20._Multirepresentasi_Al_Ishlah.docx

by

Development of Multi-representation Integrated Learning Media to Understand and Translate the Qur'an in Elementary Schools

Sela Maria Ningsih [1], Edhy Rustan [2]

DOI:

Info Artikel

Abstract

Learning media aims to increase students' interest and motivation in learning, including understanding and translating the Qur'an. This research aims to determine the need, design, and validity of learning media solving in the learning material of the Qur'an and Hadith in class III MI Dato Sulaiman Palopo. This research method is a research and development (R & D) method. The development model used in this development is the ADDIE model (analysis, design, development, implementation, evaluation), but it was only carried out to the development stage in this study. The subject of this research involved 30 students. Data were collected through observation, interviews, and document searches analyzed qualitatively and quantitatively. The needs analysis results show that students need interesting symbols/pictures as learning media and add lesson content well. Learning media is designed by integrating multi-representation in Sempokas media. The feasibility of media teaching materials translating the Qur'an was carried out with the assessment of media experts with a grade level (89.5%), material experts (95.8%), linguists (91.6%), and subject teachers (96, 4%) excellent category. Thus, Sempokas media can be applied in learning to understand and translate Surah Al Ikhlas.

Abstrak

Media pembelajaran bertujuan untuk meningkatkan minat dan motivasi siswa dalam belajar termasuk memahami dan menerjemahkan Al-Qur'an. Penelitian ini bertujuan untuk mengetahui kebutuhan, desain, dan validitas media pembelajaran menerjemah dalam materi pembelajaran al-quran hadis di kelas III MI Dato Sulaiman Palopo. Metode penelitian ini adalah metode research and development (R&D). Model pengembangan yang digunakan dalam pengembangan ini adalah model ADDIE (analyze, design, development, implementation, evaluation), namun dalam penelitian ini hanya dilaksanakan sampai pada tahapan development. Subjek penelitian ini berjumlah 30 peserta didik. Data dikumpulkan melalui observasi, wawancara, dan telusur dokumen lalu dianalisis secara kualitatif dan kuantitatif. Hasil analisis kebutuhan menunjukkan siswa membutuhkan media pembelajaran berupa symbol/gambar yang menarik dan menyampaikan isi pelajaran dengan baik. Media pembelajaran di design dengan mengintegrasikan multi-representasi dalam media Sempokas. Kelayakan bahan ajar media menerjemahkan Qur'an dilakukan dengan penilaian ahli media dengan taraf nilai (89,5%), ahli materi

[1] Institut Agama Islam Negeri Palopo Palopo, Sulawesi Selatan, Indonesia
Email: sela_maria_ningsih_mhs@iainpalopo.ac.id
[2] Institut Agama Islam Negeri Palopo Palopo, Sulawesi Selatan, Indonesia
Email: edhy_rustan@iainpalopo.ac.id

Author

(95,8%), ahli bahasa (91,6%), dan guru mata pelajaran (96,4%) kategori sangat valid. Dengan demikian, media Sempokas dapat diaplikasikan dalam pembelajaran memahami dan menerjemahkan Surah Al Ikhlas

INTRODUCTION

A proper understanding of the Qur'an gives birth to the right attitude. To understand the Qur'an well, it is essential to know the meaning of the words in each sentence so that they can be understood correctly and clearly. It is because translation is a change of textual material from Arabic to another language (Maulida, 2017).   The ability to understand and translate the Qur'an is obtained through studying the Qur'an.

According to Solahuddin (2013), Learning the Qur'an is a fundamental obligation for every Muslim teaching it. Learning the Qur'an can be divided into several levels, namely: reading fluently and well according to the rules in qira'at and tajwid, understanding the meaning and content in it, and learning to memorize by heart as was done by the companions at the time of the Prophet Muhammad until the present time. Qur'an Hadith subjects are Islamic religious subjects which are very important in the ability to read and write the Qur'an correctly, as well as memorizing the suras and the example of the Prophet Muhammad SAW, which must be imitated in everyday life. It can be taught at the primary level to students.

Based on an initial study in class III Madrasah Ibtidaiyah Datok Sulaiman Palopo, many students experienced difficulties understanding and translating Surah Al Ikhlas. It is because, during the learning process, educators only use textbooks so that students are less enthusiastic in the learning process. Students only play, go in and out of class, tell stories with their peers, and only occasionally pay attention to lessons. As a result, the learning objectives cannot be achieved. Thus, it can be said that students are less interested in learning and feel bored with learning that does not use interesting media in the learning process.

Learning media is one of the keys to success in carrying out learning (Muhardini et al., 2020; Qondias et al., 2016). Learning media is a tool for stimulating students in the learning process (Purwanti, 2015). Media is also called a channel because of the delivery of messages or information from the information source to the recipient of the information (Santu, 2017).

Learning media is a tool used by educators to attract students' interest in learning. Using learning media in the learning process can increase new desires and interests, generate motivation and stimulation of learning activities, and positively influence students (Sapto Haryoko, 2009). However, teaching media should also be able to motivate students in learning. Learning media should encourage students to achieve the learning objectives that will be completed by the knowledge to be acquired (Apriliani et al., 2021). as developed by researchers, namely in the form of learning media to understand and translate the Qur'an, which is designed as attractive as possible to attract interest in learning and motivate students in understanding and translating verses in the Qur'an, besides that the learning media designed by researchers resembles an abacus. Such as a calculating tool used in solving math problems, but the author has changed it into a translation tool for Surah Al Ikhlas, which is as attractive as possible so that students are interested in learning and translating the letter.

To overcome the existing problems, it is necessary to use media to attract interest in learning to help students and educators understand and translate the Qur'an. The use of media in the learning process enables the effectiveness of the learning process, and the delivery of messages and lesson content can be explained in full (Oktavianti & Wiyanto, 2014). To make it easier to understand and translate the Qur'an as well as to overcome problems in the learning process, in this study, a learning media was developed, which was named Sempokas learning media (Sempoa Al Ikhlas). This media resembles an abacus like a calculating tool used in learning mathematics but contains Surah Al Ikhlas with an attractive design according to student characteristics. Learning media is developed by integrating Multi representation.

Multi-representation is re-presenting the same concept into different formats, including verbal, pictures, graphics, and themes (A'yun, 2014). The application of multi-representation in the learning process shows an increase in students' cognitive abilities (Hasbullah et al., 2019; Theasy et al., 2018; Widianingtiyas et al., 2015; Zhu et al., 2019).

Representations are divided into three types, namely (1) visual representations in the form of diagrams, graphs, tables and figures, (2) mathematical equations or expressions, (3) words or written text (Sri Irawati, 2016). These representations are combined so that a learning media can be used in the learning process to understand and translate the Qur'an Surah Al Ikhlas for class III students of Madrasah Ibtidaiyah Datok Sulaiman Palopo.

Several multi-representation-based development studies have been carried out previously. A study by Widarti et al. (2021) developed virtual laboratory learning media in analytical chemistry with the 4D development method. The development of virtual media supports online practicum learning and helps the process of receiving information for students. The development of multi-representation media is also applied to fundamental physics learning by Huda et al. (2016). Research by Resita & Ertikanto (2018) developed an electronic module design based on the Learning Content Development System (LCDS) to grow students' multi-representation abilities in physics subject matter. Research by Mushlihah & Yetri (2018) developed multi-representation-based learning media in learning Newton's Law with Islamic science. This study uses the Borg and Gall model in developing video media. Another study by Suarsana (2021) developed a digital math book for the deaf. In contrast to the research, this study creates Sempokas media (Sempoa Al Ikhlas) using the ADDIE model.

Based on this background, integrated Multi-representation Sempokas learning media was developed in this research. This study aims to determine the need, design, and validity of learning media translating in the learning material of the Koran Hadith in class III MI Dato Sulaiman Palopo.

METHOD

Research Design

This research is a research and development R&D (Research and Development). This research followed the ADDIE model (Analysis Design, Development, Implementation, and Evaluation) (Tegeh et al., 2015). However, this study only reached the development stage due to constraints in the pilot stage during the Covid-19 pandemic. The steps for the ADDIE learning model are as follows:

1) Analysis Stage

At this stage, the problems found during the learning process of the Qur'an Hadith and teaching materials in schools were studied and formulated to solve them. The analysis stage is carried out through observation and independent interviews with school teachers and students.

2) Design

After the analysis stage, the researcher carried out the next step, design. Researchers design or design an initial picture of the media to be developed. At this stage, the researcher looks for an image that will later be made a pattern resembling the sentence in Surah Al Ikhlas. The selected images are not far from the environment around students so that later students will more easily understand and translate the surah. In the design stage, an instrument for assessing product quality is also compiled in a checklist. The material expert validation format contains aspects about the material, while the media expert validation format contains elements regarding quality..

3) Development

After making Sempokas learning media (Sempoa Al Ikhlas), the validation test phase was carried out by four validators: media experts, material experts, linguists, and experts in learning the Qur'an and hadith at Madrasah Ibtidaiyah. At this stage, the learning products/media that have been made are then developed based on the direction and input of each validator to produce the final form of learning media. In this stage, teaching materials in the form of learning media have been summarized. It is done to determine the level of validity of the developed product.

Research subjects and objects

Author

The subjects in this study were all third-grade students, totalling 30 students, and teachers of Qur'an Hadith learning at Madrasah Ibtidaiyah Datok Sulaiman Palopo. The object under investigation is the skills of class III students in the learning material of the Qur'an and Hadith.

Data collection instruments and techniques

Data collection in this study was done through observation, interviews, and documentation. The instruments used are observation sheets, student response questionnaires, teacher interview guidelines, comprehension tests, and documentation guidelines. Especially at the needs analysis stage, researchers used interview guidelines, questionnaires in google form, teacher interview guidelines, document guidelines, and student tests using Google Forms. Experts have validated the instruments used before being distributed to students. The number of questions in ten items, each correct question gets 10 points, and if it is right, all get 100 points. The test indicators given are:

1. Reading comprehension of Surah Al Ikhlas
2. Understanding the meaning of Surah Al Ikhlas
3. Understanding the content of Surah Al Ikhlas

Data collection at the validation stage used a validation sheet obtained from three design, media, material, and language experts. In addition, to test the product's reliability, a practicality test was also carried out by involving class III teachers.

Data analysis technique

The data analysis carried out consists of:
1) Qualitative Descriptive Analysis

This technique is used to process data from the results of the review of Qur'an Hadith experts, design experts, learning media experts, teachers, and supervisory lecturers. This data analysis technique is carried out by grouping information from qualitative data in input, feedback, criticism, and suggestions for improvement in the questionnaire and interview results. The results of this analysis are then used to revise the product development.
2) Quantitative Descriptive Analysis

This technique is used to manage the data obtained through validation sheets by experts to measure the validity of the learning media. Media validity results are categorized by percentage.

RESULT AND DISCUSSION

Need analysis result

The results of interviews with Qur'an Hadith teachers regarding the fundamental problems encountered in the meaning of Surah Al Ikhlas and its application found that not all students appreciated their learning of Qur'an Hadith. In the learning process, the teacher gives assignments by rewriting verses from surah Al Ikhlas and then answering questions in the textbook based on the syllabus's structure and lesson plans. These learning conditions make it difficult for teachers to provide understanding to students.

The teacher also stated that they need tools in learning to attract students' interest in participating in the learning process. It is in line with the results of the questionnaire obtained from students. Based on student questionnaires, it found that 13.3% liked reading, 13.3% wanted the teacher's explanations and 73.3% of students preferred learning by displaying interesting pictures/symbols. The results of the questionnaire can be seen in the following diagram:
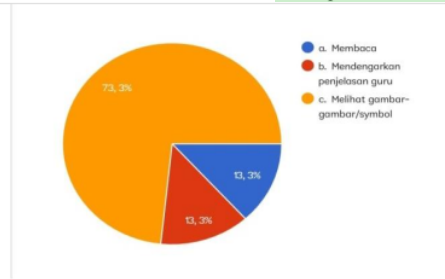
Fig. 1. Student questionnaire results

Based on the test results of understanding the translation of Surah Al Ikhlas, most students still do not understand and have difficulty interpreting Surah Al Ikhlas. As a result of less engaging learning to students, the learning outcomes obtained are still low. Of the 30 students, only ten students reached the KKM. The results of student understanding can be seen in the following picture.:
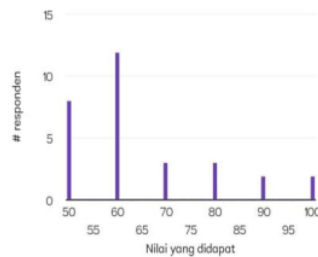
Fig. 2. Student understanding test results

Based on the needs analysis results, it is necessary to develop media that contains integrated multi-representation images/symbols that are attractive and appropriate to the characteristics of students. This study's results align with research conducted by elementary school students who need interactive media, easy to use and convey learning topics so that it is easier to understand the subject matter. The selection of the press used needs to be adjusted to the subject matter and the characteristics and needs of students. It is confirmed by Qondias et al. (2016) that the use of media plays a significant role in the success of the learning process. When teachers use suitable media, students become more motivated, focused and actively participated in the learning process so that students easily understand the material presented. Using multi-representation integrated image media will make it easier for students to understand and memorize the subject matter. Therefore, it is necessary to develop multi-representation integrated media.

Simpokas media design

Media is designed by making flow charts (Figure 3) to make composing or developing products easier. The design/design of this media is devoted to the material of Surah Al Ikhlas in learning the Qur'an Hadith.
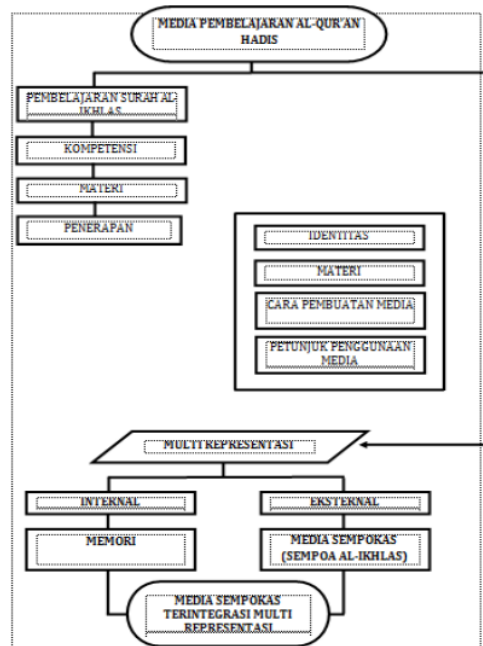
Fig. 3. Flowchart media design

Based on the flowchart, it can be explained that the Sempokas learning media product (Sempoa Al Ikhlas) is integrated with Multi Representation. Internally through memory and externally in the form of Sempokas media. The media images are designed on a laptop using the Photoshop application according to a pattern that resembles each sentence of Surah Al Ikhlas.

Fig. 4. Media Design

Sempokas media development

In the development stage, the researcher creates or develops a media called Sempokas (Sempoa Al Ikhlas), made with wood and plywood as basic materials that resemble the shape of an abacus or a calculator in learning mathematics. The Sempokas Media that has been created has gone through several revisions. The validator gives the following corrections:

Table 1. Reviewer's Correction

No	Validator/ Expert	Comment	Repair
1	Media Design	The use of Sempokas media does not interfere with the learning process	Simplification of the form of learning media
2	Content	Clarity of material description with pictures	Preferably using pictures that students frequently visit
3	Language	Using terms appropriately and easily understood by students	Has used language and terms that are often heard and spoken by students
4	Learning practitioners in elementary school	All students can use it	This learning media can be used for all students made in several groups

After making revisions based on corrections and directions from the validator, the final product of Sempokas media has an attractive appearance and design. The following is the Sempokas media (Abacus Al Ikhlas) designed.

Fig. 5. The Finished Sempokas Media Display

This media is equipped with a user manual to facilitate its use by students and teachers. The following is a description of the product material for Surah Al Ikhlas in developing Sempokas learning media (Abacus Al Ikhlas) on Qur'an Hadith learning materials in class III Madrasah Ibtidaiyah Datok Sulaiman Palopo. The front of the cover is designed as attractive as possible with bright colours that are liked by third-grade students, especially in the learning material of the Qur'an and Hadith..

Fig. 6. Sempokas Media Usage Guide Book Cover

The manual contains material for Surah Al Ikhlas in the form of lafadz, translation, and the

contents of the content of Surah Al Ikhlas.

Fig. 6. Surah Al Ikhlas material

Four expert validators assessed the validity of the developed media according to their respective fields to determine the validity of the developed media. The average results of the final assessment of the experts can be seen in the following table:

Table 2. Expert validator assessment results

No	Validator/ Expert	Comment	Repair
1	Media design	89,5	Sangat Valid
2	Content	95,8	Sangat Valid
3	Language	91,6	Sangat Valid
4	Practitioner	96,4	Sangat Valid

Based on the results of assessments from experts in their fields, the media developed in this study is declared valid with minor revisions. Thus, this Sempokas media can be used in learning Surah Al Ikhlas at the elementary school level.

CONCLUSION

This study aims to determine the need, design, and validity of learning media translating in the learning material of the Koran Hadith in class III MI Dato Sulaiman Palopo. Based on the study's results, it can be concluded that in learning the Qur'an Hadith at the MI level, students need engaging learning media by displaying symbols/images. Therefore, a multi-representation integrated Sempokas press was developed.

The design results in this study are in the form of images that resemble pieces of Surah Al Ikhlas. It is intended to make it easier for students to remember the subject. Based on the validity test by four experts, it was found that the Sempokas media developed was valid to be used in the learning process of memorizing and translating surah al sincere. Therefore, the Sempokas media developed can be used as a medium for learning the Qur'an Hadith at the MI level.

This research has only reached the development stage, so it is hoped that further researchers can continue at the implementation and evaluation stage of Sempokas media development. The development of multi-representation integrated media can also be carried out on other subject matter, so teacher creativity is needed in creating learning media.

REFERENCES

A'yun, D. Q. (2014). *Pengaruh Pembelajaran Fisika Menggunakan Model Modified Free Inquiry dan Guided Inquiry Terhadap Kemampuan Multirepresentasi Ditinjau Dari Kemampuan Awal Dan Keterampilan Proses Sains Tesis.*

Apriliani, M. A., Maksum, A., Wardhani, P. A., Yuniar, S., & Setyowati, S. (2021). Pengembangan media pembelajaran PPKn SD berbasis Powtoon untuk mengembangkan karakter tanggung jawab. *Jurnal Ilmiah Pendidikan Dasar*, *8*(2), 129. https://doi.org/10.30659/pendas.8.2.129-145

Hasbullah, H., Halim, A., & Yusrizal, Y. (2019). Penerapan Pendekatan Multi Representasi Terhadap Pemahaman Konsep Gerak Lurus. *Jurnal IPA & Pembelajaran IPA*, *2*(2), 69–74. https://doi.org/10.24815/jipi.v2i2.11621

Kunni Mushlihah, Yetri, Y. (2018). Pengembangan Media Pembelajaran Berbasis Multi Representasi Bermuatan Sains Keislaman Dengan Output Instagram Pada Materi Hukum Newton. *Indonesian Journal of Science and Mathematics Education*, *01*(3), 207–215.

Maulida, H. (2017). Persepsi Mahasiswa Terhadap Penggunaan Google Translate Sebagai Media Menerjemahkan Materi Berbahasa Inggris. *Jurnal SAINTEKOM*, *7*(1), 56. https://doi.org/10.33020/saintekom.v7i1.21

Muhardini, S., Rahman, N., Mahsup, M., Sudarwo, R., Anam, K., & Fujiaturrahman, S. (2020). Pengembangan Media Pembelajaran Box Nusantara untuk Membentuk Kemampuan Memahami Konsep Tematik pada Siswa Sekolah Dasar. *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran*, *6*(2), 284. https://doi.org/10.33394/jk.v6i2.2612

Mulky Solahuddin. (2013). *Pembelajaran metode tamyiz terhadap kemampuan menterjemahkan al-qur'an dan membaca kitab kuning di smp negeri 2 kedokanbunder indramayu.*

Oktavianti, R., & Wiyanto, A. (2014). Pengembangan Media Gayanghetum (Gambar Wayang Hewan dan Tumbuhan) dalam Pembelajaran Tematik Terintegrasi Kelas IV SD. *Mimbar Sekolah Dasar*, *1*(April), 65–70.

Purwanti, B. (2015). Pengembangan Media Video Pembelajaran Matematika dengan Model Assure. *Kebijakan Dan Pengembangan Pendidikan*, *3*(1), 42–47.

Qondias, D., Anu, E. L., & Niftalia, I. (2016). Pengembangan Media Pembelajaran Tematik Berbasis Mind Maping Sd Kelas Iii Kabupaten Ngada Flores. *JPI (Jurnal Pendidikan Indonesia)*, *5*(2), 176. https://doi.org/10.23887/jpi-undiksha.v5i2.8590

Santu, R. F. (2017). *Pengembangan Media Papan Penjumlahan Pada Materi Pokok Penjumlahan Dalam Subtema Gemar Berolahraga Untuk Siswa Kelas I Sekolah Dasar* (pp. 1–215).

Sapto Haryoko. (2009). Efektivitas Pemanfaatan Media Audio-Visual Sebagai Alternatif Optimalisasi Model Pembelajaran. *Edukasi*, *5*(1), 1–10.

Sri Irawati, S. I. H. (2016). Representasi Mahasiswa Berkemampuan Matematika Tinggi dalam Memecahkan Masalah Program Linier. *Representasi Mahasiswa Berkemampuan Matematika*, *18*(1), 80–86.

Suarsana, I. (2021). Developing Interactive Digital Mathematics Book with Multi Representation Approach for Deaf Students. *International Journal of Emerging Technologies in Learning*, *16*(13).

Tegeh, i made, Jampel, i nyoman, & Pudjawan, K. (2015). pengembangan buku ajar model penelitian pengembangan dengan model addie. *Jurnal Dimensi Pendidikan Dan Pembelajaran*, *3*(1), 24–

Author

29.

Theasy, Y., Wiyanto, & Sujarwata. (2018). Multi-representation ability of students on the problem solving physics. *Journal of Physics: Conference Series*, *983*(1). https://doi.org/10.1088/1742-6596/983/1/012005

Widianingtiyas, L., Siswoyo., & Bakri, F. (2015). Pengaruh Pendekatan Multirepresentasi dalam Pembelajaran Fisika Terhadap Kemampuan Kognitif Siswa SMA. *Jurnal Penelitian & Pengembangan Pendidikan Fisika (JPPPF)*, *1*(1), 31–38.

Zhu, Y., Zhuang, F., Wang, J., Chen, J., Shi, Z., Wu, W., & He, Q. (2019). Multi-representation adaptation network for cross-domain image classification. *Neural Networks*, *119*, 214–221. https://doi.org/10.1016/j.neunet.2019.07.010A'yun, D. Q. (2014). *Pengaruh Pembelajaran Fisika Menggunakan Model Modified Free INQUIRYDAN GUIDED INQUIRY TERHADAP KEMAMPUAN MULTIREPRESENTASI DITINJAU DARI KEMAMPUAN AWAL DAN KETERAMPILAN PROSES SAINS TESIS*.

Apriliani, M. A., Maksum, A., Wardhani, P. A., Yuniar, S., & Setyowati, S. (2021). Pengembangan media pembelajaran PPKn SD berbasis Powtoon untuk mengembangkan karakter tanggung jawab. *Jurnal Ilmiah Pendidikan Dasar*, *8*(2), 129. https://doi.org/10.30659/pendas.8.2.129-145

Hasbullah, H., Halim, A., & Yusrizal, Y. (2019). Penerapan Pendekatan Multi Representasi Terhadap Pemahaman Konsep Gerak Lurus. *Jurnal IPA & Pembelajaran IPA*, *2*(2), 69–74. https://doi.org/10.24815/jipi.v2i2.11621

Huda, C., Siswanto, J., Kurniawan, A. F., & Nuroso, H. (2016). Development of multi-representation learning tools for the course of fundamental physics. *Journal of Physics: Conference Series*, *739*(012024), 1–5. https://doi.org/10.1088/1742-6596/739/1/012024

Kunni Mushlihah, Yetri, Y. (2018). PENGEMBANGAN MEDIA PEMBELAJARAN BERBASIS MULTI REPRESENTASI BERMUATAN SAINS KEISLAMAN DENGAN OUTPUT INSTAGRAM PADA MATERI HUKUM NEWTON. *Indonesian Journal of Science and Mathematics Education*, *01*(3), 207–215.

Maulida, H. (2017). Persepsi Mahasiswa Terhadap Penggunaan Google Translate Sebagai Media Menerjemahkan Materi Berbahasa Inggris. *Jurnal SAINTEKOM*, *7*(1), 56. https://doi.org/10.33020/saintekom.v7i1.21

Muhardini, S., Rahman, N., Mahsup, M., Sudarwo, R., Anam, K., & Fujiaturrahman, S. (2020). Pengembangan Media Pembelajaran Box Nusantara untuk Membentuk Kemampuan Memahami Konsep Tematik pada Siswa Sekolah Dasar. *Jurnal Kependidikan: Jurnal Hasil Penelitian Dan Kajian Kepustakaan Di Bidang Pendidikan, Pengajaran Dan Pembelajaran*, *6*(2), 284. https://doi.org/10.33394/jk.v6i2.2612

Mulky Solahuddin. (2013). *Pembelajaran metode tamyiz terhadap kemampuan menterjemahkan al-qur'an dan membaca kitab kuning di smp negeri 2 kedokanbunder indramayu*.

Oktavianti, R., & Wiyanto, A. (2014). Pengembangan Media Gayanghetum (Gambar Wayang Hewan dan Tumbuhan) dalam Pembelajaran Tematik Terintegrasi Kelas IV SD. *Mimbar Sekolah Dasar*, *1*(April), 65–70.

Purwanti, B. (2015). Pengembangan Media Video Pembelajaran Matematika dengan Model Assure. *Kebijakan Dan Pengembangan Pendidikan*, *3*(1), 42–47.

Qondias, D., Anu, E. L., & Niftalia, I. (2016). Pengembangan Media Pembelajaran Tematik Berbasis Mind Maping Sd Kelas Iii Kabupaten Ngada Flores. *JPI (Jurnal Pendidikan Indonesia)*, *5*(2), 176. https://doi.org/10.23887/jpi-undiksha.v5i2.8590

Resita, I., & Ertikanto, C. (2018). Designing electronic module based on learning content development system in fostering students' multi representation skills. *Journal of Physics: Conference Series*, *1022*(012025), 1–9. https://doi.org/10.1088/1742-6596/1022/1/012025

Santu, R. F. (2017). *PENGEMBANGAN MEDIA PAPAN PENJUMLAHAN PADA MATERI POKOK PENJUMLAHAN DALAM SUBTEMA GEMAR BEROLAHRAGA UNTUK SISWA KELAS I SEKOLAH DASAR* (pp. 1–215).

Sapto Haryoko. (2009). Efektivitas Pemanfaatan Media Audio-Visual Sebagai Alternatif Optimalisasi Model Pembelajaran. *Edukasi*, *5*(1), 1–10.

Sri Irawati, S. I. H. (2016). Representasi Mahasiswa Berkemampuan Matematika Tinggi dalam Memecahkan Masalah Program Linier. *Representasi Mahasiswa Berkemampuan Matematika*,

18(1), 80–86.

Suarsana, I. (2021). Developing Interactive Digital Mathematics Book with Multi Representation Approach for Deaf Students. *International Journal of Emerging Technologies in Learning*, *16*(13).

Tegeh, i made, Jampel, i nyoman, & Pudjawan, K. (2015). pengembangan buku ajar model penelitian pengembangan dengan model addie. *Jurnal Dimensi Pendidikan Dan Pembelajaran*, *3*(1), 24–29.

Theasy, Y., Wiyanto, & Sujarwata. (2018). Multi-representation ability of students on the problem solving physics. *Journal of Physics: Conference Series*, *983*(1). https://doi.org/10.1088/1742-6596/983/1/012005

Widarti, H. R., Rokhim, D. A., Muchson, M., Budiasih, E., Sutrisno, Pratama, R. W., & Hakim, M. I. (2021). Developing Integrated Triplet Multi-Representation Virtual Laboratory in Analytic Chemical Materials. *International Journal: Interactive Mobile Technologies*, *15*(8), 119–135. https://doi.org/10.3991/ijim.v15i08.21573

Widianingtiyas, L., Siswoyo., & Bakri, F. (2015). Pengaruh Pendekatan Multirepresentasi dalam Pembelajaran Fisika Terhadap Kemampuan Kognitif Siswa SMA. *Jurnal Penelitian & Pengembangan Pendidikan Fisika (JPPPF)*, *1*(1), 31–38.

Zhu, Y., Zhuang, F., Wang, J., Chen, J., Shi, Z., Wu, W., & He, Q. (2019). Multi-representation adaptation network for cross-domain image classification. *Neural Networks*, *119*, 214–221. https://doi.org/10.1016/j.neunet.2019.07.010

20._Multirepresentasi_Al_Ishlah.docx

7   Yusnaidar Yusnaidar, Wilda Syahri, Muhaimin Muhaimin, Winda Sitia Elisabet Br Sinaga. "Pengembangan Multimedia Pembelajaran Materi Reaksi Polimerisasi Untuk Meningkatkan Kemampuan Literasi Sains Mahasiswa", Journal of The Indonesian Society of Integrated Chemistry, 2021
Publication

<1 %

8   id.scribd.com
Internet Source

<1 %

| Exclude quotes | Off | Exclude matches | Off |
| Exclude bibliography | Off | | |