J. Recent Technol. Eng.*, vol. 8, no. 3, pp. 2108–2112, 2019, doi: 10.35940/ijrte.C4554.098319.
- [27] L. M. Azzahra *et al.*, "Determinants of Production, International Trade Price Index (IHPI) and the Rupiah Exchange Rate on Indonesian Palm Oil Exports in 2007-2021," *J. Int. Dakwah Commun.*, vol. 3, no. 2, pp. 121–136, Jun 2023, doi: 10.55849/jidc.v3i2.407.
- [28] A. Habibi, A. Mukminin, M. Sofwan, and U. Sulistiyono, "Implementation of classroom management by English teachers at high schools in Jambi, Indonesia," *Stud. Engl. Lang. Educ.*, vol. 4, no. 2, p. 172, 2017, doi: 10.24815/siele.v4i2.6104.
- [29] M. H. Ismail, S. A. Dawwd, and F. H. Ali "Arabic Sign Language Detection Using Deep Learning Based Pose Estimation," *Proceedings of 2021 2nd Information Technology to Enhance E-Learning and other Application Conference, IT-ELA 2021*, pp. 161–166, 2021, doi: 10.1109/IT-ELA52201.2021.9773404.
- [30] H. Awang *et al.*, "Tarannum Smart Learning Application: Embracing the beauty of tarannum through multimedia technology," *Int. J. Eval. Res. Educ.*, vol. 11, no. 2, pp. 897–906, 2022, doi: 10.11591/ijere.v11i2.22388.
- [31] M. Elkhayati, and Y. Elkettani, "Towards directing convolutional neural networks using computational geometry algorithms: application to handwritten Arabic character recognition," *Adv. Sci. Technol. Eng. Syst.*, vol. 5, no. 5, pp. 137–147, 2020, doi: 10.25046/aj050519.
- [32] R. Mills, L. Tomas and B. Lewthwaite "The Impact of Student-Constructed Animation on Middle School Students' Learning about Plate Tectonics," *J. Sci. Educ. Technol.*, vol. 28, no. 2, pp. 165–177, 2019, doi: 10.1007/s10956-018-9755-z.
- [33] A. Aloqaily, M. Al-Hassan, K. Salah, B. Elshqeerat, and M. Almashagbah, "Sentiment analysis for Arabic tweets datasets: Lexicon-based and machine learning approaches," *J. Theor. Appl. Inf. Technol.*, vol. 98, no. 4, pp. 612–623, 2020.
- [34] R. Estriegana, J.-A. Medina-Merodio, and R. Barchino, "Student acceptance of virtual laboratory and practical work: An extension of the technology acceptance model," *Comput. Educ.*, vol. 135, pp. 1–14, 2019, doi: 10.1016/j.compedu.2019.02.010.
- [35] M. Fanguy, J. Costley, C. Lange, M. Baldwin, and S. Han "The role of motivation in the use of lecture behaviors in the online classroom," *J. Inf. Technol. Educ. Res.*, vol. 17, pp. 471–484, 2018, doi: 10.28945/4131.
- [36] A. Hasasneh, "Arabic sign language characters recognition based on a deep learning approach and a simple linear classifier," *Jordanian J. Comput. Inf. Technol.*, vol. 6, no. 3, pp. 281–290, 2020, doi: 10.5455/jcit.71-1587943974.

- [37] D. Abdelrazaq, S. Abu-Soud, and A. Awajan, "A machine learning system for distinguishing nominal and verbal Arabic sentences," *Int. Arab J. Inf. Technol.*, vol. 15, no. 3, pp. 576–584, 2018.
- [38] V. Nikitenko, "Evolution and further development of the real world in the conditions of technological changes in the context of socio-philosophical discourse," *Humanit. Stud.*, vol. 4, no. 81, pp. 60–73, 2020.
- [39] S. Alaofi, "The Impact of English Language on Non-Native English Speaking Students' Performance in Programming Class," *Annual Conference on Innovation and Technology in Computer Science Education, ITICSE.*, pp. 585–586, 2020, doi: 10.1145/3341525.3394008.
- [40] Z. A. Khalaf, and K. A. Hassan, "Filtering approach and system combination for Arabic news classification," *J. Theor. Appl. Inf. Technol.*, vol. 96, no. 14, pp. 4491–4501, 2018.
- [41] H. Chen, "Research on the path optimization of ideological and political education based on computer multimedia technology," *J. Phys. Conf. Ser.*, 2020, doi: 10.1088/1742-6596/1648/2/022087.
- [42] Sakirah, Z. Syahrial, and Khaerudin "Development of arabic learning models through content and language integrated learning approaches," *Int. J. Adv. Sci. Technol.*, vol. 29, no. 4, pp. 1570–1577, 2020.
- [43] D. Ko, C. Lee, D. Han, H. Ohk, K. Kang, and S. Han: "Approach for machine-printed Arabic character recognition: The-state-of-the-art deep-learning method," *IS and T International Symposium on Electronic Imaging Science and Technology*, 2018, doi: 10.2352/ISSN.2470-1173.2018.2.VIPC-176.
- [44] M. S. Abdullah, M. S. Abdullah, M.M. Hafizur Rahman, Al-Sakib Khan Pathan, and I. F. Al Shaikhli "A practical and interactive web-based software for online Qur'anic Arabic learning," *Proceedings - 6th International Conference on Information and Communication Technology for the Muslim World, ICT4M 2016.*, pp. 76–81, 2017, doi: 10.1109/ICT4M.2016.027.
- [45] J. Jamaan, and Z. S. Abdullah "Assessing Arabic language learning for deaf student: A study of using mobile immersion in Saudi Arabia," *Proceedings - International Conference on Information and Communication Technology for the Muslim World 2018, ICT4M 2018.* hlm. 296–300, 2018. doi: 10.1109/ICT4M.2018.00061.
- [46] N. Halim, M. Boys, F. Fahmi, K. Nozaki, and M. Wutipong, "Implementation of Project-Based Learning in Indonesian EFL Class Between 2017 to 2022," *J. Neosantara Hybrid Learn.*, vol. 1, no. 2, pp. 94–109, Agu 2023, doi: 10.55849/jnhl.v1i2.94.
- [47] P. Wibowo, "E-Learning Learning During the COVID-19 Pandemic and the Impact on Student Development in Learning Hindu Religious Education at SMPN-1 Kurun (in Indonesia)," *Cetta J. Ilmu Pendidik.*, vol. 3, no. 3y, 2020.
- [48] A. Alnafjan, A. Aljumaah, H. Alaskar, and Reem Alshraih, "Designing 'Najeeb': Technology-Enhanced Learning for Children with Impaired Hearing Using Arabic Sign-Language ArSL Applications," *2017 International Conference on Computer and Applications, ICCA 2017.*, pp. 238–243, 2017. doi: 10.1109/COMAPP.2017.8079772.
- [49] D. Suleiman, and A. Awajan, "Deep learning based abstractive arabic text summarization using two layers encoder and one layer decoder," *J. Theor. Appl. Inf. Technol.*, vol. 98, no. 16, pp. 3233–3244, 2020.
- [50] T. Nicholas, G. James, and K. Robert, "Moral Aqidah Learning Using Video-Based Technology," *Sci. J. Sci. Technol.*, vol. 2, no. 1, pp. 1–16, Apr 2023, doi: 10.55849/scientechno.v2i1.65.
- [51] R. E. Salah, and L. Q. binti Zakaria "A comparative review of machine learning for Arabic named entity recognition," *Int. J. Adv. Sci. Eng. Inf. Technol.*, vol. 7, no. 2, pp. 511–518, 2017, doi: 10.18517/ijaseit.7.2.1810.
- [52] Y. Fitria, Y. S. Budi, F. E. Damayanti, and C. María-José, "Psychological Well-Being of Al-Qur'an Education School Teachers in Banyuwangi," *World Psychol.*, vol. 2, no. 2, pp. 105–113, Agu 2023, doi: 10.55849/wp.v2i2.117.
- [53] N. Niswatin, E. S. Damayanti, B. Jonathan, and W. Joshua, "School Excellence and Acceleration Policy: A Review of Theory and Implementation," *Lingeduca J. Lang. Educ. Stud.*, vol. 2, no. 2, pp. 158–173, Jul 2023, doi: 10.55849/lingeduca.v2i2.300.
- [54] M. Mustika, U. M. M. Takdir, S. Hermansyah, and A. Kahar, "The Effectiveness of Using Digital-Based Teaching Materials on Craftsmanship and Entrepreneurship Learning Outcomes of Class XI Muhammadiyah High School Students," *J. Int. Lingua Technol.*, vol. 2, no. 3, pp. 203–211, Agu 2023, doi: 10.55849/jiltech.v2i3.478.
- [55] M. Mustafiyanti, M. P. Putri, M. Muyassaroh, D. Noviani, and M. Dylan, "A Form of Independent Curriculum, an Overview of Independent Learning at State Elementary School 05 Gelumbang Muaraenim," *Pengabd. J. Abdimas*, vol. 1, no. 2, pp. 82–96, Jun 2023, doi: 10.55849/abdimas.v1i2.185.
- [56] B. A. Loeneto, Z. Alwi, E. Erialida, E. Eryansyah, and S. Oktarina, "Teacher Education Research and Development in Indonesia: Preparing Educators for the Twenty-First Century BT," *Handbook of Research on Teacher Education: Innovations and Practices in Asia*, M. S. Khine and Y. Liu, Eds., Singapore: Springer Nature Singapore, 2022, pp. 173–204, doi: 10.1007/978-981-16-9785-2_10.
- [57] R. M. Noer *et al.*, "Improving the Degree of Health in the Elderly Through Health Checks and Education," *Pengabd. J. Abdimas*, vol. 1, no. 1, pp. 8–13, Jun 2023, doi: 10.55849/abdimas.v1i1.139.
- [58] L. Liam, H. Hui, and L. Carsten, "Utilization of ICT in Learning the History of Islamic Culture," *Sci. J. Sci. Technol.*, vol. 2, no. 1, pp. 64–79, Apr 2023, doi: 10.55849/scientechno.v2i1.49.
- [59] A. Amrina, I. Akhri, C. Lee, and J. Jansee, "Using of Visual Application in Arabic Language Learning Class X MAN 1 Kuantan Singingi," *Sci. J. Sci. Technol.*, vol. 1, no. 1, pp. 1–14, Des 2022, doi: 10.55849/scientechno.v1i1.1.

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