Interactive Multimedia Based on A Problem Based Learning Model in Integrated Social Science Learning For Class Eight Junior High School

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Abstract

Integrated social studies learning in junior high schools experiences problems, namely low student interest and learning outcomes. This is caused by students who are less active when studying. The aim of the research is to describe the process, validity, practicality and effectiveness of developing interactive multimedia based on the problem base learning (PBL) model in Integrated Social Sciences learning for class VIII SMP. This research uses the development and research (R&D) method with the ADDIE model. The data analysis technique in this research uses a Likert scale. Testing the validity of interactive multimedia includes material, media and language experts. The practicality test involved one Integrated Social Sciences teacher and 30 class VIII students at SMPN 22 Padang. The validity test results from material experts obtained a score of 3.5, media experts scored 3.6 and language experts scored 4 in the very valid category. The results of the practicality test by educators obtained a score of 3.9, and students scored 3.7 in the very practical category. The results of the effectiveness test obtained a very effective category because there were significant differences in student learning outcomes in using interactive multimedia.

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INTRODUCTION

The development of information and communication technology in the 4.0 revolution era has an impact on people who are accustomed to using technology as a product of development. The development of technology and communication has an influence in all fields, especially in the field of education. The development of technology and communication is very beneficial for the world of education, both for teachers and students (Nurhikmah, Isnaeni, Sulistriorini, 2023). Utilizing this development as a means of school infrastructure will make learning take place well in accordance with the expected process and can meet the standards that have been set. This infrastructure allows students to access learning resources that are open and describe real world conditions that not only involve students with environment only, but in learning activities you can also use computers containing text, graphics, audio, moving images (video and animation) to navigate, interact, create and communicate (Rahmadani & Taufina, 2021).

Integrated Social Sciences learning has been synonymous with memorization because it has a lot of material. In the learning process, teachers still use conventional models. As a result, these materials are difficult for students to understand so that social studies learning becomes boring and uninteresting for students (Sari, Murtono, Utomo, 2021). This results in low interest and unsatisfactory student learning outcomes. Even though integrated social studies learning is a very basic learning activity aimed at preparing students as citizens who master knowledge (knowledge), Skills (skill), attitudes and values (attitudes and values) which can be used when growing up and becoming independent because it influences the continuity of life in economic, social and other aspects (Susilowati & Sutama, 2022).

Integrating technological developments in education is an alternative strategy that teachers can use to update the teaching and learning process in the classroom so that it is not boring and interesting for students. The use of learning media in the teaching and learning process can arouse desire, interest, motivation, and stimulation of learning activities, and bring psychological effects to students (Hidayati, Bentri, Yeni, Zuwirna & Eldarni, 2019). One integration that can be developed is interactive multimedia accompanied by an environment for independent learning, experimenting, collaborating, reasoning and communicating about an object or object event. Namely by embracing a problem-based model or Problem Based Learning (PBL) as the basis for interactive multimedia. Interactive Multimedia can be used as a teaching and learning medium in schools with the aim of increasing the quality of education, one of which is by improving learning outcomes (Iskandar, Bentri, Hendri, Engkizar, Efendi, 2023). PBL-based interactive multimedia is able to improve the social studies learning process at school and can increase student group learning activities, increase student activity and improve learning outcomes. The problem-based learning model was developed primarily to help students develop thinking abilities, problem solving, and intellectual skills, learn about various adult roles through their involvement in real or simulated experiences, and become autonomous and independent learning (Kartini, Harun, Mursid, 2021). In this model the problem is presented at the beginning of learning and students are asked to solve the problem (Nofziarni, Hadiyanto, Fitria, Bentri, 2019). The implementation consists of explaining the learning objectives and encouraging students to be involved in problem solving activities. The problem will later be discussed by students, then presented and at the end of the activity, the teacher helps students to reflect on the learning material (Yuristia, Hidayati, Ratih, 2022).

Based on the results of observations at SMPN 22 Padang, it was found that the use of interactive multimedia had never been used at this school. It was also seen that several problems were found in Integrated Social Sciences learning, including (1) the teaching media used by teachers was still focused on teaching materials used by teachers and students, even though there is a computer/laptop laboratory available which can be used as a learning facility, (2) media learning in the form of a teacher's handbook still needs to be developed, (3) there is no media available that suits students' varied learning styles, (4) there is no learning media that allows learning control through learning media controlled by students. To overcome the problems above, a model-based interactive multimedia learning

environment is needed Problem Based Learning (PBL) as a modern teaching environment that embraces current developments, science and technology, including media that is seen and heard and applied (Sapitri, Bentri, 2020).

Interactive multimedia development based Problem Based Learning this will use the device Articulate Storyline 3. Articulate Storyline 3 including software that is a communication and presentation medium (Agustina & Elan, 2021). Articulate storyline 3 are in the form of digital learning media which is useful for teachers to deliver material. Advantages of Articulate Storyline 3 one of them is easy to operate, similar to power point so that it will be easier for teachers to operate, there are several superior features such as timeline, movie, and pictures (Pratiwi, Margunayasa, Trisna, 2023).

The novelty of this research idea lies in the development of Interactive Multimedia-based products Problem Based Learning in Integrated Social Sciences subjects for class VIII SMP students, which can be accessed by computer, laptop or smartphone. This product will have the advantage that there will be student interaction with the product which contains special options that students can click on to display information in the form of audio visuals or other features that students want. Interactive multimedia is believed to be effective for use in Integrated Social Sciences learning at SMPN 22 Padang, where this school has a computer laboratory and this is a means of supporting learning. This research aims to analyze the process of validity, practicality and effectiveness of developing Interactive Multimedia Based on the Problem Based Learning Model in Integrated Social Sciences Learning for Class VIII SMP.

METHODS

Research Design

Research and Development or R&D which means research and development) is a type of research that is in accordance with the problems and objectives that have been stated. Research and development methods are research methods used to produce certain products and test these products (Ayu & Fauzi, 2020). In this research, the product produced and tested is Model-Based Interactive Multimedia Problem Based Learning. The ADDIE model is used because this development model is more dynamic, effective and supports the performance of learning programs. The ADDIE model is a model that is widely used in learning in the field of design or product guidance to produce effective designs or products (Ozila & Zen, 2023). This development model has several stages, namely: 1) Analysis (needs, curriculum and students), 2) Design (designing product content), 3) Development (testing product validity), 4) Implementation (testing the product), and 5) Evaluation (revise the product), as seen in the following picture (Marsya & Tamam, 2023).

Participant

This research involved a number of experts as validators, namely material experts, media experts and language experts to test the validity of the product. This research also involved an Integrated Social Sciences teacher and 30 class VIII.H
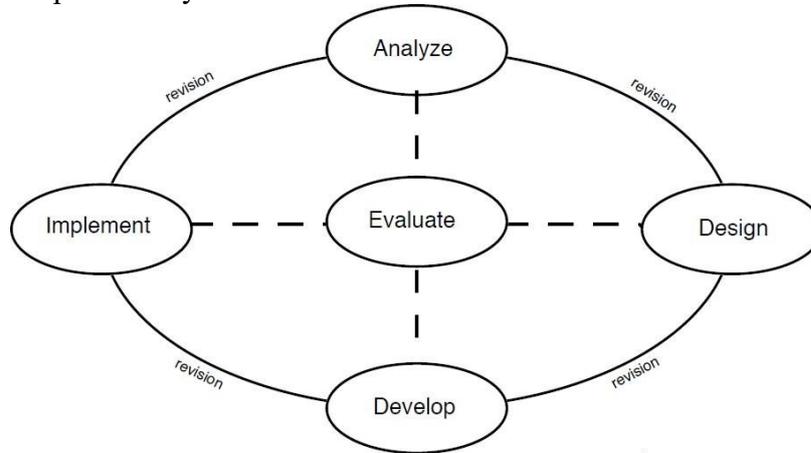
students in a practicality and effectiveness test.

Figure 1. ADDIE Model Circular Type

Data Collection Technique

The data collection instruments used were assessment questionnaires for material validators, media validators, language validators as well as questionnaire sheets for teachers and students using a Likert response scale of 1-4, namely Very Good with a weight of 4, Good with a weight of 3, Fairly Good with a weight. 2 and Poor with a weight of 1. The scores obtained for each category can be seen in table 1.

Table 1. Validity and Practicality Classification

Interval %	Category
0-20	Highly Invalid/Practical
21-40	Invalid/Practical
41-60	Less Valid/Practical
61-80	Valid/Practical
81-100	Very Valid/Practical

Source: Riduwan and Sunarto (2007)

RESULTS & DISCUSSION

The results of research on the development of interactive multimedia in social studies learning for class VIII SMP were carried out using validity tests by material validators, media and language validators, as well as product practicality tests on class VIII teachers and students H SMP N 22 Padang, as well as testing effectiveness in the learning process. In accordance with the stages of the ADDIE model, the development results can be explained as follows:

Analysis Stage

Based on the results of observations to analyze needs, it was found that class VIII students had low interest and learning outcomes in Integrated Social Sciences

subjects. Judging from the results of last semester's exam scores, many students did not meet the complete score category. This is because the teaching media used only focuses on handbooks. So students become less active when studying, because there is no media available that suits students' varied learning styles, and there is no learning media that allows students to control learning. Next, curriculum analysis is carried out to determine the content of the material and the extent to which the material is included in the multimedia being developed. The results of the analysis show that the 2013 curriculum for social studies subjects with Human Resources (HR) material for class VIII SMP requires attention to the development of students' understanding of key aspects related to humans as resources.

Design Stage

This design or planning stage is the interactive multimedia design stage Problem Based Learning (PBL) based on the previous analysis stage. This stage has several guidelines, namely: 1) Flowchart, to provide a rough overview of the product being developed, to help simplify the process of working on multimedia in a directed and systematic manner, created using a website Diagram.net. 2) Storyboard is a series of stories in the form of sketch images accompanied by text descriptions to describe the storyline in interactive multimedia which was developed with an initial interactive multimedia design designed using Canva.
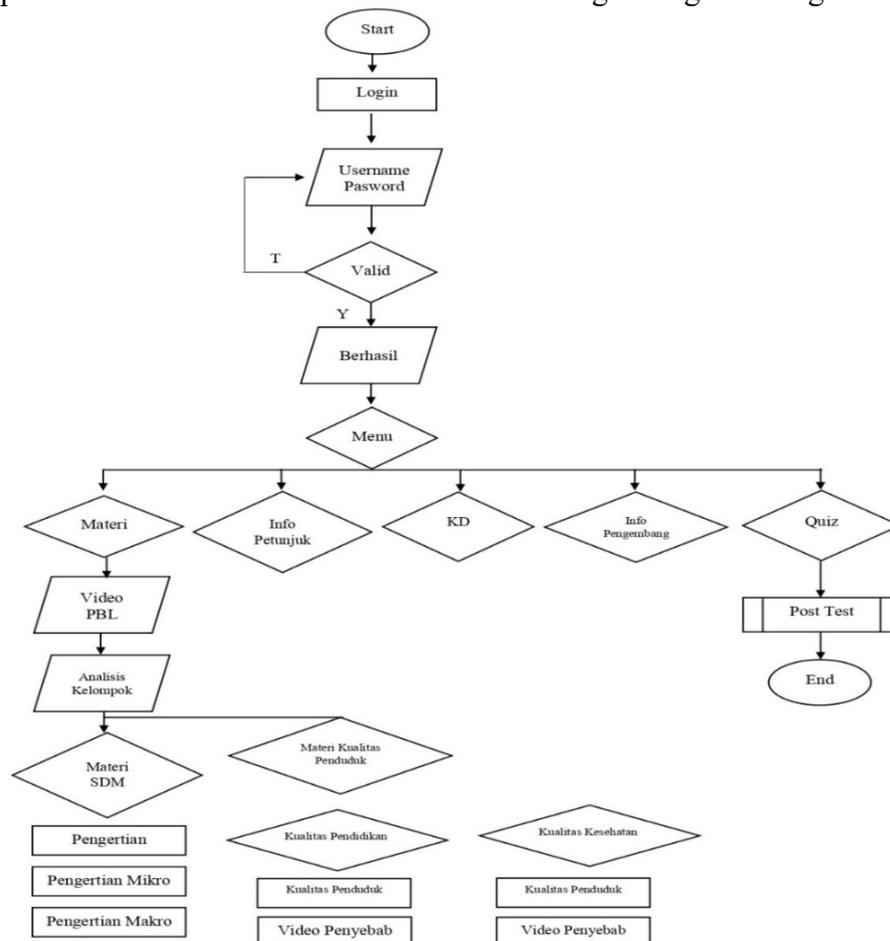

Figure 2. Flowchart Design

Development Stage

Multimedia development is done by realizing the multimedia plans that have been made at the previous stage with the appropriate flowflowchart and appropriate visual appearancestoryboard accompanied by various media constituent materials such asbackground, ikon menu, navigation buttons, illustration images, animations, animated videos, music, audio narration and videos supporting learning materials. Next, input it insoftware Articulate Storyline (US) to be developed into interactive multimedia with an output format in the form of APK and EXE. The steps in the development process are: 1) create an attractive background design that matches the theme of the material with the Canva application, 2) input the background design into the applicationArticulate Storyline, 3) klik new project, set the design size and add the background design, 4) set the text for the title, developer, logos and shapes, 5) set buttons and createtrigger for clickable buttons, 6) set transitions and animations slide, 7) Insert audio from file, and selectfile audio you want to include, 8) add relevant video sourced from youtube, Then import to the application Articulate Storyline, select menu insert then select video.
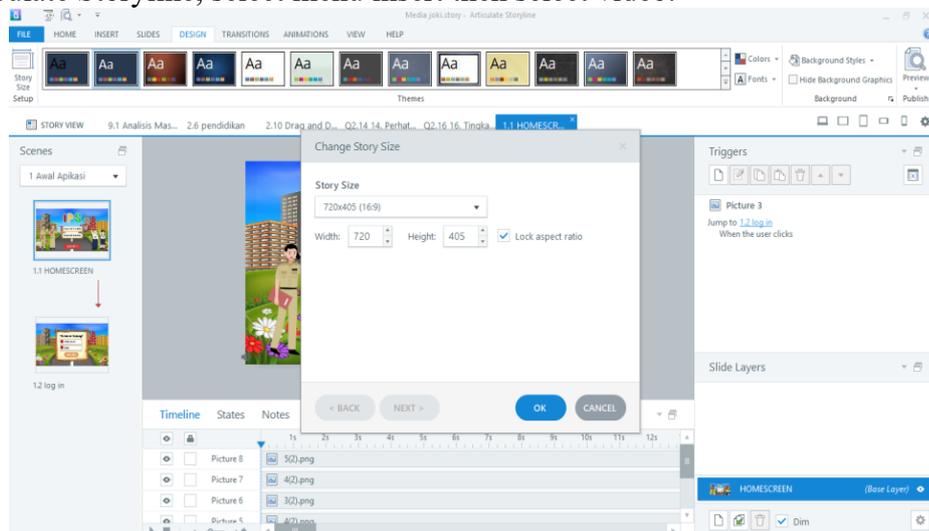

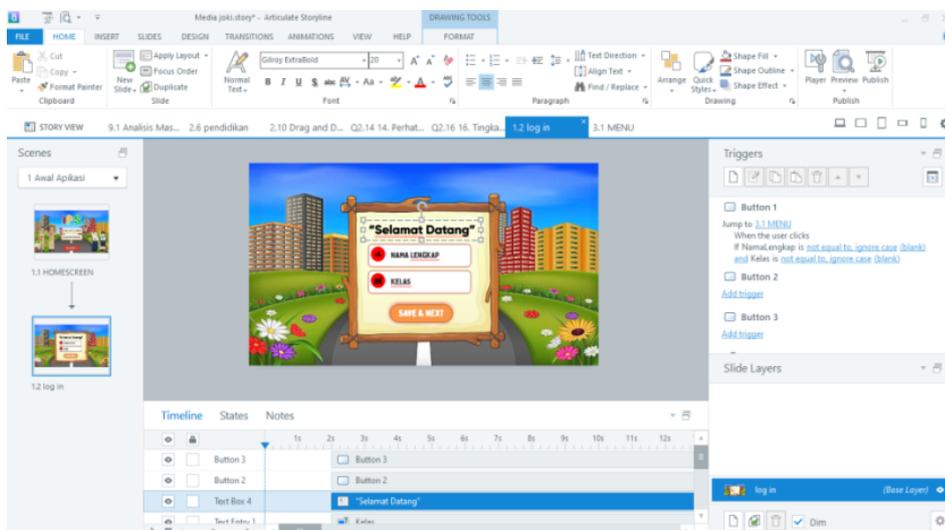
Figure 3. Setting the Design Size
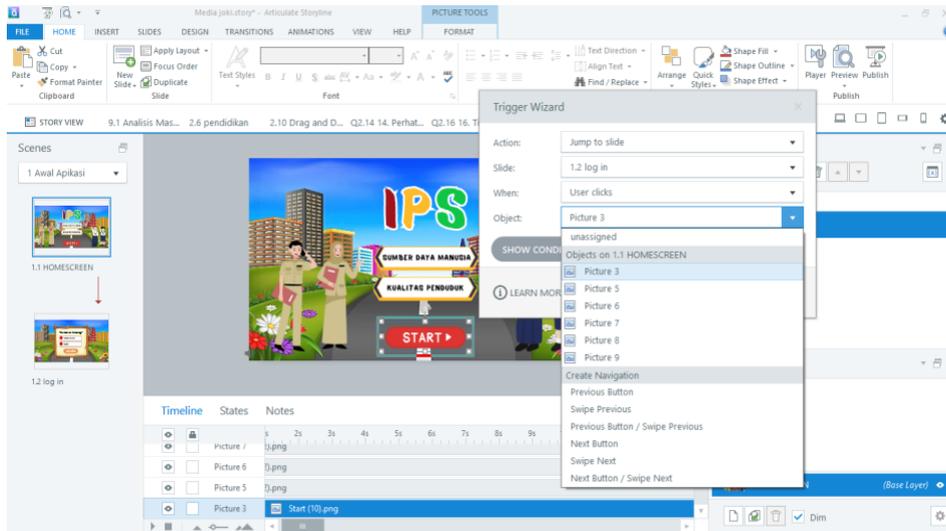

Figure 4. Adding Text

Figure 5. Adding*Trigger* on the Button

Furthermore, at this development stage, product validation was also carried out by material experts, media experts and language experts from several lecturers at Padang State University. After improvements have been made according to comments and suggestions, the product validity results can be seen in table 2.

Table 2. Material Validation Test Results

Aspect	Score	Percentage	Category
Material Suitability	3,3	83,3%	Very Valid
Content Eligibility	3,7	91,7%	Very Valid
Presentation of Material	3,5	87,5%	Very Valid
Average	**3,5**	**87,5%**	**Very Valid**

Based on table 2 above, which shows the results of material validation with a final assessment score of 3.5, a percentage of 87.5% with a very valid category. The following are the media validation results in table 3.

Table 3. Media Validation Test Results

Aspect	Score	Percentage	Category
Design and Layout	3,6	89,3%	Very Valid
Media Use	3,8	93,8%	Very Valid
Media Presentation	3,8	95%	Very Valid
Media Interactivity	3,3	81,3%	Very Valid
Average	**3,6**	**89,9%**	**Very Valid**

Based on table 3 above, which shows the media validation results with a final assessment score of 3.6, a percentage of 89.9% with a very valid category. The following are the language validation results in table 4.

Table 4. Language Validation Test Results

Aspect	Score	Percentage	Category
Language Compatibility	4	100%	Very Valid
Language Qualification	4	100%	Very Valid
Language Presentation	4	100%	Very Valid
Average	**4**	**100%**	**Very Valid**

Based on table 4 above, which shows the language validation results with a final assessment score of 4, a percentage of 100% with a very valid category.

Implementation Stage

The implementation stage is a multimedia learning trial activity after being declared valid through a validity test by a validator. The implementation phase aims to determine the practicality and effectiveness of the interactive multimedia learning product being developed. The implementation phase was carried out by conducting trials on an Integrated Social Sciences teacher and 30 class VIII junior high school students at SMP N 22 Padang with material on Human Resources and Population Quality. The results of the teacher's practicality score can be seen in table 5 and the results of the student's practicality score can be seen in table 6.

Table 5. Teacher Practicality Test Results

Aspect	Score	Percentage	Category
Time Conformity	3,75	93,75%	Very Practical
Practicality of use	4	100%	Very Practical
Convenience	4	100%	Very Practical
Average	**3,92**	**97,92%**	**Very Practical**

Table 6. Student Practicality Test Results

Aspect	Score	Percentage	Category
Media Display	3,7	85.55%	Very Practical
Ease of Use	3,8	88.02%	Very Practical
Presentation of Material	3,6	85.16%	Very Practical
Utilization	3,8	88.67%	Very Practical
Average	**3,7**	**86,85%**	**Very Practical**

Testing product effectiveness is seen from the results of student learning gains. These learning outcomes are carried out with a pre-test in the form of objective questions and post-test questions in the form of objective questions in the product to obtain the level of success of the product being developed. The

effectiveness test involved two classes. The results of the average student scores for the effectiveness test can be seen in table 7.

Table 7. Average Student Grade Results

Class	Pre-test	Post-test	Different Power
Experiment	35,4	87,9	52,5
Control	39,2	59,9	20,7

Based on table 7, the experimental class pre-test average score was 35.4, increasing to 87.9 in the post-test with a difference power of 52.5, while the control class was 39.2, increasing to 59.9 in the post-test, with a power difference of 20.7. The significant difference in power between the experimental class and the control class shows that the treatment applied in the experimental class had a greater positive impact on students' understanding compared to the control class.

Based on the result of the pretest and posttest, it was found that use of interactive multimedia in social studies learning can improve learning outcomes and was stated to be very effective because there was a significant difference in student learning outcomes before (pre-test) and after (post-test) the use of learning-based multimedia, as seen in the following picture:
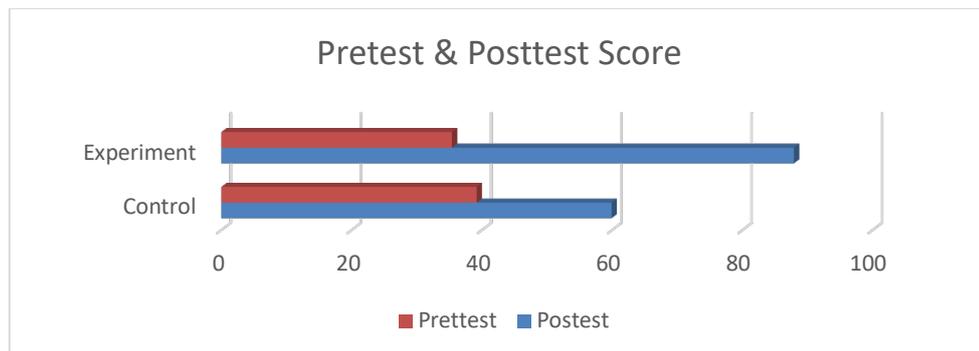

Figure 6. Pretest & Posttest Score

Evaluation Stage

Evaluation is the final stage of a series of learning multimedia development. The evaluation stage is carried out in two phases, namely the pre-implementation phase and the post-implementation phase. The pre-implementation phase was carried out to assess the multimedia being developed based on assessments by media experts and material experts. Meanwhile, the post-implementation phase was carried out to assess the practicality and effectiveness of using multimedia in learning. In this evaluation, product revisions were also made according to comments and suggestions.

Based on the results of research that has been carried out in accordance with the steps for developing the ADDIE model, it has resulted in an interactive multimedia product on Human Resources (HR) material for social studies subjects for class VIII SMP. Based on research that has been carried out to obtain results with concise explanations. Development of interactive multimedia based on the Problem Based Learning model in Integrated Social Sciences subjects which can

be run on computers or laptops and Android-based smartphones. This device was developed with the aim of creating a learning atmosphere that is able to adapt to student character and involve students in control of their own learning. The problem of students who are less active and low learning outcomes will be overcome by developing this product because this product will maximize students understanding of the material.

Validation by experts concerned with product development is an important step to ensure product validity. Based on the results of validation carried out with experts, it can be concluded that interactive multimedia products based on the Problem Based Learning model in the Integrated Social Sciences subject for Class VIII SMP are categorized as very valid for use. Practicality is used to find out to what extent a product can be used, how easy it is to use, and the comfort of using it. The product is categorized as very practical because it is easy to use in a learning context, with ease that includes use by teachers and students.

After the multimedia was declared valid and practical, an effectiveness test was then carried out to test whether the use of the interactive multimedia being developed affected students social studies learning outcomes. The effectiveness of Interactive Multimedia based on the Problem Based Learning model is seen based on the test results given before and after the implementation of interactive multimedia.

CONCLUSION

Results of the average score of the model-based interactive multimedia validity test Problem Based Learning in the Integrated Social Sciences subject, it was found to be in the very valid category with improvements according to comments and suggestions from each expert or validator. Interactive multimedia was developed with material validity results of 87.5%, media validity results of 89.9% and language validity results of 100%, with an average percentage of validity for PBL-based interactive multimedia of 92.46%. The average score of the interactive multimedia practicality test after assessment by teachers with results 97.92% and by students with results 86.85%, and was found to be in the very practical category. The effectiveness results on student learning outcomes obtained from pre-test and post-test scores show that there is a significant increase in scores after using model-based interactive multimedia Problem Based Learning during the Integrated Social Sciences learning process in class VIII SMPN 22 Padang. It can be concluded that interactive multimedia based on the PBL model is categorized as very valid, practical and effective when used in learning process.

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REFERENCES

Agustina, U., & Elan. 2021. Pengaruh Media Pembelajaran Articulate Storyline Pada Materi Keragaman Budaya Terhadap Minat Belajar. Jurnal Sekolah PGSD FIP UNIMED, 165-169. https://doi.org/10.24114/js.v5i3.26827

Andani, T. (2022). Analisis Validasi Media Pembelajaran E-Book Berbasis Flip PDF Professional Pada Materi Gelombang Bunyi DI SMA. *Jurnal Kumparan Fisika*, *4*(3), 213–220. https://doi.org/10.33369/jkf.4.3.213-220

Arisanti, Y., & Adnan, M. F. (2021). Pengembangan Multimedia Interaktif Berbasis Software Macromedia Flash 8 untuk Meningkatkan Motivasi dan Hasil Belajar Peserta Didik Sekolah Dasar. *Jurnal Basicedu*, *5*(4), 2122-2132. https://doi.org/10.31004/basicedu.v5i4.930

Ayu, F., & Fuzi, A. (2020). Praktikalitas Pengembangan E-Book Fisika Berbantuan Edmodo Berbasis Discovery Learning dalam Proses Pembelajaran Fisika. *Jurnal Inovasi Pendidikan Dan Sains*, *1*(3), 66-71. https://doi.org/10.51673/jips.v1i3.442

Candra, A. M., & Rahayu, T. S. (2021). Pengembangan Media Pembelajaran Berbasis Game Interaktif untuk Meningkatkan Kemampuan Pemecahan Masalah Tematik di Sekolah Dasar. *Jurnal Basicedu*, *5*(4), 2311-2321. https://doi.org/10.31004/basicedu.v5i4.1212

Chrisyarani, D. D., & Yasa, A. D. (2018). Validasi Modul Pembelajaran: Materi dan Desain Tematik Berbasis PPK. *Premiere Educandum: Jurnal Pendidikan Dasar Dan Pembelajaran*, *8*(2), 206. I: https://doi.org/10.25273/pe.v8i2.3207

Harsiwi, U. B., & Arini, L. D. D. (2020). Pengaruh Pembelajaran Menggunakan Media Pembelajaran Interaktif Terhadap Hasil Belajar Siswa Di Sekolah Dasar. *Jurnal Basicedu*, *4*(4), 1104-1113. https://doi.org/10.31004/basicedu.v4i4.505

Hidayati. A, Bentri. A, Yeni. F, Zuwirna, Eldarni. (2019). *The Development of Instructional Multimedia based on Science, Environment, Technology, and Society* (SETS). *Journal of Physics: Conference Series. 1594* (2020). https://doi.org/10.1088/1742-6596/1594/1/012016

Iskandar. Y, Bentri. A, Hendri. N, Engkizar, Efendi. (2023). Integrasi Multimedia Interaktif Berbasis *Android* dalam Pembelajaran Agama Islam di Sekolah Dasar. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*. *7*(4). 4575-4584. https://doi.org/10.31004/obsesi.v7i4.5021

Marsya, A., & Tamam, B. (2023). Pengembangan Multimedia Interaktif "Ayo Belajar Bimasakti" Berbasis Android Pada Materi Sistem Tata Surya. *Lensa (Lentera Sains): Jurnal Pendidikan IPA*, *13*(1), 1-10. https://doi.org/10.24929/lensa.v13i1.260

Nofziarni. A, Hadiyanto, Fitria. Y, Bentri. A. (2019). Pengaruh Penggunaan Model *Problem Based Learning* (Pbl) Terhadap Hasil Belajar Siswa Di Sekolah Dasar. *Jurnal Basicedu. 3*(4). 2016-2024. https://doi.org/10.31004/basicedu.v3i4.244

Nurhikmah, N., Isnaeni, W., & Sulistriorini, S. (2023). Pengembangan Media Pembelajaran Alfabet Konstruksi Berbasis Android untuk Meningkatkan Literasi Membaca dan Literasi Digital. *Cokroaminoto Journal of Primary*

Education, 6(1), 63-72. https://doi.org/10.30605/cjpe.612023.2506

Ozila, A., L., & Zen, Zelhendri. (2023). E-LKPD Berbasis WEB Mata Pelajaran Sejarah Indonesia Kelas XI SMA. *Jurnal Penelitian dan Review Pendidikan.* 6(1), 18-31. https://doi.org/10.23887/ijerr.v6i1.59342

Panjaitan, R. G. P., Titin, T., & Putri, N. N. (2020). Multimedia Interaktif Berbasis Game Edukasi Sebagai Media Pembelajaran Materi Sistem Pernapasan Di Kelas XI SMA. *Jurnal Pendidikan Sains Indonesia (Indonesian Journal of Science Education)*, 8(1), 141-151. https://doi.org/10.24815/jpsi.v8i1.16062

Pratiwi, K. I. A., Margunayasa, I. G., & Trisna, G. A. P. S. (2023). Project Based Learning Interactive Multimedia with Orientation of Environmental Problems Assisted by Articulate Storyline 3 for Grade V Elementary Schools. *Journal of Education Technology*, 7(2). https://doi.org/10.23887/jet.v7i2.59615

Pratiwi, R., Masnur, A., Rahmayanti, E., & Amilia, W. (2023). Analisis Hasil Uji Praktikalitas Pengembangan Multimedia Interaktif pada Pembelajaran Biologi di SMA. *Jurnal Pendidikan Tambusai*, 7(2), 15692-15698. https://doi.org/10.31004/jptam.v7i2.8854

Rahmadani, R., & Taufina, T. (2020). Pengembangan Multimedia Interaktif Berbasis Model Problem Based Learning (Pbl) Bagi Siswa Sekolah Dasar. *Jurnal Basicedu*, 4(4), 938-946. https://doi.org/10.31004/basicedu.v4i4.465

Ridwan, M. F. A., Anjarini, T., & Ngazizah, N. (2023). Multimedia Interaktif Berbasis Problem Based Learning Pada Materi Ciri–Ciri Makhluk Hidup Bagi Siswa Sekolah Dasar. *Edukasiana: Jurnal Inovasi Pendidikan*, 2(1), 56-63. https://doi.org/10.56916/ejip.v2i1.218

Sapitri, D. & Bentri, A. (2020). Pengembangan Media Pembelajaran Berbasis Aplikasi Articulate Storyline Pada Mata Pelajaran Ekonomi Kelas X. Inovtech Vol. 02 No. 01. https://doi.org/10.24036/inovtech.v2i01.115

Sari, D. P. P., Murtono, & Utomo, Slamet. (2021). Pengembangan Media Pembelajaran Interaktif IPS Berbasis *Problem Based Learning* dan Ular Tangga. *Jurnal Pendidikan Edutama (JPE).* 8(1), 1–12. https://doi.org/10.30734/jpe.v8i1.1305

Susilowati, Arum., & Sutama. (2022). Kesulitan belajar IPS pada siswa sekolah dasar: Studi pada SD Muhammadiyah Kota Bangun Kutai Kartanegara. *JIPSINDO (Jurnal Pendidikan Ilmu Pengetahuan Sosial Indonesia). 9*(1). 31-40. https://doi.org/10.21831/jipsindo.v9i1.129705

Yuristia. F, Hidayati. A, Ratih. M. (2022). Pengembangan Modul Pembelajaran Tematik Muatan Materi IPA Berbasis *Problem Based* pada Pembelajaran Sekolah Dasar. *Jurnal Basicedu. 6*(2). 2400-2409. https://doi.org/10.31004/basicedu.v6i2.2393