

ANDROID-BASED INTERACTIVE SCIENCE LEARNING (GeNda MaHiLingTar): AN APPLICATION DEVELOPMENT

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Abstract: Along with the development technology , teachers should make interesting and interactive science teaching materials for increase interest study students . There are many media that can be used for support learning IPA.iSpring is a device soft supporters who can help the teacher in resolve problem that . because _ that , research this aim for develop application interactive science learning for increase interest and understanding learn science at MTs Nurul Burhan Blingoh Donorojo on the subject of Motion of Objects and Living Things in the Environment Approx . With method RnD 3D model research has conducted from September to December 2021. Results of study this is said to be valid because results validation and eligibility above 80%, based on criteria feasibility of learning media and results from percentage Validation media expert and expert Theory of 86.17% and the percentage of the feasibility test product 80.27%.

Keywords: Application, Learning Interactive, Android

INTRODUCTION

Science Education Curriculum have destination main that is for give opportunity for student about science in debate public , make balanced information and decisions _ about issues socio - scientific influence life them . Progress technology moment this push effort renewal and utilization product technology education (Nuraini et al., 2020) . Technology increase by exponential because moment this access reference from all field could conducted with easy through live streaming from social media (Facebook, Path, Instagram, Twitter, Whatsapp , and Youtube), learn with e -learning (Google Classroom, Schoology, Canvas, Edmodo) with mechanism that does not complicated , short films and music from YouTube , big data storage from Google, homeschooling , scholarships , games, seminars, virtual labs, modules based on augmented reality , online dictionary , free website, free design with CANVA , even wisdom local could integrated in various teaching materials with touch technology . It means source study moment this more spacious and easy like journals , teaching modules

, internet, dictionaries , and encyclopedias . things _ above _ _ still is part small from developments in the world of technology.

Studies have been show that part big student depend on memorization and solving problem memorization , without develop Skills solving problem conceptual . Difficulty like that usually no is known because student could solve many problem standard miss from the trouble , they talented and has memorize frequent rules _ right . On the matter of motion of objects and living things in the environment Around there is three law Newton's motion is considered important in science teaching , namely physics , in particular mechanics . mostly _ student could with easy recite laws the without must understand concepts law that . because of that application or linkages draft three law Newton's motion by students Becomes something problem . Possible because approach lecture quite traditional _ often become a teaching model in some big one of the schools is at MTs Nurul Burhan Blingoh Donorojo . Teachers who teach science, in particular physics , must increase method teaching them . The teacher must enter more many effort in methodology teaching them . They must adopt a new strategy so that physics Becomes eye friendly lessons and not _ too abstract . As solution for bad understanding _ about subject , incompetence student for beyond definition and emptiness needing question _ thinking deductive , the teacher must involve student active in the learning process teach so you can increase understanding and interest study from student (Antwi, 2015) . There are many media for support and improve quality science learning , one of them is iSpring . iSpring presents application software that can help the teacher explain Theory lesson . Next , this software change presentation power point to flash format. iSpring also provides Theory learning in form of slides containing videos, images , audio , and animations Becomes more attractive , practical , and ideal (Anwar et al., 2019) .

However , still a little study previously developed _ interactive science multimedia learning based on iSpring Presenter for increase interest study students . Based on research that has been conducted previous , update in study this lies in the development of interactive science learning multimedia based on iSpring Presenter improves interest and understanding study students on the subject of Motion of Objects and Living Things in the Environment Around KD 3.2 and 4.2. So, research this aim for develop application interactive science learning based on iSpring Presenter for increase interest and understanding learn science for junior high school/ MTs students.

METHOD

In research this , researcher use method RnD (*Research and Development*) uses three stages , *define*, *design*, and *develop*. . RnD is something method

research that makes something product as well as test effectiveness product the (Sugiyono , 2010) .

Study this collect data with technique *first* validation device by validator, *second* observation , and *third* questionnaire response student with *google forms* media . Application learning android based (GeNda MaHiLingTar) validated by lecturer expert materials and lecturers media experts as competent validators . The assessment given by the validator is evaluation by general about applications developed , so that could obtained results evaluation application learning android based (GeNda MaHiLingTar) valid or invalid .

Study this use technique analysis descriptive and analysis qualitative for To do data analysis . Analysis descriptive used for calculate and present score results validation and due diligence in form presentation . while analysis qualitative for provide suggestions or comment from the validator as well respondents .

$$\text{Percentage} = \frac{\text{Skor yang diperoleh}}{\text{Skor maksimum}} \times 100\%$$

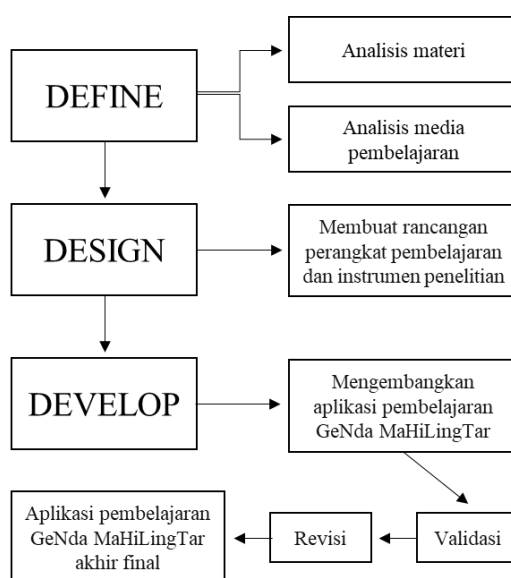


Figure 1. Development Stage Application MaHiLingTar Double Learning with 3D Models

Appropriateness product from study development , usually declared in percentage score . Eligibility level product said the more good if percentage score results analysis the more big . Criteria validation product could reviewed in Table 1 (Ridwan, 2011) .

Table 1. Criteria Appropriateness Product

No.	Percentage (%)	Information
1	80-100	Good/Valid
2	60-79.99	Enough / Sufficiently Valid
3	50-59.99	Not Good/Not Valid

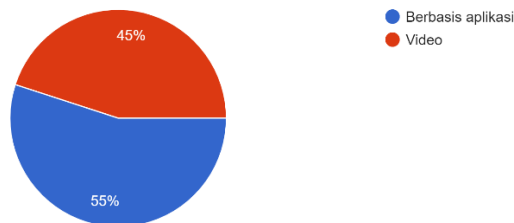
RESULTS AND DISCUSSION

a. Development GeNda MaHiLingTar App

Purpose of study with development model this that is for produce product in the form of application learning android based . Product this designed and developed in order to used for help in the learning process as a medium as well could used as source study student when outside _ school .

The research model used i.e. 3D model in development application this . Study development restricted until Step *development*. That thing because of you destination from study this is for produce something product application valid learning based on validator's assessment . stages _ assessment carried out namely :

define, is Step first in study development RnD. The first stage to do is determine goals and limitations material developed , with _ To do analysis needs about obstacles and problems faced _ during the learning process . With thereby Becomes background behind need existence learning media development and analysis characteristics students who become target on learning media development . Then studies literature drngan analyze journals that have same link _ with plan study development . From result analysis needs student MTs. Nurul Burhan, material data obtained hardest that is motion things and creatures life in the neighborhood around . Learning media needed _ based on application .



Charts 1 . Analysis of appropriate learning media characteristics student

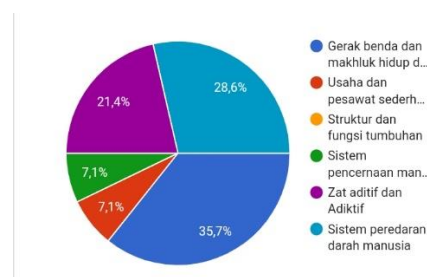


Diagram 2. Analysis Theory hardest for student

Design (Design) , goal from planning that is for get form design something the product to be developed in accordance with background behind development

product application learning this . Apart from obtaining design product , at stage planning also aims for get instrument study (Ayuningtyas & et al, 2015) . Things to do at stage planning of them , *first* designing application learning android based , *second* make design appropriate materials , videos and pictures , and *third* make sheet validation from expert Theory as well as media expert .

Table 2. Story Board

Scene 1	main menu page containing title app and author's name
Scene 2	Menu page containing KI and KD options , instructions usage , materials , videos, quizzes and bibliography
Scene 3	Instruction page use
Scene 4	KI and KD Halaman page
Scene 5	Option menu display page Theory
Scene 6	Video page
Scene 7	Quiz page
Scene 8	Bibliography page

Develop (Development) , innovation device in the learning process have destination for produce something design then get revision from expert and result data trials device (Qurohman et al., 2019) . At stage this obtained results in the form of : 1) Application learning named GeNda MaHiLingTar consist from KI and KD, instructions usage , materials , videos, quizzes , and bibliography ; 2) Media validation score.



Figure 2. Display page beginning



Figure 3. Main menu display



Figure 4. Material menu display



Figure 5. Display Theory



Figure 6. Video menu display



Figure 7. Quiz menu display

b. Validity Application Learning

Research results state application learning that has been developed by researcher GeNda MaHiLingTar already worthy used as a medium in the learning process teach . Appropriateness GeNda MaHiLingTar app could looked at from results validation application which accept very valid category (as in Table 3).

Table 3. Media Expert Validation Results

No	Aspect	Percentage (%)
1	Effectiveness	79.66%
2	Convenience	83.33%
3	suitability	85.00%
4	Completeness	79.17%
5	Communicative and interactive	80%
	Average	81.42%

Based on result data analysis GeNda MaHiLingTar application developed _ validation media expert , then obtained percentage by 81.42%. This thing rated covers appearance application , completeness of the menu, convenience , effectiveness and communicative . Suggestions from validators, apps simple and nice but menu or feature application added bibliography . _

Table 4 . Material Expert Validation Results

No	Aspect	Percentage (%)
1	Illustration	90.57%
2	Suitability Theory	91.67%
3	language	90.50%
	Average	90.91%

Result of validation expert Theory obtained the percentage is 90.91%. Material expert evaluate a number of aspect that is the suitability of KI and KD with material , video conformity with materials , equipment material , quiz in the form of question evaluation , aspect language , and aspects illustration .

Based on result data validation media and materials experts , obtained an average presentation of 86.17% with category good or valid. Then the GeNda MaHiLingTar application based on android is valid for used in the process of learning science material motion thing .

c. Feasibility Test Application Mahilingtar Genda Learning

Eligibility test conducted with spread questionnaire response with google forms media. In the feasibility test , the researcher only obtained 12 respondents consisting of from student 8th grade and MTs teacher . Nurul Burhan.

Table 5 . Feasibility Test Results Application

No.	Statement	Percentage (%)
1	Learning media in accordance with competence base and purpose learning	87.5%
2	Appropriate media type with competence base and purpose learning	79.17%

3	Effective use of media on materials motion straight	79.17%
4	Learning media in accordance with character student	81.25%
5	Instruction media use delivered with clear	87.5%
6	Size of learning media motion straight in accordance with environment study student	79.17%
7	Accompanied pictures , graphics , as well as animation make learning media more complete and interesting	87.5%
8	Gradation color as well as picture in appropriate media	72.91%
9	text type as well as picture already in accordance so that the media can with easy seen	77.08%
10	Size pictures and graphics in the appropriate media on each slide	72.91%
11	Images, animations and graphics in accordance with character student	77.08%
12	Layout consistency _ titles and subtitles in appropriate media	79.17%
13	Motion material straight served with coherent	85.42%
14	The use of media can make Theory easy understood	77.08%
15	Navigation in the media can run with easy	77.08%
16	Linkages Theory with example in life daily so that easy understood	79.17%
17	Ingredients for make learning media could reachable with easy	85.42%
18	Cost used _ for make learning media affordable	77.08%
19	Learning media motion straight could used with easy	83.3%
20	Learning media motion straight could used with comfortable	85.42%
21	Learning media motion straight could be read with easy by students	79.17%
22	Learning media motion straight served with simple but interesting attention student	77.08%
23	Message Theory motion straight on the media can received	79.17%
	Average	80.27%

Based on results feasibility test analysis application MaHiLingTar GeNda learning , obtained the average percentage is 80.27%. Then app MaHiLingTar GeNda learning worthy used by students in the learning process .

CONCLUSION

Study development that has been conducted researcher produce product in the form of application MaHiLingTar GeNda learning . Application this containing Theory about motion object in form narration and videos. Menu or feature GeNda MaHiLingTar app consist from KI and KD, instructions usage , materials , videos, quizzes , and bibliography.

From result analysis validation media expert and expert materials , as well as feasibility test analysis product so application MaHiLingTar Ge GeNda learning declared worthy and valid for used student in the learning process . Percentage validation media expert and expert Theory of 86.17% and the percentage of the feasibility test product by 80.27%. Based on criteria use learning media , then GeNda MaHiLingTar app is said to be valid or good because percentage results validation and feasibility above 80 %.

Based on study about development application MaHiLingTar GeNda learning that has been done , suggestions that can be submitted by researcher that is product results study development can used by students and teachers in the learning process good it 's at school or outside _ school . Researcher next expected could develop product similar until with Step disseminate.

REFERENCE

- Antwi, V. (2015). Using Real-Life Activities in an Interactive Engagement Manner in the Teaching and Learning of Newton's First Law of Motion in a Ghanaian University. *Journal of Education and Practice* , 6 (12), 48–58.
- Anwar, MS, Choirudin, C., Ningsih, EF, Dewi, T., & Maselena, A. (2019). Developing an Interactive Mathematics Multimedia Learning Based on Ispring Presenter in Increasing Students' Interest in Learning Mathematics. *Al-Jabar: Journal of Mathematics Education* , 10 (1), 135–150. <https://doi.org/10.24042/ajpm.v10i1.4445>
- Ayuningtyas, P., & et al. (2015). *Development of Physics Learning Devices Using Guided Inquiry Models to Practice Science Process Skills for High School Students on Static Fluids* . 4 .
- Nuraini, I., Utama, S., & Narimo, S. (2020). DEVELOPMENT OF LEARNING MEDIA BASED ON POWER POINT ISPRING SUITE 8 IN ELEMENTARY SCHOOL. *VARIDIKA Journal* , 31 (2), 62–71. <https://doi.org/10.23917/varidika.v31i2.10220>
- Qurohman, MT, Sungkar, MS, & Abidin, T. (2019). Android-Based Mathematics Learning Device Application Development. *Journal of Pedagogy* , 6 (2).

- Ridwan. (2011). *Measurement Scale of Research Variables* . Alfabeta.
- Sugiyono. (2010). *Educational Research Methodology* . Alfabeta.
- Walid, A. (2017). *Strategi Pembelajaran IPA*. Yogyakarta: Pustaka Pelajar.
- Walid, A., SAJIDAN, S., RAMLI, M., & KUSUMAH, R. G. T. (2019). Construction of the assessment concept to measure students' high order thinking skills. *Journal for the Education of Gifted Young Scientists*, 7(2), 237-251.
- Kurniah, N., Andreswari, D., & Kusumah, R. G. T. (2019, April). Achievement of development on early childhood based on national education standard. In *International Conference on Educational Sciences and Teacher Profession (ICETeP 2018)* (pp. 351-354). Atlantis Press.