



The Utilization of the Design Application for Arabic Learning

Angga Franda¹, Annisa Lucki Pratiwi², Tehn Werry³, Anne Wais⁴

¹ Sekolah Tinggi Ilmu Ekonomi Syariah Imam Asy Syafii, Indonesia

² Islamic State University of Mahmud Yunus Batusangkar, Indonesia

³ Chulalongkorn University, Thailand

⁴ University of Saint Francis Xavier, Bolivia

Corresponding Author: Annisa Lucki Pratiwi, E-mail: annisaluckipratiwi@gmail.com

Article Information:

Received April 10, 2023

Revised April 19, 2023

Accepted April 25, 2023

ABSTRACT

The purpose of this study was to describe the use of the Canva application as an effort to increase students' interest in learning Arabic. This research uses a library research method. The sources of this literature are journals and books similar to this research. One of the learning developments can be in the form of e-modules. And this can be done using the Canva app. The Canva application is one of the online applications that can be free or paid. This application can also be used to design learning media with several interesting templates, the presentation of shapes, images, colors, and letters also has many variations. How to use this application is to create a Canva account, design, choose a background, edit the background, add text, and lastly, download or share text. By using this Canva application, students can create more interesting Arabic teaching materials. Therefore, through e-modules, Arabic subjects are interesting so that they can strengthen students' learning interest in distance learning and also not boring

Keywords: *Application, Arabic Learning, Design*

Journal Homepage

<https://ejournal.staialhikmahpariangan.ac.id/Journal/index.php/jiltech/>

This is an open access article under the CC BY SA license

<https://creativecommons.org/licenses/by-sa/4.0/>

How to cite:

Franda, A., Pratiwi, L., Werry, A., Wais, A. (2023). The Utilization of the Design Application for Arabic Learning. *Journal International of Lingua and Technology*, 2(1), 61-72. <https://doi.org/10.55849/jiltech.v2i1.220>

Published by:

Sekolah Tinggi Agama Islam Al-Hikmah Pariangan Batusangkar

INTRODUCTION

In this life, it is not free from the problems of life as in Indonesia, the aspects that are always discussed are the economic, social, political aspects. We always see hot discussions related to these three aspects, both from print media and television media (Radianti, 2020). In the path of education, teachers must guide students to be able to limit the rapid development of science and technology and develop students' abilities, students' attitudes to be able to handle new situations (Hernández-Lara, 2018). The concern of students towards problems and factors that must be developed in students (Kuo, 2019).

Globalization continues to bring changes in all aspects of life that require humans to be able to follow its path (Ritonga, 2021). As we know in the fields of education, economics, social, politics, law, science and technology and others. The influence of globalization that brings positive changes in a science and technology is an increase in the progress of science and technology (Rose, 2018). Advances in science and technology are now having an influence in the field of education, one of which is in the field of using different tools and learning facilities in an educational institution that is used by educators in their learning. The rapidly developing science and technology is also increasingly demanding educational institutions to follow changes such as using and utilizing learning media (Mila et al., 2021).

The media is the most important component in the teaching and learning process which is regulated as possible and in accordance with the demands of the curriculum, the characteristics of the facilities for the teaching and learning process (Schneider, 2018b). And the media is also an important component in supporting the success of learning (Kruikemeier, 2018). The importance of learning media is also clearly stated in the regulation of the minister of education and culture of the republic of Indonesia No. 22 of 2016, concerning the education process which states that, learning media is in the form of learning process aids to deliver learning materials (Pereira, 2019). Effective and enjoyable learning is collaborative and learner-centered. For this reason, the media used is in accordance with the learning objectives and makes students comfortable and easy to understand the content of the material. Learning media need to pay attention to the effect of illustrations that can also be used to match messages from educators to students (Sony Junaedi, 2021)

Regarding the definition of media. The word media comes from the Latin medium which means intermediary or introduction. Raharjo said, the media is a means of channeling messages or learning information to be conveyed by the message source to the target recipient of the message (Mila et al., 2021) Meanwhile, Oemar Malik defines media as a technique used in order to make communication between teachers and students more effective in the education and teaching process in schools. Robert Hanick et al, cited by Benni Agus Pribadi, define media as something that carries information between the source (source) and the recipient (receiver) of information (Kazanidis, 2018).

Meanwhile, talking about the definition of learning media citing the term from Schramm, Akhmad Sudrajat in his educational paper suggests that the definition of learning media is message-carrying technology that can be used for learning purposes. Meanwhile, Briggs argues that learning media is a physical means to convey learning content/materials such as: books, films, videos and so on (Kamrava, 2020).

Meanwhile, the National Education Association revealed that the media is a means of communication in the form of print and view-heard, including hardware technology. Thus it can be understood that learning media are tools, methods and techniques used as communication intermediaries between a teacher and students in

order to make communication and interaction between educators and students more effective in the teaching and learning process in schools (Rohaeti, 2019).

The most important criterion in the selection of media is that the media must be adapted to the learning objectives or competencies to be achieved (Kanan, 2019). Example: if the goal or competence of students is to pronounce words, of course the audio media is the right one to use. If the goal or competency achieved is reading comprehension, then print media is more appropriate to use. If the learning objectives are motor (movement and activity), the media that can be used are films and videos. In addition, there are other criteria that are complementary, such as: cost, effectiveness, condition of students, availability, and technical quality (Smaldino et al., 2020). There are also those who reveal that the purpose of learning media in the teaching and learning process is to increase the concentration of learning by stimulating the visuality of students. In the teaching and learning process, the media is a very important part in creating student activity. And the existence of the learning media itself makes it easier for teachers to transfer their knowledge to students easily and practically so that the learning process can be well received.

Rudi Bretz in bukharu clarifies the media on its main characteristics, namely sound, visual form (images, lines, and symbols) and motion. In addition, he also distinguishes between transmission media and recording media. On this basis, Bertz classifies the media into 8 classes: motion audio-visual media, silent audio-visual media, semi-motion audio media, motion-visual media, silent visual media, semi-motional media, semi-silent media, audio media, and print media (Moseley, 2020).

In addition, in addition to the media mentioned above, in educational institutions the presence of computer equipment is something that must be conditioned and socialized to answer challenges and advances in science and technology. On the other hand, there are many service users in the computer field who expect to be able to help them both as tutors, tutors and tools that have not been able to be fulfilled by professional personnel in their fields produced through existing educational institutions (Moseley, 2020). Teachers also complain about their ability to understand, implement, and apply teaching that is in line with the demands of the curriculum because of the limited information and trainers they get.

From the effort to clarify learning media with one another, it will appear that each of them will have advantages and disadvantages or limitations. However, whatever the form and purpose of the clarification, it can clarify the uses and characteristics of the media itself so that it can make it easier for us to choose it (Neuman, 2019).

The process of learning language, especially Arabic, which is needed by educators in transferring their knowledge at this time, is something that can stimulate the visuality of their students (Schneider, 2018a). Apart from that, teaching media is a container and channel for messages from message sources, in a broader scope, Miarso gives batad, teaching media as anything that can stimulate students' thoughts, feelings, and wills so as to encourage the teaching and learning process to occur in students (Dr. Munzil, 2020). Apart from that, today's learning must also be in line with technological

developments. Therefore, in a process of learning activities to teach in the classroom, the need for educators to facilitate the learning process with alternatives in accordance with the needs of students in order to increase the efficiency and effectiveness of teaching (Rizal, 2020).

The role of the media is very important and needed, in general the distribution of learning media can be in the form of pictorial photos, models or other tool (Scolari, 2018). It aims to provide motivation to learn, as well as strengthen the absorption of cognitivism in students. Learning media in general can be interpreted as a tool in the teaching and learning process because the development of media and the teaching and learning process cannot be separated from the world of education (Oeldorf-Hirsch, 2018). Apart from that, with the role of learning media there will be direct interaction between students and their environment, the media can also instill concrete and realistic basic concepts. This is one way to improve the learning process in the classroom so that it is not monotonous and boring

Audio visuals enrich the learning environment, nurture exploration, and discovery, and encourage students to develop speech and express thoughts (Nicolaou, 2019). Audio-visual still and audio-visual motion are two types of audio-visual media. The advantages of this audio visual are that oral and written messages can be presented clearly, can overcome the limitations of space, time and senses, which can be used for tutorial learning media (Ampa, 2020).

The COVID-19 pandemic is an epidemic that is felt by the entire community. All community activities are disrupted, without exception education. Many countries have decided to close schools, colleges and universities, one of them is Indonesia (Ratu et al., 2020). The Indonesian government should close schools to reduce contact with people massively. By closing schools, as a result, schools have to carry out online learning (Nur Khairiyah Mar'aha, Ani Rusilowatia, 2020).

Information technology has a major influence on change in every field. One of them is a change in the field of education. With online learning, teachers and students are required to master advanced technology, information and communication. In addition, parents must supervise their children in participating in online learning (Zhang, 2020). Because, technology, information and communication is very broad (Wahid et al., 2021). Regarding technology, it can be used as a teaching and learning process, which can be said to be a change from conventional to modern methods.

One of the technology-based learning media that can be used is the Canva application. The Canva application is an application that can support the visual learning process and train students' visual literacy skills (Fahminnansih et al., 2021). Canva is an online design program that provides various editing tools to create various graphic designs, such as posters, flyers, infographics, banners, invitation cards, presentations, Facebook covers, and more. Including being a photo editing tool because there is a photo editor, photo filters, photo frames, stickers, icons, and design grids, easy to understand even for beginners. Not only that, Canva can also be accessed via desktop and mobile devices. Thus, users can be creative anytime and anywhere (Yuli Purwati,

2019). Canva is an online design program that also provides various tools such as presentations, resumes, posters, flyers, brochures, graphics, infographics, banners, flyers, certificates, diplomas, invitation cards, business cards, thank you cards, cards post, logo, label, bookmark, newsletter, cd cover, book cover, desktop wallpaper, template, photo editing, youtube thumbnail, instagram story, twitter post and facebook cover (Andi Ichsan Mahardika, Nuruddin Wiranda, 2021).

Canva is an online design program that also provides various tools such as presentations, resumes, posters, flyers, brochures, graphics, infographics, banners, flyers, certificates, diplomas, invitation cards, business cards, thank you cards, cards post, logo, label, bookmark, newsletter, cd cover, book cover, desktop wallpaper, template, photo editing, youtube thumbnail, instagram story, twitter post and facebook cover canva namely:

1. Has a variety of attractive graphic designs, animations, templates, and page numbers.
2. Can increase the creativity of teachers in designing learning because of the many features provided, and includes drag and drop features.
3. Can save time in designing practical learning media.
4. Learners can re-learn the material through the Canva Yabf learning media that has been given by the teacher.
5. Have a good image resolution and canva media slides can be printed with automatic print size measurement.
6. Able to collaborate with other teachers in designing media and create a Canva design team to share learning media with each other.
7. Can design learning media at any time, not only using a laptop but also being able to use a cellphone (Astuti, 2021).

According to Pelangi, the shortcomings of Canva are:

1. The Canva application relies on a sufficient and stable internet network, if there is no internet or quota on the device or laptop that will reach the Canva application, Canva cannot be used or supported in the design process.
2. In the Canva application there are templates, stickers, illustrations, fonts, and so on for a fee. So, some are paid and some are not. But this is not a problem because there are many other free and attractive templates. Just how users can design something attractively and rely on their own creativity.
3. Sometimes the chosen design has a similar design with others, whether it's from the same template, picture, color and so on. But this is also not a problem, back to the user in choosing the design so that there is no similarity.

Research related to learning media through the Canva application conducted by Rahmatullah 2020 shows that it is easier for students to master employment materials using Canva application-based audio-visual learning media with very good criteria. And there are also other studies related to the use of Canva-based applications written by Siahaan, et al, 2020, showing the results of their research show that teachers or educators after attending training on Canva-based learning media have additional

insights about Canva and Canva can also be used to make products. for learning media using the Canva application. With this Canva application, teachers are able to apply the use of Canva as a learning medium for students. In designing this Canva application, the teacher only needs to enter the text to be created or typed, then select an image, and then choose the type of graphic design, template and page number that has been provided as desired. In addition to making it easier for teachers in learning media, Canva can help students become more focused in paying attention to learning with a more attractive appearance (Astuti, 2021).

With a description of the background, the purpose of this study is to describe the use of the Canva application as an effort to strengthen students' interest in learning Arabic at Baiturrahman Islamic Boarding School. that is considered fun after the implementation of the Canva application.

RESEARCH METHODOLOGY

Utilization research methods were chosen to develop learning media that already exist in Islamic boarding schools, especially in Arabic subjects. This research method is supported by several literatures that are in accordance with this research (Ullah, 2018). Learning media is developed by utilizing today's advanced technological developments (Schneider, 2018a). Thus, this development or utilization method was chosen with a descriptive approach based on the existing literature. According to Sugiyono, research and development methods are methods used to produce certain products, by testing their effectiveness. It is the same with Sugiyono's opinion that research, development or utilization can produce a new product or can also maximize an old product. Likewise, research and development aims to find, develop, and validate products. These products can be in the form of things that support the achievement of educational goals, such as learning media and so on.

This study seeks to identify and describe the use of the Canva application as a medium for learning Arabic. The method used in this research is library research, library research is an activity related to the method of collecting library data, reading and recording and processing research materials. Literature study includes library research as the first step to prepare a research framework in order to obtain more than that, in the study of literature, it is also necessary to use library sources to obtain research data (Masyhur, S.T. Dwiyan Pinatasari, S.Sos. Eko Setiawan & Narasumber:, 2018). Sources of research data can be obtained from printed materials or graphic works in the form of books, journals, magazines, newspapers, various types of reports and documentation, both unpublished or already published. The source of the literature study in this study was taken from articles sourced from journals with keywords in the form of Canva applications, e-modules, and student learning interests during the pandemic. In addition, the book used is a book entitled 'library research methods' and 'learning media plays a very important role in achieving learning objectives.' (Azzahra & Ramadhani, 2020).

RESULT AND DISCUSSION

Learning Arabic is a basic lesson in Islamic boarding schools, especially at the Baiturrahman Islamic Boarding School which is located in Banuhampu District, Agam Regency. However, Arabic learning that took place during the pandemic experienced a very significant decline in interest in learning for students or students. Facing this, it takes a very interesting learning media and utilizes technology to overcome obstacles to the use of student learning resources which also gives students the opportunity to learn it without depending on the teacher's explanation alone (ENREKANG, 2021). The learning media can be realized in the form of modules that are teaching materials with a systematic arrangement and the use of language that is easy to understand so that learners can learn independently despite the minimal education from educators or teachers. In addition, the modules used in learning have a main purpose so that readers can absorb the material or teaching materials independently (Azzahra & Ramadhani, 2020). Learning Arabic in online classes often experiences saturation for students, so to overcome this, a combination of modules with electronic media is needed or often referred to as e-modules which in this study are called the Canva application.

The learning media used need to pay attention to the effect of illustrations in order to convey messages to students properly (Barr, 2019). Deep learning Deep learning will be realized if it is integrated with e-modules and will produce a better graduate product. Therefore, learning media is needed that is in accordance with learning objectives and makes students comfortable and easy to understand the material (Azzahra & Ramadhani, 2020). Using the Canva application, you can create online application media that are free and paid online, which can be used to design learning media with several available templates. How to use this application includes: creating a Canva account, creating a design, choosing a background, adding text, downloading or sharing a design. Here are some views on how to use Canva in making e-modules (Pratama, 2021).

1. The first step in accessing the Canva application is visiting the website www.canva.com via the web, then educators can log in to their account first so they can use Canva to process it. In the log in feature, educators are required to
2. fill in their e-mail address and password or can log in using a facebook or google account as shown.
3. After successfully logging in, the initial view of Canva will appear. In this view there are several templates that will be designed..
4. In the template view, students can look for template features that will be used to design learning media
5. E-modules as learning Arabic require some text to complement and increase the appeal of learners in reading it. In this case, text can be added through a text feature that presents some interesting text designs. Educators can add text as desired and edit it into an interesting text design.
6. At the final design stage, educators can press the download button located at the top of the canvas

One of the ways to determine the quality of learning is by attracting designs that are arranged systematically as the most important part of the learning process (Li, 2020). According to aji 2020, there are three functions that are integrated in a learning media, namely stimulation that fosters interest in the lesson, mediation that connects teachers with students, and mediation that conveys a teacher's explanation. In this regard, there is a need for a teacher's role in providing learning media that is tailored to the needs of students to support the learning process (NUR, 2021). Especially in learning at Baiturrahman Islamic Boarding School which is located in Agam Regency. Students need interesting media considering the stigma of learning Arabic which is difficult and can also be boring for some students. This is in accordance with the opinion of Sutarno and Mukhidin (2013) that students can understand the material well if the learning media used is interesting, providing presentations of shapes, images, colors and letters to make it look more varied will affect the learning interest of students. Thus, the use of the Canva application in making e-modules can produce interesting Arabic learning media so that it strengthens students' interest in learning.

CONCLUSION

Based on the results of the research and discussion described above, it can be concluded that the Canva application is one application that can support the visual learning process and train visual literacy skills for students. Canva is an online design program that provides various editing tools to create various graphic designs, such as posters, , flyers, infographics, banners, invitation cards, presentations, facebook covers, and more. Including being a photo editing tool because there is a photo editor, photo filters, photo frames, stickers, icons, and design grids, easy to understand even for beginners. Not only that, Canva can also be accessed via desktop and mobile devices. Thus, users can be creative anytime and anywhere. Canva is an online design program that also provides various tools such as presentations, resumes, posters, flyers, brochures, graphics, infographics, banners, flyers, certificates, diplomas, invitation cards, business cards, thank you cards, cards posts, logos, labels, bookmarks, newsletters, cd covers, book covers, desktop wallpapers, templates, photo editing, youtube thumbnails, instagram stories, twitter posts and facebook covers. as a medium for learning Arabic in the form of e-modules can increase and strengthen students' interest in learning. This is because the Canva application is equipped with attractive templates, shapes, images, designs, colors and letters that are more varied so that they can support Arabic learning media in the form of attractive e-modules, it will strengthen students' interest in learning, especially in subjects. Arabic especially in Baiturrahman Islamic Boarding School. As for how to use Canva Design, it's very easy with many varied design options. One of the learning media that will be used in this research is learning media using Canva Design. As a technology-based application, Canva provides a learning space for every teacher to carry out learning by relying on learning media, one of which is the Canva application.

As for how to use the Canva application, namely:

1. The initial step in accessing the Canva application is to visit the website www.canva.com via the web, then educators can log in to their account first so they can use Canva to process it. In the log in feature, educators are required to fill in their e-mail address and password or can log in using a facebook or google account as shown.
2. After successfully logging in, the initial view of Canva will appear. In this view there are several templates that will be designed.
3. In the template view, students can look for template features that will be used to design learning media.
4. E-modules as learning Arabic require some texts to complement and increase the attractiveness of students in reading them. In this case, text can be added via the text feature which presents some interesting text designs. Educators can add text as they wish and edit it into an attractive text design.
5. At the final design stage, educators can press the download button located at the top of the canvas

Thus, the use of the Canva application in making e-modules can produce interesting Arabic learning media so that it strengthens students' interest in learning.

REFERENCES

- Abdul Afwu Godly Prayitno, M. Z. M. (2020). PENGEMBANGAN KURIKULUM PEMBELAJARAN BAHASA ARAB PADA MASA PANDEMI COVID-19. *AL-AF'IDAH: Jurnal Pendidikan Bahasa Arab dan Pengajarannya*, 4(2), 15–29. <https://doi.org/10.52266/al-afidah.v4i2.591>
- Al-Ayyoub, M., Nuseir, A., Alsmearat, K., Jararweh, Y., & Gupta, B. (2018). Deep learning for Arabic NLP: A survey. *Journal of Computational Science*, 26, 522–531. <https://doi.org/10.1016/j.jocs.2017.11.011>
- Aljarah, I., Habib, M., Hijazi, N., Faris, H., Qaddoura, R., Hammo, B., Abushariah, M., & Alfawareh, M. (2021). Intelligent detection of hate speech in Arabic social network: A machine learning approach. *Journal of Information Science*, 47(4), 483–501. <https://doi.org/10.1177/0165551520917651>
- Almarzooq, Z. I., Lopes, M., & Kochar, A. (2020). Virtual Learning During the COVID-19 Pandemic. *Journal of the American College of Cardiology*, 75(20), 2635–2638. <https://doi.org/10.1016/j.jacc.2020.04.015>
- Alsubaie, M. A. (2022). Impacts of Technology in Learning: Mobile Typing Applications for Writing and Accomplishing Academic Tasks among Arabic-Speaking Undergraduate Students. *Education Sciences*, 12(12), 891. <https://doi.org/10.3390/educsci12120891>
- Avisyah, G. F., Putra, I. J., & Hidayat, S. S. (2023). Open Artificial Intelligence Analysis using ChatGPT Integrated with Telegram Bot. *Jurnal ELTIKOM*, 7(1), 60–66. <https://doi.org/10.31961/eltikom.v7i1.724>
- Balaha, H. M., Ali, H. A., Saraya, M., & Badawy, M. (2021). A new Arabic handwritten character recognition deep learning system (AHCR-DLS). *Neural Computing and Applications*, 33(11), 6325–6367. <https://doi.org/10.1007/s00521-020-05397-2>

- Blanchete, I., Mouchid, M., Mbarki, S., & Mouloudi, A. (2018). Formalizing Arabic Inflectional and Derivational Verbs Based on Root and Pattern Approach Using NooJ Platform. Dalam S. Mbarki, M. Mouchid, & M. Silberztein (Ed.), *Formalizing Natural Languages with NooJ and Its Natural Language Processing Applications* (Vol. 811, hlm. 52–65). Springer International Publishing. https://doi.org/10.1007/978-3-319-73420-0_5
- Boufenar, C., Kerboua, A., & Batouche, M. (2018). Investigation on deep learning for off-line handwritten Arabic character recognition. *Cognitive Systems Research*, 50, 180–195. <https://doi.org/10.1016/j.cogsys.2017.11.002>
- Boukil, S., Biniz, M., Adnani, F. E., Cherrat, L., & Moutaouakkil, A. E. E. (2018). Arabic Text Classification Using Deep Learning Technics. *International Journal of Grid and Distributed Computing*, 11(9), 103–114. <https://doi.org/10.14257/ijgdc.2018.11.9.09>
- Elnagar, A., Al-Debsi, R., & Einea, O. (2020). Arabic text classification using deep learning models. *Information Processing & Management*, 57(1), 102121. <https://doi.org/10.1016/j.ipm.2019.102121>
- Ertefaie, A., Small, D. S., & Rosenbaum, P. R. (2018). Quantitative Evaluation of the Trade-Off of Strengthened Instruments and Sample Size in Observational Studies. *Journal of the American Statistical Association*, 113(523), 1122–1134. <https://doi.org/10.1080/01621459.2017.1305275>
- Guerrero-Ibáñez, J., Zeadally, S., & Contreras-Castillo, J. (2018). Sensor Technologies for Intelligent Transportation Systems. *Sensors*, 18(4), 1212. <https://doi.org/10.3390/s18041212>
- Guillén-Gámez, F. D., & Mayorga-Fernández, M. J. (2020). Quantitative-comparative research on digital competence in students, graduates and professors of faculty education: An analysis with ANOVA. *Education and Information Technologies*, 25(5), 4157–4174. <https://doi.org/10.1007/s10639-020-10160-0>
- Heikal, M., Torki, M., & El-Makky, N. (2018). Sentiment Analysis of Arabic Tweets using Deep Learning. *Procedia Computer Science*, 142, 114–122. <https://doi.org/10.1016/j.procs.2018.10.466>
- Holly, S., Maulik, B., & Samuel, I. (2023). Use of Whatsapp as A Learning Media to Increase Students' Learning Interest. *Sciencetechno: Journal of Science and Technology*, 2(1), 35–48. <https://doi.org/10.55849/sciencetechno.v2i1.57>
- Huang, P., Miao, Q., Sang, G., Zhou, Y., & Jia, M. (2021). Research on quantitative method of particle segregation based on axial center nearest neighbor index. *Minerals Engineering*, 161, 106716. <https://doi.org/10.1016/j.mineng.2020.106716>
- Jung, Y. M. (2019). Data Analysis in Quantitative Research. Dalam P. Liamputtong (Ed.), *Handbook of Research Methods in Health Social Sciences* (hlm. 955–969). Springer Singapore. https://doi.org/10.1007/978-981-10-5251-4_109
- Kamorudeen, B. (2021). The Impact of Information and Communication Technology on the Teaching and Learning of Arabic in Nigeria. *Journal of Muslim Minority Affairs*, 41(4), 608–614. <https://doi.org/10.1080/13602004.2022.2029011>
- Kato, N., Mao, B., Tang, F., Kawamoto, Y., & Liu, J. (2020). Ten Challenges in Advancing Machine Learning Technologies toward 6G. *IEEE Wireless Communications*, 27(3), 96–103. <https://doi.org/10.1109/MWC.001.1900476>

- Larabi Marie-Sainte, S., Alalyani, N., Alotaibi, S., Ghouzali, S., & Abunadi, I. (2019). Arabic Natural Language Processing and Machine Learning-Based Systems. *IEEE Access*, 7, 7011–7020. <https://doi.org/10.1109/ACCESS.2018.2890076>
- Loderer, K., Pekrun, R., & Lester, J. C. (2020). Beyond cold technology: A systematic review and meta-analysis on emotions in technology-based learning environments. *Learning and Instruction*, 70, 101162. <https://doi.org/10.1016/j.learninstruc.2018.08.002>
- Lulu, L., & Elnagar, A. (2018). Automatic Arabic Dialect Classification Using Deep Learning Models. *Procedia Computer Science*, 142, 262–269. <https://doi.org/10.1016/j.procs.2018.10.489>
- Mensah, C. N., Long, X., Dauda, L., Boamah, K. B., Salman, M., Appiah-Twum, F., & Tachie, A. K. (2019). Technological innovation and green growth in the Organization for Economic Cooperation and Development economies. *Journal of Cleaner Production*, 240, 118204. <https://doi.org/10.1016/j.jclepro.2019.118204>
- Mohammed, A., & Kora, R. (2019). Deep learning approaches for Arabic sentiment analysis. *Social Network Analysis and Mining*, 9(1), 52. <https://doi.org/10.1007/s13278-019-0596-4>
- Mulyasari, D., Noer, R. M., Sari, N., Ermawaty, E., Triharyadi, F., Tampubolon, D., & Catherine, S. (2023). Improving Health Status in The Elderly Through Health Checks and Education at Nuriah Nursing Homes in Karimun. *Pengabdian: Jurnal Abdimas*, 1(2), 75–81. <https://doi.org/10.55849/abdimas.v1i2.183>
- Mustapa, A. M., Ghani, S. Ab., Rahman, M. A., Nawawi, Z., & Kamarudin, M. A. (2022). *Evaluation of the online arabic treasure hunt as learning games activities using the technology acceptance model (TAM)*. 040017. <https://doi.org/10.1063/5.0092716>
- Osamy, W., Salim, A., Khedr, A. M., & El-Sawy, A. A. (2021). IDCT: Intelligent Data Collection Technique for IoT-Enabled Heterogeneous Wireless Sensor Networks in Smart Environments. *IEEE Sensors Journal*, 21(18), 21099–21112. <https://doi.org/10.1109/JSEN.2021.3100339>
- Pamuji, S., & Limei, S. (2023). The Managerial Competence Of The Madrasa Head In Improving Teacher Professionalism And Performance At Mi Al-Maarif Bojongsari, Cilacap District. *Pengabdian: Jurnal Abdimas*, 1(2), 66–74. <https://doi.org/10.55849/abdimas.v1i2.158>
- Ramadhan, F. K., Faris, M. I., Wahyudi, I., & Sulaeman, M. K. (2023). PEMANFAATAN CHAT GPT DALAM DUNIA PENDIDIKAN. *Jurnal Ilmiah Flash*, 9(1), 25. <https://doi.org/10.32511/flash.v9i1.1069>
- Shorman, S., Jarrah, M., & Alsayed, A. R. (2022). The Websites Technology for Arabic Language Learning Through COVID-19 Pandemic. Dalam A. Hamdan, A. Harraf, P. Arora, B. Alareeni, & R. Khamis Hamdan (Ed.), *Future of Organizations and Work After the 4th Industrial Revolution* (Vol. 1037, hlm. 327–340). Springer International Publishing. https://doi.org/10.1007/978-3-030-99000-8_18
- Sohn, K., & Kwon, O. (2020). Technology acceptance theories and factors influencing artificial intelligence-based intelligent products. *Telematics and Informatics*, 47, 101324. <https://doi.org/10.1016/j.tele.2019.101324>
- Staszak, M., Staszak, K., Wieszczycka, K., Bajek, A., Roszkowski, K., & Tylkowski, B. (2022). Machine learning in drug design: Use of artificial intelligence to explore the chemical structure–biological activity relationship. *WIREs Computational Molecular Science*, 12(2). <https://doi.org/10.1002/wcms.1568>

- Tan, J., Liu, W., Xie, M., Song, H., Liu, A., Zhao, M., & Zhang, G. (2019). A low redundancy data collection scheme to maximize lifetime using matrix completion technique. *EURASIP Journal on Wireless Communications and Networking*, 2019(1), 5. <https://doi.org/10.1186/s13638-018-1313-0>
- Thaher, T., Saheb, M., Turabieh, H., & Chantar, H. (2021). Intelligent Detection of False Information in Arabic Tweets Utilizing Hybrid Harris Hawks Based Feature Selection and Machine Learning Models. *Symmetry*, 13(4), 556. <https://doi.org/10.3390/sym13040556>
- Theobald, E. J., Hill, M. J., Tran, E., Agrawal, S., Arroyo, E. N., Behling, S., Chambwe, N., Cintrón, D. L., Cooper, J. D., Dunster, G., Grummer, J. A., Hennessey, K., Hsiao, J., Iranon, N., Jones, L., Jordt, H., Keller, M., Lacey, M. E., Littlefield, C. E., ... Freeman, S. (2020). Active learning narrows achievement gaps for underrepresented students in undergraduate science, technology, engineering, and math. *Proceedings of the National Academy of Sciences*, 117(12), 6476–6483. <https://doi.org/10.1073/pnas.1916903117>
- Tuttle, J. F., Blackburn, L. D., Andersson, K., & Powell, K. M. (2021). A systematic comparison of machine learning methods for modeling of dynamic processes applied to combustion emission rate modeling. *Applied Energy*, 292, 116886. <https://doi.org/10.1016/j.apenergy.2021.116886>
- Vicky, D., Adrianna, H., & Phan, B. (2023). Use of Gadgets by Early Childhood in the Digital Age to Increase Learning Interest. *Sciencetechno: Journal of Science and Technology*, 2(1), 17–34. <https://doi.org/10.55849/sciencetechno.v2i1.58>
- Wang, B., Hu, S. J., Sun, L., & Freiheit, T. (2020). Intelligent welding system technologies: State-of-the-art review and perspectives. *Journal of Manufacturing Systems*, 56, 373–391. <https://doi.org/10.1016/j.jmsy.2020.06.020>
- Weidlich, J., & Bastiaens, T. J. (2018). Technology Matters – The Impact of Transactional Distance on Satisfaction in Online Distance Learning. *The International Review of Research in Open and Distributed Learning*, 19(3). <https://doi.org/10.19173/irrodl.v19i3.3417>
- Xie, H., Chu, H.-C., Hwang, G.-J., & Wang, C.-C. (2019). Trends and development in technology-enhanced adaptive/personalized learning: A systematic review of journal publications from 2007 to 2017. *Computers & Education*, 140, 103599. <https://doi.org/10.1016/j.compedu.2019.103599>
- Zhang, J., Yu, J., Fu, S., & Tian, X. (2021). Adoption value of deep learning and serological indicators in the screening of atrophic gastritis based on artificial intelligence. *The Journal of Supercomputing*, 77(8), 8674–8693. <https://doi.org/10.1007/s11227-021-03630-w>

Copyright Holder :

© Annisa Lucki Pratiwi et.al. (2023)

First Publication Right :

© Journal International of Lingua and Technology (JILTECH)

This article is under:

