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Development of Hypermedia-Based Interactive Learning Tools to Improve Student Social Science Learning Outcomes

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Abstract: This study aims to produce hypermedia-based learning tools that are valid, practical and effective to improve the social science learning outcomes of elementary school students. This research used the Research and Development method with the ADDIE model using an experimental design. The population of this study was teachers of SDN Tamanbaru and SDN Kebalenan along with grade IV students of SDN Tamanbaru amounting to 13 students and grade IV of SDN Kebalenan amounting to 97 students. This research instrument used observation, tests, and questionnaires. Meanwhile, the data analysis techniques were validity test, reliability test, N-Gain test, and Independent t-test. The results showed: 1) hypermedia-based learning devices have very valid quality with a score of 92.5% and an average reliability of 90.2%; 2) Effective category hypermedia-based learning tools based on the N-Gain value on the limited test of 31.76%; and the experimental class at 34.2%; the results of the independent t-test test obtained the value of the sig lavene's test was 0.203>0.05 and the equality of means obtained a sig of 0.034<0.05; 3) Hypermedia-based learning tools are very practical based on student responses to limited tests, with an average score of 87.70% and the average score of experimental classes of 91.07%; and the ability to manage the learning process on limited tests by 91.2% and experimental classes by 96.4%. Thus, hypermedia-based learning tools are valid, practical, and effective so that they can be used in the social science learning process on the theme of the diversity of work in grade IV elementary school.

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Introduction

According to Ministerial Regulation No. 22 of 2016, a learning process should be efficient, interactive, inspiring, and profitable. It should motivate students to actively participate in providing adequate space for student creativity and independence (Sari, Sumarni, & Tenzer, 2016). According to Banks in (Sardjiyo, Sugandi, & Ischak, 2014) the first thing that needs to be related is the student experience, then developing and expanding to enrich insights to make better decisions. Meanwhile (Makmun, 2009) teachers should be able to create the right conditions in learning so that he is able to create a learning experience process for his students in facilitating various learning resources and applying appropriate teaching and learning strategies.

Teacher skills in education are not only enough to make intelligence but must obtain other skills; the student must be equipped with various types of Skills of independence and responsibility answer (Hairida, Hadi, & Kurniasih, 2022). In fact, more teachers focus on achieving curriculum as well as rule out student in the learning process (Suciati, Belawati, Padmo, & Dewanti Handayani, 2019). So that no one allows students to think critically, logically, and creatively (Hanifa, Djaenudin, & Koryati, 2018). According to (Asmedy, 2021)

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teacher does not transfer knowledge, but he directs the student to build new knowledge according to the child's understanding. Whereas (Sudaryanto, widayati, & Amalia, 2020) Policy curriculum independent study aims to increase graduates who are competent, superior, and have high personality traits so that they are ready to face the development era.

However, this will not be easy to realize if the teacher does not prepare a lesson implementation plan in advance (Nasri, 2020). Especially about the expected IPS subjects could develop aspect attitudes, skills and knowledge (Maharyani, 2017). The Theory of Social studies learning focuses on human activities in social life. Through this lesson, students are recommended to increase their understanding, knowledge and ability to analyze every social condition (Auliya & Lazim, 2020).

Based on pre-research data at the research location schools, several problems were found, Such as: 1) lack of teacher motivation in improving IT-based skills in each learning process; 2) traditional learning using only the lecture model; 3) learning resources are limited of books; 4)the students are considered empty bottles that will be filled as they will; 5) many teachers teach based on experience, so they feel that memorized by heart and they do not want to change a branch new thing. These five points reduce students' absorption and understanding. They also have difficulty understanding social studies learning materials with the theme of the diversity of people's work in their neighborhood. For example: 1) lack of understanding of jobs that produce goods or services; 2) lack of understanding of economic activities regarding production, consumption and distribution; 3) lack of understanding of the function of natural resources in the surrounding environment in meeting human needs; 4) lack of understanding of the location and geographical conditions of the community environment as the forerunner to the diversity of people's work.

Based on the statement above, an alternative learning device is needed that is appropriate in solving the problem. Learning tools can be an alternative are hypermedia-based (Sani, 2020). Meanwhile (Haryoko, Jaya, & Saliruddin, 2017) The learning tool does not only contain text, but there are images, learning videos, audio or voice related to the desired subject matter.

Based on the results of previous research proposed by (Tadlaoui, Carvalho, & Khaldi, 2018) stated, to facilitate the learning process carried out by teachers in selecting and presenting learning activities as a function that examines entities of knowledge, skills and other information, can be provided through hypermedia. This study aims to produce valid, practical and effective hypermedia-based learning tools to improve student learning outcomes in completing the population's work diversity in social studies lessons.

Research Method

This research method uses development research to produce quality hypermedia-based learning tools, and tests the validity, effectiveness and practicality of these devices using the ADDIE development model. The model consists of five stages of the development process, namely Analysis, Design, Development, Implementation and Evaluation.

a) Analysis
   At this stage, the researcher conducted studies preliminary include: 1) literature study; 2) study field; 3) knowing characteristics of students; 4) to determine device that is required in learning process; 5) to make map concept; 6) to analyze obstacles that is found; 7) designing assessment; 8) to analyze difference class control and class experiment.
b) Design

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In this activity, researchers need to carry out a systematic process that is directed and focused on four activities Start from: 1) selection device learning; 2) learning strategies; 3) evaluation tools; 4) production device learning.

1) selection of learning devices.
   This is done by distributing questionnaires on the need for equipment to teachers and some fourth grade students at SDN Tamanbaru and SDN Kebalenan.
2) Learning strategies
   Learning strategies are carried out in this study using demonstration and simulation device for learning.
3) Evaluation tools
   Evaluation determines the value of student learning outcomes obtained through the assessment process (Rasyid & Mansur, 2009). The evaluation tools included in the hypermedia-based learning tools are in the form of descriptions and multiple choice.
4) Production of learning instruments.
   After all the components were collected, researchers began assembling them into a hypermedia-based learning device.

c) Development.

The third stage in systematic or ADDIE model order is Step development, that is validate product. According to (Saputro, 2017) Instruments or learning tools prepared in development research must be validated by experts/experts/practitioners based on their expertise to know the feasibility of the device. The product validation that the researcher developed used 4 experts, namely: 1) a learning expert; 2) a program or content display expert; 3) a media or IT expert; 4) an evaluation expert. The suggestions obtained for the improvement of the learning device products developed are:

1) Preparation of the syllabus, lesson plans are carried out systematically to facilitate the learning process;
2) The addition of pictures to attract students' interest and motivation.
3) The navigation menu or buttons that lead to specific slides in the learning device are simplified to make it easier for students to learn the material on the device.
4) In the learning video menu, a learning video is inserted from previous research.
5) Multiple choice questions please multiply.
6) These devices should be supplemented with interactive or two-way learning, especiallv ealuation tools in the form of descriptions and multiple choices.

The six suggestions can be used as guidelines for researchers in revising the development tools in order to obtain validity and feasibility.

d) Implementation

In the implementation stage, this is designed using true experimental design. According to (Sugiyono, 2013) declared true experimental because the researcher could control all variables that affect the research so that internal validity or quality implementation design of research becomes high. According to (Hardani, et al., 2020) The main characteristic of experimental design is that a sample used in group experiments or group control is taken randomly.

a) Posttest only group design

R	X	O_2
R		O_4

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The above design was randomly selected consisting of two classes, then the experimental group was given treatment (X) while the control group did not receive treatment.

b). Pretest-posttest control group design

R	O_1	X	O_2
R	O_3		O_4

The above design was randomly selected consisting of two classes, then given a pretest to find out the initial conditions. A good pretest result is if the two classes obtained a value that did not differ significantly.

e) Evaluation

Activities carried out at this stage are:

1) Performance test

The test was carried out to measure student learning outcomes using pretest and posttest

2) Student response

Measuring student behavior or responses (experimental classes) that arise after learning using hypermedia-based learning tools using questionnaires.

3) Effectiveness Test

The test is used to determine the effectiveness of the product developed as a hypermedia-based learning device using the N-Gain test and the test independent t-test.

The independent variable in this research is a hypermedia-based learning tool to solve the problem of population diversity in social studies lessons. Meanwhile, the dependent variable is increasing student learning outcomes to solve the problem of population diversity in social studies lessons. The population in this research were teachers and fourth-grade students at SDN Tamanbaru with a total of 13 students as a limited test and teachers and students in grade IV at SDN Kebalenan with a total of 97 students as a comprehensive test. The developed device is a hypermedia-based learning tool with data collection techniques in the form of observation, tests and questionnaires.

a) Analysis of feasibility data, consisting of:

1) validation

The guidelines for calculating the percentage of assessment each validator is as follows: $P = \frac{\Sigma x1}{\Sigma x} \ x \ 100\%$

Description:

P = Percentage of Eligibility

Σx_1 = Total score each validator

Σx = Total maximum score

To determine the decision-making criteria in the validation of learning device, it is necessary to make the following steps (Auliya & Lazim, 2020):

1. Determine percentage score maximum

$$= \frac{Skor\ Maksimal}{Skor\ maksimal} \ x \ 100\ \%$$

$$= \frac{4}{4} \ x \ 100\ \% = 100\%$$

2. Determine percentage minimum value

$$= \frac{Skor\ minimal}{Skor\ maksmal} \ x \ 100\ \%$$

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$=\frac{1}{4} x\ 100\ \% = 25\%$

3. Specifies the range with formula
   = Percentage score max – percentage minimum value
   = 100% - 25% = 75%
4. Determine interval width
   $=\frac{range}{Jumlah\ interval}$
   $=\frac{75\%}{4} = 18.75\%$

Table 1. Validity Criteria Score _

Interval mean score (%)	Validity Criteria
81.25 < score ≤ 100	Very Decent
62.5 < score ≤ 81.25	Decent
43.75 < score ≤ 62.5	Less Decent
25 < score ≤ 43.75	Not Decent

Source: Sugiyono in (Auliya & Lazim, 2020)

2) Reliability

Learning outcomes test can be trusted or reliable if it shows relatively the same measurement results consistently (Siyoto & Sodik, 2015). So that in this study, the assessment instrument to test reliability using the Borich test, namely:

$R = (1 - \frac{A-B}{A+B}) x\ 100\%$

Description:
R = Instrument Reliability
A = Frequency score / highest score from validator
B = Frequency of score/lowest score from validator

(Budiastuti & Bandur, 2018) said, "The most suitable internal consistency t-test for reliability testing is *Alpha's Cronbach* or *alpha coefficient* with a range of values between 0 (without reliability) to 1 (perfect)." The alpha coefficient value categorization is as follows:

Table 2. Alpha Coefficient Category

Alpha's Cronbach	Quality Category
1	Perfect reliability
90	Excellent reliability
> 80	Good reliability
> 70	Acceptable reliability
0	No reliability

Source: (Budiastuti & Bandur, 2018)

b) Analysis of effectiveness data:

1. *N-Gain* test

(Hake, 2002) stated that he had done a survey that discussed a data in quantity, which he called *"average normalized gain"* <*g*>, and he define as profit actual, *%<gain>* shared acquisition maximum possible, *%<gain>* max:

$(g) = \%(G)/\%(G)_{max} = (\%(S_f)-\%(S_i))/(100-\%(S_i))$

Description:
(g) : Average N-Gain
(G) : Average gain obtained

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$(G)_{max}$: Average maximum possible gain
(S_f) : Average post/final test class
(S_i) : Average pre / initial test class

The results of these calculations are stated in the following:

Table 3. Distribution of Gain Scores

***N-Gain* Value**	**Category**
G > 0.7	High
0.3 ≤ g ≤ 0.7	Medium
G < 0.3	Low

Source: Hake in (Guntara, 2021)

2. Independent test t-Test
   According to (Nuryadi, Astuti, Utami, & Budiantara, 2017) "Independent T-test has conditions that must be met, namely: normally distributed; Independent; b form numeric and categorical (only 2 groups)."

c) Analysis of Practical Data:
Using student responses and the researcher's ability to manage learning. As for the calculation according to Sudijono in (Auliya & Lazim, 2020):

$$L = \frac{f}{N} x\ 100$$

Description:
P = Percentage
f = Score obtained
N = Maximum score

Table 4. Student Response Scores and Learning Management Ability

Interval mean score (%)	**Category**
81.25 < score ≤ 100	Excellent
62.5 < score ≤ 81.25	Good
43.75 < score ≤ 62.5	Fair
25 < score ≤ 43.75	Low

Source: Sugiyono in (Auliya & Lazim, 2020)

Results and Discussion

Product Eligibility Data

Validitas

Test validity development device learning hypermedia-based using 4 validators with the mean value is 92.5% with very decent category based on criteria Sugiyono in (Auliya & Lazim, 2020).

Table 5. Hypermedia-Based Learning Tool Validator Score Results

No	**Validator**	**Mode**	**Score %**	**Criteria**
1	Aspects expert learning	4	92.5	Very Decent
2	Aspects expert program view	4	95	Very Decent
3	Aspects expert IT or Media	4	92.5	Very Decent
4	Aspects expert evaluation	4	90	Very Decent
Average score			92.5	Very Decent

Reliability

The reliability test in this study aims to measure the extent of the efficiency of hypermedia-based learning devices that researchers develop. Reliability test results obtain an average

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value of 90.2% excellent reliability category based on the criteria stated by (Budiastuti & Bandur, 2018). These results show that the product developed is very valid and reliable.

Table 6. Reliability Test Results of Hypermedia-Based Learning Devices

No	Indicator	Mode	% Reliability	Criteria
1	How do learning devices fit into the Syllabus	4	100	Perfect
2	How do learning tools fit with KI and KD	4	86	Good
3	How do learning devices fit into teaching needs	4	100	Perfect
4	How the learning device conforms to the indicators that the student will achieve	4	86	Good
5	As simple as the language used in learning tools	4	86	Good
6	The ability to display learning devices in presenting material in order and interesting to understand	3	86	Good
7	Flexibility of use of learning tools	3	86	Good
8	Meaningfulness of the learning materials taught	4	100	Perfect
9	How do learning devices fit into the student's level of ability	4	86	Good
10	The ability of Learning Devices to increase the intensity of learning to become more independent	3 and 4	86	Good
Average reliability			90.2	Excellent

Product effectiveness data

A learning tool that is already valid, feasible and reliable based on validity and reliability tests of 4 experts. Then followed up by implicating actual learning using two tests

a). Limited test

The gain value on the limited test obtained a value of 31.76% with the medium category according to Hake criteria in (Guntara, 2021). If explored more deeply, it can be seen that there are 3 students with pretest scores > KKM. Then, after learning using hypermedia-based learning tools. It is known that the posttest score > KKM is 8 out of 13 students.

It shows that the product developed in the form of hypermedia-based learning tools can improve student learning outcomes in solving the problem of population diversity in social studies lessons. hypermedia-based learning tools produce effective products.

b). Extensive test

Extensive test on research development used experimental design using 2 classes, namely: 1) class experiment; and 2) class control. Because there are 3 classes, the researcher conducted a homogeneity test to determine the similarity of variants in each class. The results obtained by researchers in conducting homogeneity tests are significance 0.379 > 0.05. Thus, the IVA, IVB and IVC classes are homogeneous. So researchers are free to choose experimental classes and control classes. Researchers are interested in choosing the IVA class as the control class and class IV C as the

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experimental class. Researchers also conducted a shapiro wilk normality test whose results were:

- In the control class, the significance value was 0.124 > 0.05. Then the class is normally distributed.
- In the experimental class, the significance value was 0.657 > 0.05. Then the class is typically distributed.

Based on these results, the researchers found that the control and experimental classes were usually distributed. So the researchers conducted further testing to test the effectiveness of the learning device, using the following:

1) Gain Normality Test

The control class's N-Gain value obtains 17.67% category low according to Hake criteria in (Guntara, 2021). At the same time, the class experiment scores 34.2% medium category according to the criteria of Hake (Guntara, 2021). Based on this description, the hypermedia-based learning tools developed by researchers, produce effective products in improving student learning outcomes solving the problem of population work diversity in social studies lessons.

2) Test Independent t-Test

There are prerequisites that must be researcher do before independent t-test testing, including:

a) Normality test

Based on the results obtained from the Shapiro Wilk normality test, the significance value of the experimental class at the pretest was 0.651 > 5% significant level (α = 0.05) and the posttest was 0.02 < 0.05. While the control class in the pretest got a significance value of 0.124 > 0.05 and the posttest 0.018 < 0.05.

The data is not generally distributed in the presence of a significance value of 0.05, i.e., on the test posttest signification value of the experiment was 0.02. Meanwhile, the control posttest signification value was 0.018. The paired sample t-test cannot be used, but the Wilcoxon test can.

b) Wilcoxon test

Based on the results of the Wilcoxon test, it is known that the posttest-pretest significance value in the experimental class is 0.000 <0.05 and the posttest-pretest significance value in the control is 0.003 <0.05. So it can be concluded that there are differences in the average scores of the posttest and pretest in the two classes.

c) Homogeneity test.

Based on the results of the homogeneity test of the experimental class and the control class using Lavene's test. The value based on the mean is 1.658 with a significance value of 0.203 > 0.05 (significance level 5%). Then the variance of the two classes is homogeneous, so that it can perform independent t-test testing.

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d) Test independent t-test

Table 7. Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Learning Outcomes	Equal variances assumed	1.658	.203	2.172	63	.034	9.962	4,587	.796	19,128
	Equal variances not assumed			2.167	61.322	.034	9.962	4,596	.772	19.152

Based on the calculation of the independent t-test, it is known that the value of *sig lavene's test* is 0.203> 0.05 so the experimental and control data are the same. While the data on *equality of means, obtaining sig* 0.034 <0.05 shows the presence of significant differences between the average of the experimental and control classes. Based on the group statistics independent samples t-test, it is known that the average post-test value of the experimental class is 69.21 and the average post-test of the control class is 59.25. So it can be concluded that hypermedia-based learning is more effective than lecture or conventional methods.

This finding is supported by previous research conducted by (Haryoko, Jaya, & Saliruddin, 2017) which states that Hypermedia is feasible to use in the learning process. More (Del Rio, Sanz, & Bucari, 2019) state that, *"The students gave a positive overall assessment regarding the experience carried out with the hypermedia material."* Whereas (Hanifa, Jaenudian, & Koryati, 2018) state that hypermedia has a number of advantages, including:

- Able to increase student interest and activity in class;
- Can be used repeatedly wherever located to repeat learning material;
- Students easily determine and choose which material or video to study first.

Product Practicality Data

a) Student response to learning

In assessing the product's practicality, researchers distributed questionnaires on limited and extensive tests in the form of a checklist containing 14 statements to students with four alternative answers: excellent, worth 4; good, worth 3; fair, worth 2; poor, worth 1.

1) Limited test
   The average result of the percentage of score obtained is 87.70% with excellent category based on Sugiyono in (Auliya & Lazim, 2020)
2) Extensive test

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The average result of the percentage of scores obtained in the experimental class was 91.07% with excellent category based on Sugiyono in (Auliya & Lazim, 2020).

These results explain that developing hypermedia-based learning tools can improve student learning outcomes, so the learning device product developed is efficient. Same result done by (Abdurrokhim, Kuswandi, & Ulfa, 2022) state that web-based learning with guided discovery approach assisted by hypermedia for junior high school students can improve the quality of the learning process, especially regarding student participation, enthusiasm and flexibility in learning, and can have a positive impact on students and is easy to use in the learning process.

b) Ability to manage the learning process

Based on results observer 's assessment of ability to manage the learning process on a limited test, obtained score by 91.2%. Meanwhile, the extensive test in the experimental class obtained a score of 96.4%. Both calculations, the category is excellent based on criteria Sugiyono in (Auliya & Lazim, 2020). These results show that learning to use hypermedia positively and practically affects the learning process.

Based on the description above, the researcher agrees with the previous research conducted by (Zulfianor, Sukmawati, & Wiranda, 2021), which states that hypermedia-based learning tools received very good responses from students and teachers by 89.17% and 89%. So, these learning tools are feasible and effectively used in every school learning process

In this study, researchers also found several advantages and disadvantages.

1) Advantages
   - Hypermedia-based learning devices are very easy to create because they use PowerPoint application by combining various kinds of learning videos spread on the internet (YouTube), material text, sound and animated motion arranged using hyperlinks.
   - Hypermedia-based learning tools produce flexible and easy-to-use devices whenever and wherever students are, because they can be stored through students' android devices (HP).
   - These tools can increase student motivation and make it easier for teachers to decipher learning materials.
2) Disadvantages.
   - No matter how well the learning tools are developed, they will not improve student learning outcomes instantly; it takes to process, patience, and continuity. Because what we teach or guide is a human child, not a robot, with different characteristics.
   - Despite conventional learning or lectures, if the teacher can explain the material well, it will positively impact students. To arouse his motivation and enthusiasm for learning, the use of teaching aids (learning tools) is much better.

Conclusion

The Conclusions that are obtained from the results of the research are 1) hypermedia-based learning tools have a very decent quality with a score of 92.5% and average reliability of 90.2%; 2) Category hypermedia-based learning tools are effective based on N-Gain value in limited test by 31.76%; and class experiment by 34.2%; independent t- test results obtained sig Lavene's test value is 0.203>0.05 and equality of means obtained sig 0.034<0.05; 3)

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Hypermedia-based learning tools are very practical based on student responses to limited tests, with an average score of 87.70% and an average score of experimental classes of 91.07%; and the ability to manage the learning process on limited tests by 91.2% and experimental classes by 96.4%. Thus, hypermedia-based learning tools are valid, practical and effective so that they can be used in the learning process of social sciences on the theme of diversity of work in grade IV elementary school.

Recommendation

Recommendations based on the results of this study are;

1) For Teachers
   a) The development of hypermedia-based learning tools has proven to be able to improve student learning outcomes. Therefore, teachers are expected to apply these devices in the learning process consistently;
   b) In order to make it easier for students to learn work diversity materials repeatedly using hypermedia-based learning tools, teachers should share the application with their students with a link: https://www.slideshare.net/ardisamudra1/set-pembelajaranardi-samudra-r
2) For Student
   Students are expected to download an application shared by the teacher for continuous learning. After all, the learning tools that researchers develop can be learned independently and repeatedly wherever and whenever students are located.
3) For School
   The school should facilitate facilities and infrastructure like wifi, laptops, and projectors to facilitate hypermedia-based learning that teachers apply on an ongoing basis.

References

Abdurrokhim, Kuswandi, D., & Ulfa, S. (2022). Development of Web-Based Learning with a Guided Discovery Approach Assisted by Hypermedia for Junior High School Students. *Journal of the Study of Educational Technology*, 111-131.

Amin, BD, Mahmud, A., & Muris. (2016). The Development of Physics Learning Instrument Based on Hypermedia and Its Influence on the Student Problem Solving Skill. *Journal of Education and Practice*, 22-28.

Asmedy. (2021). Differences in Student Learning Outcomes who are Taught Using the Open Problem Learning Model with the Conventional Learning Model. *Inara Journal*, 79-88.

Auliya, L., & Lazim, N. (2020). The Development of Miss PPL (Advanced Microsoft Power Point) Learning Media at Elementary School. *Journal of PAJAR (Education and Teaching)*, 703-714.

Baro'ah, S. (2020). The Independent Learning Policy as a Strategy to Improve the Quality of Education. *Journal of Tawadhu*, 1063-1073.

Budiastuti, D., & Bandur, A. (2018). *Research Validity and Reliability*. Jakarta: Media Discourse Partners.

Cahyadi, RA (2019). Development of ADDIE Model-Based Teaching Materials. *Halaqah: Islamic Education Journal*, 35-43.

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E-ISSN: 2442-7667
pp. 1074-1086
Email: jklppm@undikma.ac.id

Del Rio, LS, Sanz, CV, & Bucari, ND (2019). Incidence of a hypermedia educational material on the Teaching And Learning of Mathematics. *Journal of New Approaches in Educational Research*, 50-57.

Guntara, Y. (2021). *Normalized Gain Measure of Treatment Effectiveness.* Banten: Sultan Ageng Tirtayasa University.

Hairida, Hadi, L., & Kurniasih, D. (2022). Validity of Project Based Integrated Environmental Science Problem Learning (PBIESPL) Model with Authentic Assessment. *Journal of Education* , 341-354.

Hake. (2002). *Lesson From the Physics-Education Reform Effort.* Woodland Hills: Indiana University.

Hake, RR (1999). *Analyzing Change/Gain Score.* Woodland Hills: Dept. of Physics, Indiana University.

Hanifa, N., Djaenudin, R., & Koryati, D. (2018). Hypermedia Development in Class XI Social Studies Economics Learning at SMA Negeri 1 Tanjung Raja. *Journal of Profit: Study of Economic Education and Economics*, 96-105.

Hardani, Andriani, H., Ustiawaty, J., Utami, EF, Istiqomah, RR, Fardani, RA, . . . Auliya, NH (2020). *Qualitative & Quantitative Research Methods.* Yogyakarta: Science Library.

Hartati, D. (2019). Improving Students' Learning Motivation With Hypermedia-Based Kahoot Game Interactive Learning Media. *PROCEDURE OF THE NATIONAL SEMINAR: Education Policy and Development in the Era of the Industrial Revolution 4.0* , (pp. 78-85). Klaten.

Haryoko, S., Jaya, H., & Saliruddin. (2017). The Concept of Hypermedia in Web-Based Learning. *Makassar University* (pp. 177-184). Makassar: UNM Publishing Agency.

Maharyani, DA (2017). Character Building Through Social Studies Learning. *Edunomic Journal. Vol 5, No. 2* , 67-75.

Makmun, AS (2009). *Educational Psychology Device Teaching System Module.* Bandung: PT Pemuda Rosdakarya.

Nasri. (2020). Improving Students' Learning Ability and Experience in Using Transportation Technology Through Picture Media. *Master's Voice* , 497-506.

Nasution, WN (2017). *Learning strategies.* Medan: Perdana Publishing.

Nuryadi, Astuti, TD, Utami, ES, & Budiantara, M. (2017). *Fundamentals of Research Statistics.* Bantul,: Sibuku Media.

Rashid, H., & Mansur. (2009). *Assessment of Learning Outcomes.* Bandung: CV. Prime Discourse.

Sani, S. (2020). *Hypermedia development to improve students' understanding of concepts in the Energy Business material.* Bandung: Digital Library of UIN Sunan Gunung Jati.

Saputro, B. (2017). *Research & Development Management for Thesis and Dissertation Writers.* Sleman: Aswaja Pressindo.

Sardjiyo, Sugandi, D., & Ischak. (2014). *Social studies education in elementary school.* South Tangerang: Open University.

Sari, HV, & Suswanto, H. (2017). Development of Web-based learning media To measure student learning outcomes in Computer Network subjects Basic computer and network engineering skills program. *Journal of Education: Theory, Research, And Development*, 1008-1016.

Sari, MS, Sumarni, & Tenzer, A. (2016). Implementation of an Inquiry Learning Model Based on Lesson Study as a Way of Improving Learning Outcomes on Contents Structure and Function of Plant Tissue to Student Senior High School in Malang

Vol. 8, No. 4 : December 2022
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Regency. *Graduate School, State University of Malang* (pp. 626-632). Malang: State University of Malang.

Siyoto, S., & Sodik, MA (2015). *Basic Research Methodology*. Yogyakarta: Media Publishing Literacy.

Subiyantoro, S., & Nugroho, AA (2018). Android-based Instructional Media Development Procedure to Enhance Teaching and Learning in The Age of Disruption 4.0. *International Conference on Applied Science and Engineering (ICASE 2018)* (pp. 152-155). Indonesia: Antlatis Press.

Suciati, Belawati, T., Padmo, D., & Dewanti Handayani, SS (2019). *Diffusion of Educational Innovations.* South Tangerang: Open University.

Sudaryanto, Widayati, W., & Amalia, R. (2020). The Concept of Independent Learning-Independent Campus and Its Application in Indonesian Language (and Literature) Education. *Journal of Languages*, 78-93.

Sugiyono. (2013). *Qualitative Quantitative Research Methods and R & D.* Bandung: Alphabeta Publishers.

Syaharuddin, & Mutiani. (2020). *Social Studies Learning Strategy: Concepts and Applications.* Banjarmasin: Lambung Mangkurat University.

Tadlaoui, MA, Carvalho, RN, & Khaldi, M. (2018). The Development of a Learner Model in Adaptive Hypermedia Educational System: A Comparative Study. *International Journal for Infonomics (IJI)* , 1763-1771.

Watson, SL, & Watson, WR (2011). *The Role of Technology and Computer-Based Instruction in a Disadvantaged Alternative School's Culture of Learning.* Routledge Taylor and the Francis Group.

Watulingas, KH, Cendana, W., & Araini, TK (2022). The Role of Technological Pedagogical Content Knowledge In Meeting The Learning Needs Of Elementary Students. *CONTEXTUAL Scientific Journal*, 133-140.

Zulfianor, MN, Sukmawati, RA, & Wiranda, N. (2021). Development of Hypermedia-Based Interactive Learning Media on the Subject of the Pythagorean Theorem with Problem-Based Learning Methods. *Computer Science Education Journal (CSEJ)*, 1-6.