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Implementation of Learning Media Based on Artificial Intelligence Technology for Students of Special School C

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Abstract

This article aims to provide an overview of the implementation of learning media based on artificial intelligence technology (AI) for Special School (SLB) C students and the impact of using learning media based on artificial intelligence technology on cognitive development in Special Schools (SLB) C. This research is qualitative research using literacy study methods. Data collection was carried out through examining data sources, namely articles from scientific journals and online news that were relevant to the research topic, which were then identified in depth and arranged in a theoretical framework to draw conclusions. The results of the research show that the implementation of learning media based on artificial intelligence (AI) technology in Special School (SLB) C students has a positive impact on cognitive development because it makes students more able to remember, convey opinions (communicative) and find it easier to learn. understand the material taught.

Keywords: *Artificial Intelligence, Based Learning Media, Special Schools (SLB) C, Student Cognitive Development.*

Introduction

Artificial Intelligence (AI) technology has experienced massive development from year to year. The presence of Artificial Intelligence technology with various features, functions and displays in various applications has an increasing impact on various aspects of human life, including the aspect of education, namely in learning activities in schools and universities so that Artificial Intelligence technology today has become a primary part of the process of educational growth and development. Of course, this will later have an explicit impact on the development of a nation in the future.

Artificial Intelligence or artificial intelligence is a technology used in a computer system that is able to perform tasks that usually require human intelligence related to capturing, modeling and storing human intelligence in an information technology system so that the system has intelligence like human intelligence such as how to think, reason, solve problems, remember, recognize responses, make decisions and take action (Rachma Dwi Yanti, Hisban Thaha, 2022). This model is an integrated knowledge system containing ten prospective teacher competencies which will be a provision in strengthening four teacher competencies, namely pedagogic competency, personality competency, social competency, and professional competency (Usman, 2024). Advances in computer and internet technology have made Artificial Intelligence more relevant and can be implemented more freely in various fields, such as health, finance, government and education.

Especially in the field of education, Artificial Intelligence is significantly able to improve learning to be more effective through the provision of online learning application facilities with more interesting learning feature collaborations so that it can increase student engagement, build a more inclusive, flexible and responsive learning environment by being integrated into the education system. The use of Artificial Intelligence technology requires a strategy in its implementation by considering privacy, ethics and morals so that Artificial Intelligence technology is applied according to its function without replacing the function and role of teachers who are truly in the process of educating humans as a whole, namely humanizing humans.

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As the main foundation in nation building for a civilization of life, education has undergone a revolutionary transformation with the presence of Artificial Intelligence in the learning process which is integrated into various designs of methods and techniques to increase the effectiveness of learning. In addition, Artificial Intelligence also allows personalized learning, namely the system can automatically adjust learning to the needs and abilities of each learner (student) (Ronsumbre, S., Rukmawati, T., Sumarsono, A., & Waremra, 2023). Learning management system applications, such as Google Classroom, are very useful as a means of online learning during the COVID-19 pandemic. Punctuality in collecting assignments is also an important indicator of the students' character in the learning process (Fajarianto, 2024). The education system based on Artificial Intelligence technology helps students develop cognitive, psychomotor and affective skills in learning, but there are not many innovations in learning media technology that are specifically designed by utilizing Artificial Intelligence technology to meet the learning needs of students with special needs such as students who undergo education and mentoring at Special Schools (SLB) C which are specifically intended for people with intellectual disabilities or children with below average intelligence. SLB C is a special school intended for children with intellectual disabilities or individuals with below average intelligence and do not have the ability to adapt so that they need learning about self-development and socializing (social interaction) skills. Children with intellectual disabilities tend to withdraw from their environment and relationships. With optimal education services, it is hoped that these children will be able to be independent in their daily functional abilities.(Rahayu Setyaningsih, S.Kep., 2014)

Education for Children with Special Needs (ABK) in Indonesia still faces serious challenges, one of which is education for children with intellectual disabilities, so it requires special attention from both the government and private sectors. Initially, the ABK education system in Indonesia was not as advanced as other countries, then slowly the government and private sector began to pay attention to the learning needs of ABK by providing inclusive schools for ABK. Inclusive education for ABK is expected to be a new idea so that children with intellectual disabilities can learn about their own weaknesses, strengths and originality by increasing their self-confidence in learning and adapting to social life in their environment. Children with intellectual disabilities have an average intelligence below the normal average intelligence but are qualified in the ability to develop and express themselves in the academic and social fields. If inclusive education is developed more widely, the contribution of special education for ABK will be even higher.

The implementation of Artificial Intelligence in education can provide many benefits, including as explained by Hanifah et al. that in the scope of education, Artificial Intelligence can play a role in many aspects as conveyed by Ethel Agnes as the Director of SEAMEO, apart from learning (teaching and learning activities), Artificial Intelligence also plays a role in helping teachers in carrying out administrative work, namely inputting grades.(Hanifah, NH, Walid, M., Putri, CA, Sinta, LN, & Ningrum, 2022)

Artificial Intelligence is believed to be able to help humans learn better, get better education, more practical and effective in its implementation so that educational goals can be achieved. The form of implementation of Artificial Intelligence technology in education, especially education for children with special needs (ABK) with mental retardation, is through the use of the TuChA application: Tunagrahita Children Application, which is a learning media based on Artificial Intelligence technology for children with mental retardation in the form of a teachable machine used to facilitate the classification of parts of objects that are the material to be studied.

TuChA: The Mentally Disabled Children Application is an application created using Thunkable based on Artificial Intelligence (AI) features that focus on machine learning. The Mentally Disabled Children Application is modified by a teachable machine so that it can function to recognize, classify and group objects to be studied, as conveyed by Brigitta et al. in their research which explains the use of Artificial Intelligence, teachable machines and thinkables for the process of creating learning applications for mentally disabled children with biology learning materials using plant objects, namely plant parts in the form of roots, stems and leaves as well as the implementation of biology in everyday life.(Brigitta DA Arjanti1,*, Mulati N. Utami2, 2024)In addition to the use of TuChA media, it is explained in Farah's article that Artificial Intelligence-based learning media, namely interactive multimedia in the form of Adobe Flash animation programs, can be used for mentally retarded students because the material and presentation are very interesting and relevant to shorten teaching compared to using conventional learning media.(Farah Nayla

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Maulidiyah, 2020)It was further added in the article by Ila et al that the use of Artificial Intelligence technology-based learning media for mentally retarded children can be done through the Canva application and a projector in its presentation. Canva has several advantages that make it easier for mentally retarded children to understand the material being taught.(Ila Maidatul Hasanah et al., 2024)

Based on several scientific article references regardingthe use of multimedia learning based on Artificial Intelligence technology for children with special needs, namely mentally retarded children, this study focuses on the implementation of learning media based on artificial intelligence technology (Artificial Intelligence) for students of special schools C, namely special schools intended for mentally retarded children or individuals with below average intelligence and do not have the ability to adapt so that they require learning about self-development and socialization skills (social interaction). In addition, this study is also to determine the impact of the implementation of learning media based on artificial intelligence technology (Artificial Intelligence) on mentally retarded students.

Research Methods

This study uses a literacy study method with a qualitative and descriptive research approach. Qualitative research is conducted by describing an object or phenomenon written in a narrative text in the form of a research report which will later reveal the facts found in the field supported by valid data sources such as documentation, articles or documents from previous research results.(Yusuf, 2017)

The collection of data sources in supporting this research uses the literacy study method or library research, which is a type of qualitative research that generally searches for data sources based on written works. In the initial stage of implementing the literacy study method, it was carried out by searching for article references from several scientific journals from previous research and online news and documentation relevant to the research topic, namely the implementation of learning media based on artificial intelligence (AI) technology for special needs students with intellectual disabilities at Special Schools (SLB) C. The results of the data source study were then identified in depth and arranged in a theoretical framework to draw conclusions.

The locus or background of the research from several scientific article references related to the focus of this research is located at Special School C located at Jalan Water km 3 No. 147 Sonopakis Lor, Ngestiharjo, Kasihan District, Bantul Regency, Special Region of Yogyakarta.(Brigitta DA Arjanti1,*, Mulati N. Utami2, 2024)and at the Syahida Harapan Bunda Kindergarten which is located at Jalan Verdi Timur V, Bunderan II Citra Raya, Cikupa District, Tangerang Regency, Banten.(Ila Maidatul Hasanah et al., 2024)

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Results and Discussion

Implementation and Impact of Artificial Intelligence Technology-Based Learning Media

C.1. Prototype Display Design of TuChA Application: Children with Mental Disabilities Application

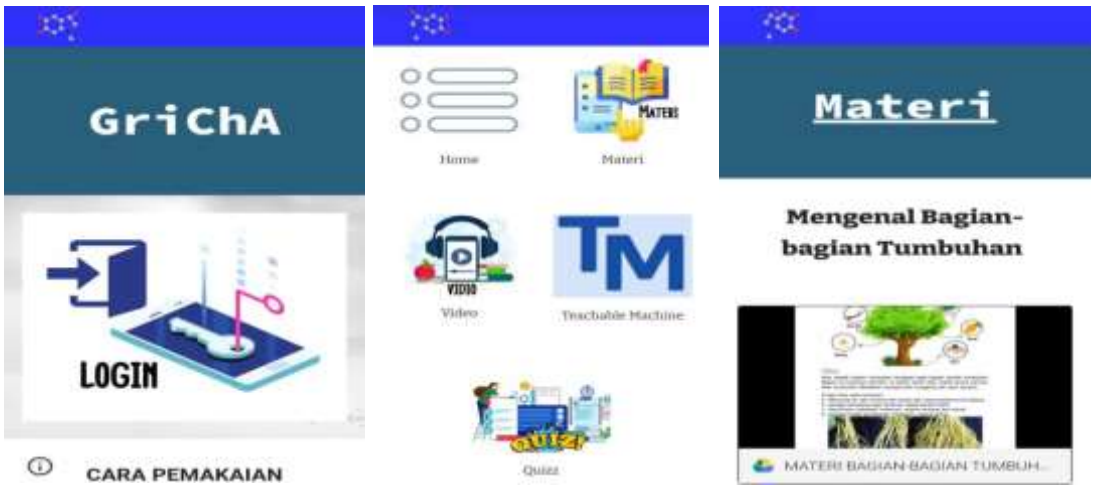

Figure 1. TuChA Application: Children with Mental Disabilities Application

Figure 2. TuChA Application: Children with Mental Disabilities Application

The prototype of the TuChA application: Tunagrahita Children Application is equipped with interesting and fun features so that it is expected to make it easier for mentally retarded children (students) to operate it. These features can be seen in figures 1 and 2. The steps to operate the TuChA application: Tunagrahita Children Application are: first open the display by clicking the linkhttps://sites.google.com/d/1xbhqmzBDLRmBoDrl6b4JJcGtuG0DQl_7/p/19_P8fRmqAFNdx4TDYY6_PW258kgmukbF/edit. Continue by clicking the login menu link which is the main gateway to enter the application. To log in to the menu above, no username and password are required, making it easier for

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mentally retarded students to use the application. In the TuChA application after logging in, it shows a display of materials, videos, teachable machines and quizzes. To be able to continue to the next menu, click the material, video, teachable machine and quiz menu. Select one menu then learning about plant parts appears.

The impact ofimplementation of the TuChA application: Mentally Disabled Children Application for mentally disabled students based on the results of the post-test in the class which showed that students got a total score of 80-100. This shows that students have mastered at least 80% of the material that has been studied and the most mastered material with a percentage of 100% is the identification and grouping of leaves, flowers and fruits. It can be concluded that the Prototype of the TuChA application: Mentally Disabled Children Application makes it easier for mentally disabled students to learn the material, especially biology material, namely plant parts, so it is worthy of being developed. The results of the questionnaire regarding the level of effectiveness and attractiveness of the application, material and application videos based on student opinions showed that all participants (students) with mental disabilities enjoyed using the TuChA application: Mentally Disabled Children Application and almost 100% thought that the application was easy to use, fun, increased enthusiasm for learning because there were interesting features and the material in the application was easy to understand.(Brigitta DA Arjanti1,*, Mulati N. Utami2, 2024)

Interactive Multimedia Learning Display Design Adobe Flash Animation Program

Information technology-based learning media with the addition of functions from Artificial Intelligence technology for mentally retarded students, namely by using video and Adobe Flash applications, namely animation programs that support programming with action scripts. This program is appropriate for interactive learning because it is supported by animation, images and text. Adobe Flash is a software platform used to create digital content containing animation, graphic effects, video streaming and other interactive elements. The use of Adobe Flash applications in learning for mentally retarded students shows an increase in concept mastery in mentally retarded students who take part in learning using the Adobe Flash Animation Program application compared to conventional learning because the material is easy to understand and concrete.

ImpactFrom the implementation of the Adobe Flash Animation Program application in learning for mentally retarded students, it can make the learning process more enjoyable because the teaching material becomes easier to understand and is concrete (real), there is an interactive dialogue between mentally retarded students and educators because it is equipped with audio and visuals so that it has a great influence on educators in delivering the material.(Farah Nayla Maulidiyah, 2020)

DesignCanva Application Interactive Multimedia Learning Display

The Canva application has several advantages, such as (1) available in application and website versions; (2) has complete functions for videos, photos, power points and documents; (3) complete features, including templates, font themes and others; (4) the results can be downloaded in various formats and some are available free without paying; (5) automatically saved in the user's account. The use of the Canva application for mentally retarded students in learning to remember vowels, arrange images and remember animal names. The purpose of using the Canva application is to produce multimedia products based on Artificial Intelligence technology in the form of videos equipped with audio to attract the attention of mentally retarded students so that the learning process runs optimally and effectively.

ImpactFrom the implementation of the Canva application in learning for mentally retarded students, it has been proven to help improve students' concentration and improve writing skills, arranging images, arranging syllables into words by looking at the descriptions contained in the video display that has been provided. Mentally retarded students are able to write several words displayed in the video completely, although there are still some imperfect spellings and the students have a little difficulty distinguishing between capital letters A and lowercase letters a, capital letters K and lowercase letters k.(Ila Maidatul Hasanah et al., 2024)

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Conclusion

Based on the results and discussions of several reference articles related to the focus of the research, it can be concluded that the implementation of learning media based on artificial intelligence (AI) technology on students at Special Schools (SLB) C has a positive impact on cognitive development because it makes students better able to remember, express opinions (communicative) and more easily understand the material being taught.

References

Brigitta D.A. Arjanti1,*, Mulati N. Utami2, A. B. (2024). TuChA (Tunagrahita Children Application): media pembelajaran pada tunagrahita berbasis teknologi Artificial Intelligence. Cakrawala Jurnal Ilmiah Bidang Sains. https://doi.org/DOI: 10.28989/ cakrawala.v1i2.1978

Fajarianto, O., Sangadji, K., Wijayanti, S. K., Sakmaf, M. S., & Afriani, L. (2024). Implementation of Learning Management System-Based Character Education in Elementary Schools. Revista de Gestão Social e Ambiental, 18(5), e05257-e05257.

Farah Nayla Maulidiyah. (2020). Media Pembelajaran Multimedia Interaktif untuk Anak Tunagrahita Ringan. JURNAL PENDIDIKAN, 29(2). http://journal.univetbantara.ac.id/index.php/jp

Hanifah, N. H., Walid, M., Putri, C. A., Sinta, L. N., & Ningrum, D. E. A. F. (2022). Development of Android-based "Pete" Educational Game to Improve Elementary School Student Learning Outcomes in Social Science Learning. Al Ibtida: Jurnal Pendidikan Guru MI, 430. https://doi.org/10.24235/al.ibtida.snj.v9i2.11467

Ila Maidatul Hasanah dkk. (2024). MEDIA PEMBELAJARAN BERBASIS MULTIMEDIA PADA ANAK TUNA GRAHITA. Jurnal Penelitian Ilmiah Multidisiplin, 8(1).

Rachma Dwi Yanti, Hisban Thaha, M. (2022). PENGEMBANGAN MEDIA PEMBELAJARAN BERBASIS ANIMASI PADA PESERTA DIDIK SD. Jurnal Pendidikan Ibtidaiyah, 4(1), 81–95.

Rahayu Setyaningsih, S.Kep., D. (2014). Pendidikan Anak Berkebutuhan Khusus.

Ronsumbre, S., Rukmawati, T., Sumarsono, A., & Waremra, R. S. (2023). Pembelajaran Digital Dengan Kecerdasan Buatan (AI): Korelasi AI Terhadap Motivasi Belajar Siswa. Jurnal Educatio FKIP UNMA, 9(3), 1464–1474. https://doi.org/10.31949/educatio.v9i3.5761

Usman, H., Yarmi, G., Sarifah, I., Hasanah, U., Wardhani, P. A., Sari, W. K., & Fajarianto, O. (2024). Explore the Needs of Competency Development Model for Prospective Elementary School Teachers Based on Knowledge Management System In Indonesia. Revista de Gestão Social e Ambiental, 18(1), e06206-e06206.

Yusuf, A. M. (2017). Metode Penelitian: Kuantitatif, Kualitatif, dan Penelitian Gabungan. Kencana.