Utilization of ICT in Online Education and Training to Enhance Academic Supervision of School Principals

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Abstract: This research aims to conduct a needs analysis for 3D pageflip-based digital supplement books on material from the collection of megalithic distribution in Pagar Alam City for history learning at SMA Negeri 1 Indralaya. Education requires the help of effective learning media to improve the quality of student learning outcomes. Students need technology-assisted learning media to make learning material easier to understand. Moreover, history learning really necessitates teaching materials that involve technology because they are considered interesting, effective, and interactive. At this stage, the researchers made observations and collected various data and information related to teaching materials in the form of digital supplement books. The research method employed to obtain data and information was a descriptive qualitative approach through questionnaires, interviews, and observations. The data analysis technique used was descriptive analysis with data reduction, data presentation, drawing conclusions, and verification. Based on a needs analysis questionnaire, data were obtained that 59.7% of students needed to study megalithic material, and 52.8% of students stated that it was very important to use digital learning media. Then, 95.8% of students were interested in learning using digital books, 45.8% of students answered that they were very interested in reading books if there were pictures contained in them, and 58.3% of students supported the development of innovations in history learning presented in digital book form at SMA Negeri 1 Indralaya. Therefore, to help improve the quality of learning, digital supplement books are an alternative.

Keywords: Digital Supplement Book, Megalithic Distribution, History Learning, 3D Pageflip

Abstrak: *Penelitian ini bertujuan untuk melakukan analisis kebutuhan terhadap buku suplemen digital berbasis 3D pageflip materi koleksi persebaran megalitikum di Kota Pagar Alam untuk pembelajaran Sejarah di SMA Negeri 1 Indralaya. Pendidikan memerlukan bantuan media pembelajaran yang efektif agar dapat membantu meningkatkan kualitas hasil belajar peserta didik. Peserta didik memerlukan media pembelajaran yang berbantuan teknologi untuk dapat memudahkan dalam memahami materi pembelajaran. Terlebih lagi untuk pembelajaran sejarah sangat memerlukan bahan ajar yang melibatkan teknologi karena dinilai menarik, efektif, dan interaktif. Pada tahap ini peneliti melakukan observasi dan mengumpulkan berbagai data dan informasi terkait bahan ajar berupa buku suplemen digital. Metode penelitian yang digunakan untuk mendapatkan data dan informasi yaitu menggunakan metode deskriptif pendekatan kualitatif melalui angket, wawancara, dan observasi. Teknik analisis data yang digunakan yaitu analisis deskriptif dengan reduksi data, penyajian data, penarikan kesimpulan, dan verifikasi. Berdasarkan angket analisis kebutuhan diperoleh data bahwa 59,7% peserta didik perlu mempelajari materi megalitikum, dan 52,8% peserta didik menyatakan bahwa sangat penting adanya penggunaan media pembelajaran digital. Kemudian, 95,8% peserta didik tertarik belajar menggunakan buku digital, dan 45,8% peserta didik menjawab sangat tertarik membaca buku jika terdapat gambar yang termuat didalamnya, serta 58,3% peserta didik mendukung dikembangkannya inovasi baru dalam pembelajaran Sejarah yang disajikan dalam bentuk buku digital di SMA*

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INTRODUCTION

Science and technology are developing rapidly in this era of the industrial revolution (Elli, 2022; Munir et al., 2022). The development of science and technology requires society to utilize technology, especially in the world of education (Iqboljon, 2023; Shavkat & Niluvar, 2023). Education has a big influence on the progress of civilization, so innovations in learning are needed. The utilization of technology can have a significant impact on the world of education, i.e., by developing new creativity and innovation by creating learning media products so that learning can take place effectively, efficiently, and practically (Ngadimin et al., 2023).

In the world of education, digital learning media is experiencing very swift development. The use of digital technology is currently having a significant impact in the field of education, as is the development of many learning platforms. As facilitators, educators find it easy to deliver material by utilizing digital learning media. Therefore, the use of digital technology greatly influences success in learning.

Currently, the world of education also needs the help of effective learning media to help improve the quality of students' student outcomes (Darmayanti, 2023; Harun et al., 2023). Educators are required to keep up with the times by creating creative ideas or thoughts in learning (Hanif et al., 2023; Inganah et al., 2023). In the learning method employed, educators only use lectures to convey information or material without the help of media in learning history (Agustina et al., 2023). Reflecting this, the history learning design becomes less active, and students' experience in understanding the learning material is less in-depth.

For that reason, the researchers conducted observations at SMA Negeri 1 Indralaya, with results showing that the school used teaching materials in the form of worksheets and other supporting books. Based on this, if educators only use worksheets, learning is considered impractical and not interactive because the delivery of material is only focused in one direction. This caused students to lack understanding of the learning material and have difficulty solving problems.

Students, in fact, need assisted learning media technology to make it easier to understand learning material. Moreover, history learning really requires interesting media technology because it is considered interesting, effective, and interactive. Technology itself has various characteristics in the form of visual, audio, and audiovisual (Nurhikmah et al., 2023; Nuria et al., 2023). Reflecting on the material, several students are interested in understanding interactive, interesting, and efficient teaching materials based on digital technology.

A study regarding digital book supplements was carried out by Lastri Indriana (2020). Based on the research results, it can be concluded that digital supplement development books are very necessary to help support the learning process. Another study was conducted by Asti Syakila (2019). The research results revealed that book supplements integrated with learning methods can increase students' interest in understanding learning material in class. However, the use of digital supplement teaching materials must, of course, also be adjusted to the needs of students and the digital literacy abilities of educators and students. Therefore, this research was done with the aim of developing a

digital supplementary book that educators and students can use. It is used to facilitate the learning process in class and can be accessed anywhere and at any time.

Another relevant research was conducted by Chairiyah and Fadilah (2023) in their article entitled "The Effect of an Integrated Digital Supplement Book on Disaster Mitigation Assisted by LKPD on Students' Collaboration Skills on Excretory System Material at SMPN 32 Padang." Their research demonstrated that digital supplement books exerted a positive impact on improving the quality of learning. This was proven by the average result obtained, namely 72, in the high category. Furthermore, a relevant study was carried out by Witi Rahma Padila (2023) with the title "Development of a Digital Grammar Supplement Book for HSK 3 Level Mandarin Language Learning." The results of this research produced digital supplement book teaching materials, which were considered very effective for use in the learning process. This was proven by the results of the assessment percentage of 88 (40%) in the very valid category.

From several relevant studies above, it can be seen that this digital supplement book teaching material is effectively used in the learning process. The novelty of previous research is that the researchers developed a digital supplement book by highlighting local historical material, namely the distribution of megaliths in Pagar Alam City. Apart from that, to make the digital supplement book look attractive, the researchers used a supporting application based on 3D pageflip.

Based on the data above, innovations in learning are needed to create effective, efficient, interesting, and practical learning. Educators, of course, must innovate in achieving learning goals with their teaching skills, using methods, and creating an effective and efficient learning atmosphere for students. Using the right method will influence the quality of student participants, and the learning process in class will become more active. In this case, the technology developed in today's education can innovate into media designed by applying digital technology so that learning becomes practical and efficient. The media used by educators can be digital teaching materials, namely digital supplement books based on 3D pageflip. The utilization of digital technology in the classroom learning process can save time and improve learning performance so that it can facilitate the delivery of learning material.

Hence, it can be concluded that there is a need to use digital technology-based learning media in the form of digital supplement books that are easily accessible by participants in an educational, interesting, interactive, and efficient manner. Therefore, it is necessary to research the development of digital teaching materials in the form of digital-based 3D pageflip books as a supplement to the collection of megalithic distribution materials for history learning in senior high school. This research was carried out with the aim of creating learning innovations, especially in history learning. The development of a 3D pageflip-based digital supplement book is used to make it easier for educators to provide information so that students can understand it easily. Aside from that, this research was conducted to improve the quality of learning outcomes, increase learning motivation, and enhance awareness of the local history of the region itself.

RESEARCH METHODS

This research used a descriptive method with a qualitative approach. This method focuses on needs analysis. In addition, the researchers carried out observations and interviews and distributed questionnaires. The researchers chose to use these methods because this study approach was considered very effective in obtaining data, information, and other necessary needs. Then, this descriptive research method is also very complementary in seeking more detailed information by

explaining various problems and conditions in the field with the actual situation so that the problems or information needed for a digital supplement book with material on the distribution of megalith collections in Pagar Alam City could be obtained. This research was carried out at SMAN 1 Indralaya. Interviews were conducted with one of the educators at SMAN 1 Indaralaya, namely Mrs. Ruli, and 40 students in an online questionnaire. This aimed to determine the level of students' need for digital supplement books in the distribution of a collection of megalith materials in Pagar Alam City and find out the problems and conditions of learning in the classroom.

In this development research, the researchers used an instrument in the form of a questionnaire distributed to students using a Google form containing questions regarding the level of students' needs for digital supplement book teaching materials. The subjects of this research were students. The location of this research was at SMAN 1 Indralaya and Pagar Alam City. In addition, the researchers conducted observations and interviews with one of the history teachers at SMAN 1 Indralaya to obtain information regarding the needs of students and the school.

The data analysis technique used was descriptive analysis with data reduction, data presentation, drawing conclusions, and verification. After all the data or information were collected, they were reduced by analyzing various answers, summarizing all the data, and selecting and focusing on the problem being studied. The data were then presented to provide an understanding of the phenomena that occurred. Then, the researchers planned further actions based on the meaning of the phenomenon. At the data verification stage, conclusions are temporary and can change if strong evidence is found during subsequent data collection. If the data is supported by valid and consistent evidence, final conclusions can be drawn. In conducting data analysis, the researchers identified and processed data from the needs analysis questionnaire by collecting the results of student answers or respondents.

RESULTS AND DISCUSSION

Based on the questionnaire distributed to students to determine the needs of students studying at SMA Negeri 1 Indralaya, the analysis results uncovered that students at SMA Negeri 1 Indralaya needed megalithic materials for studying. The following is a diagram showing the data:
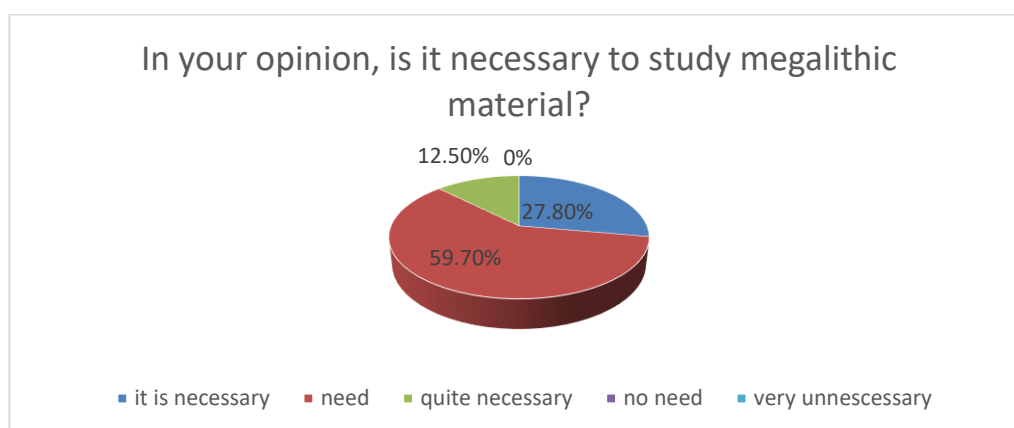

Figure 1. Diagram of Student Questionnaire Results

From the questionnaire results, it can be seen that students needed megalithic material to study, where as many as 27.8% answered very necessary, 59.7% answered necessary, 12.5% answered quite necessary, 0% answered not necessary, and as many as 0 % answered absolutely unnecessary. The results of the questionnaire further revealed the need for participants to educate themselves about how important it is to use digital learning media accessed via the Internet. The following is a diagram of the results of a questionnaire on participants' educational needs regarding the use of digital learning media:
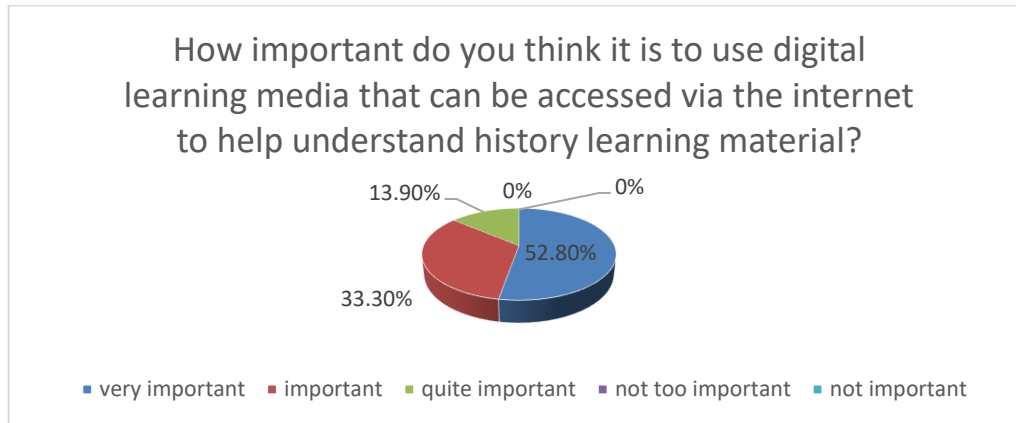
Figure 2. Diagram of Student Questionnaire Results

The results of the questionnaire demonstrated the need for participant education regarding the use of digital learning media, with 52.8% answering very important, 33.3% answering important, 13.9% answering quite important, 0% answering not important, and 0% answering very unimportant. This indicates that the use of digital learning media is very important to help understand history learning material easily. Then, the researchers looked at the students' needs regarding digital learning media in the form of digital books. The following are the results of the questionnaire obtained from the following needs:
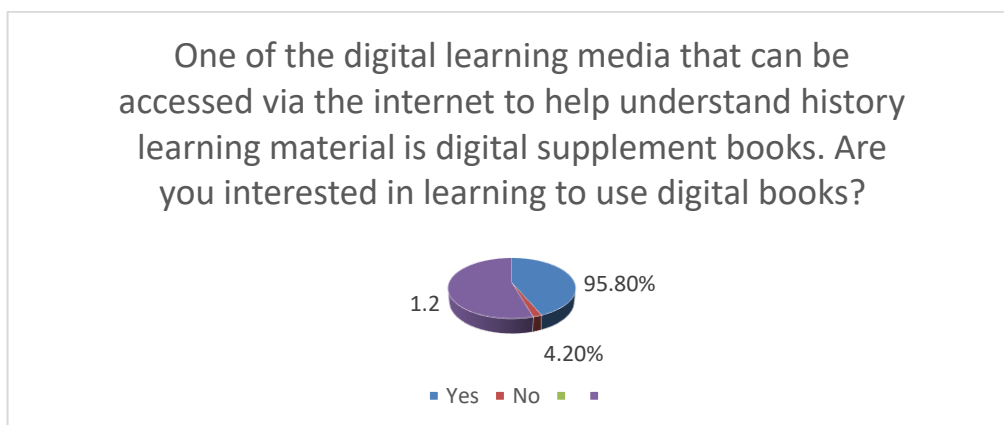

Figure 3. Student Questionnaire Results

Based on the questionnaire results, 95.8% of students were interested in learning using digital books, while 4.2% were not interested in learning using digital books. This denotes that there were many digital books that students liked to help make learning material easier to understand. The researchers also asked questions regarding the need for students to be educated in reading historical information if there are images in digital books. Here is a diagram showing the data:
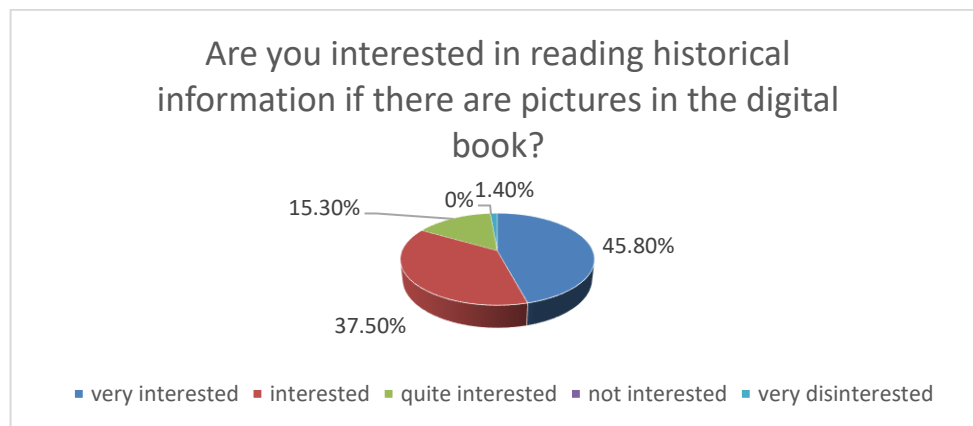
Figure 4. Student Questionnaire Results

From the data results, it can be seen that participating students were very interested and preferred to read books containing pictures: 45.8% answered very interested, 37.5% answered interested, 15.3% answered quite interested, 0% answered not interested, and 1.4% answered not very interested. Regarding respondents from education participants, the researchers also linked the needs of students to innovations in history learning, which are presented in the form of digital books. The results of student's answers can be observed in the diagram below:
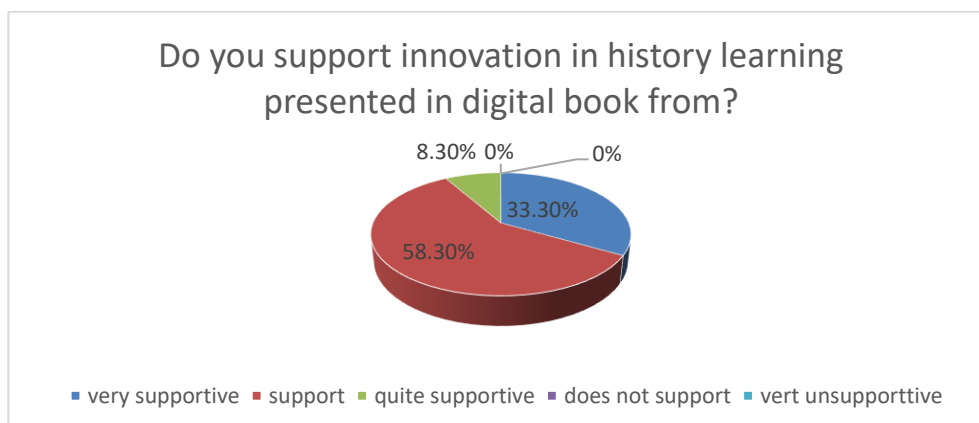

Figure 5. Student Questionnaire Results

The diagram above depicts students' support for innovation in history learning packaged in the form of digital books. As many as 33.3% answered very supportive, 58.3% answered supportive, 8.3% answered quite supportive, 0% answered not supportive, and 0% answered very no support. From the results of this questionnaire, the researchers concluded that students at SMA Negeri 1 Indralaya support innovation in history learning presented in the form of digital books to make it easier for them to understand the material and obtain information in an effective, practical, and efficient way. These results support researchers in developing a digital supplement book containing collection material on the distribution of megaliths in Pagar Alam City.

Additionally, an analysis of identifying needs and characteristics was described, where 72 respondents stated that students supported innovations in the use of digital learning media packaged through digital supplement books. Apart from that, students were interested in studying the history of

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megaliths, as well as pictures, videos, and technology. The following are the results of data analysis from the needs analysis questionnaire obtained:

Table 1. Identification of Student Characteristics

Percentage	Data Results
59.7%	Students need megalithic material to study.
52.8%	Students stated that it is very important to use digital learning media.
95.8%	Students are interested in learning to use digital books.
45.8%	Students are very interested in reading books that have pictures.
58.3%	Student support includes innovation in history learning, which is presented in the form of digital books.

After analyzing the characteristics of the participating students, the researchers looked at aspects of the facilities and infrastructure at SMA Negeri 1 Indralaya. The results of the analysis of facilities and infrastructure can be seen in the following table:

Table 2. Facilities and Infrastructure of SMA Negeri 1 Indralaya

Facilities and Infrastructure	Exist/None	Information
Computer	Exist	Ten laptops
Connection (Wi-Fi)	Exist	Can connect
Cell/Mobile Phone	Exist	Every learner
LCD	Exist	Four packs

Source: Primary Data from SMA Negeri 1 Indralaya

From the results of observations and analysis of the research needs questionnaire, the problem was found that the teaching materials provided in schools for history learning were still not enough to help history learning. Thus, additional books that are interesting, practical, and efficient, namely digital supplement books, are needed. This aims to ensure that students can easily understand the learning material. Besides that, digital books can be accessed anywhere and at any time so that students can easily obtain information and learn anywhere and anytime.

The development of digital supplement book learning media highlights material on the collection of megaliths in Pagar Alam City. In developing this digital supplement book teaching material, the researchers should carry out a needs analysis to determine the level of needs that students want (Maisarah et al., 2023; Sandong et al., 2023; Tressyalina et al., 2023). In the opinion of (Ismail et al., 2024), needs analysis should be carried out so that the material presented is easy to understand using learning media. Thus, this development research was carried out using material from a collection of megalithic distributions in Pagar Alam City so that students would know the local history of their respective regions.

This study used a qualitative method. The data collection technique used was distributing questionnaires containing questions about media and materials. In addition, an interview was

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conducted with one of the history teachers, and observations were made to find out about the problems that occurred at the school. The research subjects were class X.1 students. This research was conducted at SMA Negeri 1 Indralaya.

According to (Firdaus et al., 2023), needs analysis is an essential step carried out by analyzing students' desired needs regarding the learning media being developed. This research certainly has advantages and disadvantages. The advantage is that the researchers could find out the level of student needs to produce maximum digital supplement book learning media. Besides, the material is packaged in the form of a digital book created attractively using a 3D pageflip-based application, which can increase students' learning motivation.

Every advantage certainly has disadvantages. The disadvantage is that digital supplement book learning media requires the Internet and a laptop to access it. Moreover, this 3D pageflip application has not been updated by the developer, so its use is limited. Aside from the shortcomings and weaknesses, this research has advantages, proven by the results of the needs analysis percentage showing that this learning media is effective to use and can increase learning motivation. Students support the development of digital media supplement book learning based on 3D pageflip material from the megalithic distribution collection.

CONCLUSIONS AND RECOMMENDATIONS

This research revealed that educators still used teaching materials in the form of printed books or other materials provided by schools. Meanwhile, most students use the Internet to obtain information and search for learning materials because most students already have gadgets and need digital teaching materials, such as digital supplement books. Thus, history learning can be developed with innovations in the form of digital learning media presented in the form of digital supplement books with interesting features, short, easy-to-understand narratives, and easy-to-digest language.

Based on the research results, it can be concluded that 59.7% of students needed to study megalithic material, and 52.8% of students stated the importance of using digital learning media. Then, 95.8% of students were interested in learning using digital books, 45.8% of students answered that they were very interested in reading books if there were pictures in them, and 58.3% of students supported the development of innovations in history learning presented in the form of digital books at SMA Negeri 1 Indralaya. This digital supplement book development product may be a solution and alternative that educators can use in carrying out learning activities in the classroom effectively, practically, efficiently, and interestingly so that students are active in the learning process in the classroom and increase the existence of student learning outcomes.

The suggestion given in the future is that the researchers hope that teaching materials in the form of digital supplement books will be developed according to the needs of students and, of course, can be used by students anytime and anywhere. However, adjustments need to be made to the circumstances and characteristics of the school. Reflecting on this material, a 3D pageflip-based digital supplement development book, which was developed in other learning areas, is also available so that students can be active and motivated to improve student results.

REFERENCES

Agustina, E., Saripudin, D., Yulifar, L., & Supriatna, E. (2023). Typology of History Teachers in 21st-Century Learning (Grounded Theory Study in Senior High School in Indonesia). *International Journal of Learning, Teaching and Educational Research*, 22(1), 302–320. https://doi.org/10.26803/ijlter.22.1.17

Chairiyah, A., & Fadilah, M. (2023). Pengaruh Buku Suplemen Digital Terintegrasi Mitigasi Bencana Berbantuan LKPD terhadap Keterampilan Kolaborasi Peserta Didik Materi Sistem Ekskresi di SMPN 32 Padang. *ISLAMIKA*, 5(4), 1469–1481. https://doi.org/10.36088/islamika.v5i4.3830

Darmayanti, R. (2023). Gema Cow-Pu: Development of Mathematical Crossword Puzzle Learning Media on Geometry Material on Middle School Students' Critical Thinking Ability Assyfa Learning Center Pasuruan Foundation, East Java, Indonesia 1 *. *ALJ: Assyfa Learning Journal*, 01, 37–49. https://doi.org/doi.org/alj.v(1)n(1).2023

Elli, S. (2022). Improving Human Resources Technology Innovation as a Business Growth Driver in the Society 5.0 Era. *ADI Journal on Recent Innovation (AJRI)*, 4(2), 149–159. https://doi.org/10.34306/ajri.v4i2.820

Firdaus, F., Haerul Pathoni, & Alrizal, A. (2023). Analisis Kebutuhan Peserta Didik terhadap Media Pembelajaran Sebagai Acuan Pengembangan Video Pembelajaran Berbasis Pendekatan STEM pada Materi Pengukuran. *JURNAL PENDIDIKAN MIPA*, 13(3), 790–796. https://doi.org/10.37630/jpm.v13i3.1006

Hanif, M., Khosihan, A., Setiawan, B., Haryani, P., Firdaus, A. P., & Edu, F. (2023). Developing Infographic Teaching Materials for Introduction of Sapta Pesona-Based Character Value for Elementary School Students in the Bayah Dome Geopark Area, Lebak Regency. *Teknodika*, 21(01). http://jurnal.uns.ac.id/Teknodika

Harun, B., Sara, Y., & Adiyono. (2023). Implementation Of Education Management With Learning Media In Era 4.0. *International Journal of Humanities, Social Sciences and Business (INJOSS)*, 2(1), 48–56.

Inganah, S., Darmayanti, R., & Rizki, N. (2023). Problems, Solutions, and Expectations: 6C Integration of 21st Century Education into Learning Mathematics. *JEMS (Journal of Mathematics and Science Education)*, 11(1), 220–238. https://doi.org/10.25273/jems.v11i1.14646

Iqboljon, S. (2023). Development Of Acmeological Competence Of Future Educators In The Conditions Of Informing Education. *International Bulletin Of Applied Science and Technology*, 3, 424–429. https://doi.org/10.5281/zenodo.7927606

Ismail, R., Sakinah Aries, N., Monoarfa, F., & Studi Pendidikan Guru Sekolah Dasar, P. (2024). Analisis Kebutuhan Pengembangan Bahan Ajar Pendidikan Kewarganegaraan Berbasis Karakter pada Era Digital bagi Siswa Sekolah Dasar di Kota Gorontalo. *Jurnal Pendidikan Tambusai*, 8 (1), 841–849. https://www.jptam.org/index.php/jptam/article/view/12469

Maisarah, Ayudia, I., Prasetya, C., & Mulyani. (2023). Analisis Kebutuhan Media Digital Pada Pembelajaran IPA di Sekolah Dasar. *Jurnal Pengajaran Sekolah Dasar*, *2*(1), 48–59. https://doi.org/10.56855/jpsd.v2i1.314

Munir, M., Sinambela, E. A., Halizah, S. N., Khan Khayru, R., & Mendrika, V. (2022). Review of Vocational Education Curriculum in the Fourth Industrial Revolution and Contribution to Rural Development. *Journal of Social Science Studies*, *2*(1), 5–8.

Ngadimin, Sakroni, & Daruwahyuningsih. (2023). Developing Video Tutorial-Based Learning Media to Enhance Users' Understanding of Spada. *Teknodika*, *21*(01), 1–11. http://jurnal.uns.ac.id/Teknodika

Nurhikmah, Husriadi, & Hakim, A. (2023). The Use of the Hypercontent Module in Audio Media Development Courses. *Teknodika*, *21*(01). http://jurnal.uns.ac.id/Teknodika

Nuria, N., Chotimah, U., & Syarifuddin. (2023). Needs Analysis of the Use of Digital Supplementary Books on Social Character Material for Civic Education at the Junior High School. *Teknodika*, *21*(01). http://jurnal.uns.ac.id/Teknodika

Sandong, A. E., Said, F. N., & Magdalena, I. (2023). Analisis Kebutuhan Instruksional Dan Pengembangan Tujuan Instruksional Umum Dalam Konteks Peningkatan Efektivitas Pembelajaran. *Sindoro, Cendekia Pendidikan*, *1 (6)*, 10–20.

Shavkat, A., & Niluvar, M. (2023). Factors For Improving The Pedagogical Skills Of Teachers In Teaching The Science Of Labor Protection To "Railway College Students. *International Bulletin (IBAST)*, *3*, 852–856. https://doi.org/10.5281/zenodo.7866357

Tressyalina, T., Noveria, E., Arief, E., Wulandari, E., & Ramadani, N. T. (2023). Analisis Kebutuhan E-LKPD Interaktif Berbasis Kearifan Lokal dalam Pembelajaran Teks Eksposisi. *Educaniora: Journal of Education and Humanities*, *1*(1), 23–31. https://doi.org/10.59687/educaniora.v1i1.1