

DEVELOPMENT OF ISLAMIC RELIGIOUS EDUCATION TEACHING MATERIALS BASED ON INTERACTIVE MULTIMEDIA WITH A SCIENTIFIC APPROACH TO CLASS IV STUDENTS OF ELEMENTARY SCHOOL

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Abstract

The study analyzed the feasibility and effectiveness of the product model material teaching Islamic Religious Education based on interactive multimedia with a scientific approach for fourth-grade elementary school students in West Jakarta. The research and development types of research by adapting the Borg & Gall model combined with the Dick & Carey learning development steps and the Lee & Owens model with modifications. The instrument used in this study was the test, interview, questionnaires, and documentation. The validity of the data was generated based on the validation of material experts, media experts and linguists, and teacher and student responses. The results from this study showed the validity test results from material experts; an average score of 4.6 was obtained in the very good category. The validity test results from media experts obtained an average value of 4.4 with a good category. The validity test results of linguists obtained an average value of 4.7 with a very good category. The results of the teachers' responses showed an average of 4.6. The students' responses in the small group try-out show an average value of 3.37 (very good), and the average score of the assessment in the significant group test (*field group try-out*) of 3.5 (very good). Based on the results of the t-test through the independent samples test, the value of Sig. (2-tailed) of $0.016 < 0.05$, which indicated a difference in the average students learning outcomes between the experimental class using MMI-based Islamic Education teaching materials and the control class using PowerPoint media. The result concluded that Islamic Religious Education teaching materials based on Interactive Multimedia with a scientific approach considered feasible and effective in improving students' learning outcomes.

Keyword: curriculum 2013, Islamic education, multimedia Interactive, teaching material

Introduction

The curriculum has an essential role in the achievement of educational goals. Especially in the 21st century, education requires students to think critically; Critical thinking is an “intellectually disciplined process” that requires the learner to conceptualize, apply, analyze, synthesize

(Mayer& Alexander, 2016). In this case, every student needs critical thinking skills. Hence, as a teacher of Islamic Religious Education is necessary to change the conventional teaching paradigm to be modern teaching. This paradigm is relevant to be applied at the elementary school level, which is oriented to contextual learning, emphasizing student involvement to find out the teaching material being studied and connect it to real-life assisted of using technology, such as personal, social, and cultural contexts. Thus students will be familiar with their environment and increased their understanding of the learning process using technology in teaching and learning; the teachers need to be creative in the classroom activities. Using exciting media makes students more interested in learning t makes them more relaxed and open to learn and engage with their peers Sadiman, 2003), (Khalid, 2013). Along with the development of technology, several teaching media can be developed. One of the learning media designed is interactive multimedia. Multimedia technology is an essential aspect of Information and Communication Technology (ICT) related to how information can be represented and presented digitally, using different media, including text, audio, and video (Abdulrahman et al., 2020).

Interactive multimedia contribute to a paradigm shift from teacher-centered learning to student-centered learning. In this matter, there is a significant shift to support student-centered learning in modern learning experiences (Kaddoura& Al Husseiny, 2021). This paradigm builds students' knowledge through experience through environment interaction effects. The interactive multimedia learning model is a learning process that utilizes the ICT development with the philosophy of constructivism (Napitupulu et al., 2014).

In addition, it will impact the students' attitude as the socio-cognitive theory. Albert Bandura stated that individuals would observe behaviour in their environment as a model, imitating their environment behavior. The model is a *symbolic model*, a model from a parable from a story in a book, radio, TV, film, or various other events (Surya, 2013). The concept of modern teaching has the view that learning is more student-centered (Cahyono, 2017). The result that learning models play an essential role in contemporary teaching and vices.

Many studies have addressed interactive multimedia-based learning. Komalasari (2019) concluded that interactive multimedia is proven to create an effective learning process and grow students' character. The development of student characters, such as social attitudes, affects student learning outcomes (Bustami et al., 2017). In addition, Jingjit (2015) stated that multimedia-based learning was proven to improve third-grade elementary school students' communication skills. It can be achieved because teaching materials are presented to students through various learning media and interactive learning activities.

Interactive multimedia-based learning can increase students' interest and motivation in the learning process. The students become more on lessons when teachers use animation and narration as teaching media. In addition, increasing student's interest in learning interactive multimedia in learning would improve students learning outcomes (Vebrianto& Osman, 2011; Zinnurain&Gafur, 2015; Fauzi&Maksum, 2020). Beydoğan&Hayran's (2015) also revealed that using interactive multimedia can also improve students' understanding of concepts and thinking processes, and efficient category by educators and students in the learning process (Kurniawati&Fauzi, 2021)

The results study by Muthulakshmi&Veliappan (2016) revealed that students experienced significant differences and improvements in learning outcomes before and after being treated using interactive multimedia in learning mathematics. Furthermore, Zulkifli (2013) demonstrated that the ICT-based PAI learning model is valid and effective. The result showed that students' learning outcomes have increased as seen from four factors: classical mastery, student activities, high teacher ability in managing to learn, and student responses to ICT.

The use of interactive multimedia improves students' understanding and communication skills; Purnamasari and Herman (2016) concluded that increasing students' mathematical understanding abilities who received learning using interactive multimedia was better than students who received conventional learning. Animated video media has also proven feasible and effective to increase students' learning motivation and democratic character (Farindhni, 2018, Setiawan&Towaf, 2018). Farmacia&Mukminan's research (2016) also revealed that the implementation of the strategy was *Teams Games Tournaments* media-assisted, proven to improve student learning outcomes and attitudes. Besides improving students' achievement and attitudes, multimedia learning can also enhance student skills (Vebrianto& Osman, 2011).

These studies showed that multimedia has a positive impact on the learning process. Interactive multimedia is a solution to the shortage of learning resources that has been happening so far. So the interactive multimedia need to be developed to make students easy to learn and motivate and attract them to learn (Widiastuti&Wangid, 2015).

Based on the background of the problem, the author aims to examine the development of interactive multimedia-based Islamic Religious Education teaching materials using a scientific approach to fourth-grade elementary school students. Researchers took the initiative to carry out innovations according to the needs analysis in the field by developing teaching materials consisting of teacher and student manual textbooks integrated with interactive multimedia programs. It was designed using model development theory and learning media with scientific learning steps. This study focuses on developing an interactive multimedia-based Islamic Religious Education model.

Methods

Qualitative research employ in this study. This research applied the research and development method (Richey & Nelson,2000). The procedure for developing the Borg and Gall model includes ten steps, namely: (1) research and information gathering, (2) planning research, (3) developing the initial product, (4) preliminary field testing, (5) revision of the main product, (6) preliminary field test, (7) operational product revision, (8) operational field test, (9) final product revision, and (10) deployment and implementation. The study was conducted on fourth-grade students of State Elementary School in West Jakarta. The selection of research sites was based on preliminary research results in March 2016, which showed a substantial gap between empirical reality and ideal conditions in the learning process of Islamic Religious Education. The planning, development, and product evaluation time is carried out from January 2018 to August 2020.

Characteristics of the Developed Model

Characteristics of interactive multimedia-based Islamic religious education teaching materials are printed and non-printed teaching materials in electronic form/software through computer devices. The media can be accessed on YouTube with the link address listed on the cover page of

the front printed book. Those were developed with a scientific learning approach related to the material I am a pious child. The model was designed through the principles of multimedia development with integrating hypertext, hyperlinks, and hypermedia to help present learning materials to be more attractive, communicative, and effective. Besides that, the teaching materials developed were equipped with competency analysis, competency description, teaching steps, and tests. They were created in quizzes and evaluations form designed with learning steps, drills, and practice.

Preliminary Research

Research on the Dick and Carey model was based on four general steps, which consist of 1) identifying needs and writing general goals, 2) conducting learning analysis, and 3) analyzing students' initial behavior. The identification stage in this research is done through literature study and field study. Field studies were conducted through observation, interviews, and surveys. Observations were made to obtain data on the dominant learning methods and sources used in Islamic Religious Education learning. Interviews were conducted with three students and five teachers to obtain data about the students and teachers responses to the learning process. The survey was conducted on 87 students in three different schools to obtain data on students' satisfaction and needs for Islamic Religious Education teaching materials.

The literature study intended to obtain information and data related to using the curriculum, content analysis of the learning components, syllabus, and teaching materials. It was used to analyze theories and ideal concepts for interactive multimedia-based learning of Islamic Religious Education learning and relevant research.

1. Model Development Planning Model

The development of the planning stage produced interactive multimedia-based models of Islamic Religious Education teaching materials. The planning phase combines the existing measure in the model Dick and Carey then step-by-step development of interactive multimedia computer-based Lee and Owens.

Validation, Evaluation, and Revision of the Model

a. One to one expert (evaluation one by one by the experts)

The results of the design and initial draft of interactive multimedia-based Islamic Religious Education teaching materials are given to experts (*expert review*). The experts reviewed media (educational technology), material, and language use.

b. One-to-one evaluation by users (One to one learner)

Three students conduct individual trials with different characteristics, namely students who have high, medium, and low abilities, the impact on users, and the feasibility of the small trial groups (*small group try-out*). Once the model teaching material Islamic Education based interactive multimedia revised based on input from experts and three learners. The product is re-evaluated in the third stage using a small group consisting of 8-15 students representing the actual target population.

Field (trial field trial try-out)

The field test is the last evaluation carried out after validation and revision in the previous phase. The number of students sampled trial was more significant than the number of students who participated in the small group evaluation. At this stage, the model's effectiveness was tested for fourth-grade elementary school students using a quasi-experiment design with a pretest-

posttest nonequivalent control group design to more accurate testing related to the effectiveness and quality of the resulting product on students learning outcomes.

Model Implementation Model

The implementation of the final step on the system-oriented development stage includes learning products by Dick and Carey. At this stage, a summative evaluation is carried out after the program has been formative, evaluated, revised, and follows the standards used by the program designer, which involves an independent assessment. It was not involved in developing a model of interactive multimedia-based Islamic Religious Education teaching materials.

Research Instruments

The instruments used product validation sheets for media, material, and language used by the expert to get data on the quality assessment of the resulting product. The instrument to measure the quality of the product developed through user tests, both teachers and students. They are then using the instrument to measure student learning outcomes which are carried out to obtain information regarding the effectiveness of the teaching material model.

Data Analysis

In this study, the data analysis used qualitative and quantitative. Qualitative data were analyzed descriptively based on input, feedback, criticism, and suggestions. They were used to improve the questionnaire, discussion, and interview results from experts (*expert review*), teachers, and students as material for improvement in the product's validation and assessment stages. While the analysis of quantitative data through analysis techniques Product Validation. The validity of the interactive multimedia-based Islamic Religious Education teaching material model was obtained based on the product assessment. The questionnaire analysis results by experts and teachers. The data obtained from the students learning outcomes test were analyzed through statistical calculations using the t-test formula.

Results and Discussion

1. Results of Needs Analysis

Preliminary research is a needs analysis was conducted in five elementary schools in West Jakarta, namely SDN DuriKosambi 01 Pagi, SDN DuriKosambi 06 Pagi, v, SDN Semanan 09 Pagi, SDN KebonJeruk 11 Pagi. Teaching materials related to textbooks, both teacher books, and student books, have not met learning needs. The learning materials are not under the competency mapping in Permendikbud No. 24 of 2016 concerning Core Competencies and Basic Competencies. Based on a preliminary study, only 51% of students stated that the material in the Islamic Religious Education textbooks and Budi Pekerti were complete, and 55% of students stated that the current teaching materials did not support independent learning.

Model Design and Development

The design and model development stage is the stage of making a draft of the product to be developed. This stage consists of three draft models, namely (1) draft model 1, (2) draft model 2, and (3) final draft model.

1) Draft Model 1 Draft 1

The model was developed by identifying and analyzing the learning objectives formulated by considering the needs analysis results in the preliminary study. The analysis stage of learning and early behavior of students in this interactive multimedia-based Islamic Religious Education

teaching material model begins with formulating and compiling learning objectives, conducting learning analysis, and identifying students' initial behavior and characteristics.

After analyzing by formulating learning objectives, the next step is to develop an instrument for assessing learning outcomes. The learning outcomes instruments designed in the cognitive domain measure students' learning outcomes related to the I am a pious child learning material. The development of the test began by first making an instrument grid and compiling items to measure students' behaviour under the criteria listed in the learning objectives. The results obtained in this step are a set of test tools to measure Islamic religious education learning outcomes for fourth-grade elementary school students.

Next, developing learning strategies, namely designing systematic procedures in communicating Islamic Religious Education learning materials to achieve the expected learning objectives. The design of this learning strategy includes preliminary, presentation, and closing activities. The learning strategies in the core activities encourage the activities of scientific learning steps in the 2013 curriculum (observing, asking questions, gathering information, reasoning/associating, and communicating), which are developed or combined with problem-solving learning steps, which are the characteristic of learning-based learning.

The next stage, developing and selecting learning materials, is compiled based on the learning analysis that has been formulated in the essential competencies and learning objectives. This stage is the core of developing a model of interactive multimedia-based Islamic Religious Education teaching materials that the researchers did.

The materials or products developed to consist of two models, namely in printed form and digital format. The printed model becomes a reference in developing interactive multimedia-based teaching materials model products later. The printed model was developed as a teaching material according to their individual needs. Printed models for students are arranged with components, including (1) an introductory section consisting of an introduction and a table of contents, (2) a concept map, (3) "I am a pious child" subject matter with the characteristics of the developed model such as let us observe, deepening material, discuss, interpret, and practice (4), (5) assessment, and (6) the closing section consisting of a bibliography of the author. The following is an initial draft display of the contents of printed teaching materials for students, which were developed before being further developed in the manufacture of interactive multimedia teaching materials:

Furthermore, the printed model for teachers was prepared with components, namely (1) an introductory section consisting of an introduction, and list content, (2) competency maps, (3) competency analysis, (4) learning objectives, (5) learning steps, (6) assessment, (7) answer keys to evaluation questions in student books, (8), and (9) closing section consisting of a bibliography and a biography of the compiler.

After compiling and developing printed teaching materials, the next step for researchers is to arrange flowcharts and storyboards as the initial stage in making interactive multimedia programs. The program is designed based on a computer packaged in an attractive program *Adobe Flash*. The development stages in this phase consist of making basic programming applications, making graphics, making animations, making narratives, designs, and *content* from *prototypes* interactive multimedia that will be developed.

The resulting multimedia model product is structured with the following components: (1) a competency map that describes core competencies, essential competencies, indicators, and learning objectives, (2) presentation of learning materials, (3) exercises in the form of quizzes and evaluations, and (4) bibliography: *flowchart* and *storyboard*. Furthermore, educational

technology experts validated and evaluated the developed draft as media experts, Islamic Religious Education material experts, and linguists to get input and suggestions to produce an effective and suitable model program.

2) Model Draft II

Based on the results of product trials in draft two conducted to teachers, the model of Islamic Religious Education teaching materials based on interactive multimedia developed are in terms of content and objectives, learning aspects, and technical aspects. It can be concluded that the product developed as a whole has excellent and the results of testing the use of the product as done by students (*one-to-one learners*).

3) Final Model

The final draft results from individual trials by experts (*one-to-one expert*), students (*one-to-one learners*) and teachers, and small group try-out will be tested in large groups. (field test try-out).

1. Product Trial

After conducting a feasibility test and model validation by a team of experts, the following process is to conduct a field test.

Table 1: Individual trial by students (*One to One Learner Try-Out*)

NO	Questions	Answers		
		Student 1	Student 2	Student 3
1	Is the material easy to understand?	Yes, easy to understand	Very easy	to understand
2	Is the multimedia display attractive?	Very interesting there is a video	Interesting because we can watch videos	Interesting because learning is not boring
3	Is the book developed as you expected?	More complete than the books currently available	Very appropriate Because the current text is not complete	Already, because there are more pictures and examples
4	Are the pictures and videos displayed very clear?	The pictures and videos are clear. The	video is good	It is good
5	Is the writing clear and easy to read?	The writing is straightforward because the current book has small letters	It is clear to read	Easy to read
6	Which part of the learning activity is difficult, why?	Overall it has been a great	Between lessons honest and trustworthy, I should be more thoroughly in giving an example	in doing the test must be understood carefully used because the question is a long-term

a. Individual Trial By Master

Table 2: Summary of Test Products By Master

Aspect	Item Problem	Value			Average
		Res 1	Res 2	Res 3	
Quality of content and objectives	10	4.6	3.8	4.4	4.2
Quality of learning	11	4.8	4.8	4.9	4.8
Technical quality	4	4.75	4.75	5	4.7
Total	25	4.7	4.45	4.7	4.6
Criteria	Very good				

b. Test Try small group (*small group Try-Out*)

The small group trial was conducted for 4x35 minutes involving 14 students to determine the quality and effectiveness of the models' development. After the learning activity is completed, students are asked to complete a questionnaire given to measuring the product quality of the interactive multimedia-based Islamic Religious Education teaching material model that was developed. Based on trials at this stage, the interactive multimedia-based Islamic Religious Education teaching material model that was developed received the following assessments:

Table 3: Recapitulation of Small Group Test

Aspects	Number of Items	Total Score	Average
Quality of learning	70	16.19	3.23
Technical quality	70	16, 88	3.37
Total	140	33.07	6.6
Average	3.3		
Criteria	Very good		

In this small group trial, it was found that part of the interactive multimedia program on the interactive quiz menu in the score column experienced a few problems. However, improvements have been made, but overall the product is has been developed very well, with an average assessment score of 3.3. Findings indicate that the developed model is feasible to use.

Effectiveness Model / Field Trial (*Field Try-Out*)

Field trials (*Field Try-Out*)after repair at the stage of the small group trial (*Small Group Try-Out*). A field trial (*Field Try-Out*)thisconducted on 20 grade IV elementary school students. The field trial is intended to test the effectiveness of the interactive multimedia-based Islamic teaching material model developed to improve students learning outcomes.

The effectiveness of the interactive multimedia-based Islamic teaching material model with a scientific approach is known through a two-sample difference test through a t-test. Before the difference between the two averages (t-test) was carried out, the data analysis was tested by conducting a normality test and a homogeneity test. Normality test aims to test whether the data has a normal distribution or not. The normality test in this study was carried out using the method *Shapiro-Wilk Test* as shown in the following table:

Table 4: Normality Test

		Shapiro-Wilk		
Class		Statistic	df	Sig.
Learning Outcomes	Pretest Experiment (MMI)	.978	20	.900
	Post Experiment (MMI)	.975	20	.853
	Pretest Control (PPT)	.964	20	.628
	Post Control (PPT)	.966	20	.678

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Based on the results of the normality test with the *Shapiro-Wilk Test* above, it can be seen that the probability value of t-statistics $>Level\ of\ Significant = 0.05$, then the data meets the assumption of normality. The normality test results in the experimental class were normally distributed with a value of $0.97 > 0.05$. Likewise, in the control class with a value of $0.96 > 0.05$.

Furthermore, based on the results of the test homogeneity of variance, the probability value of F-statistics $>Level\ of\ significant = 0.05$, with the result $F = 1.915$. The data meet the homogeneity assumption as shown in the following table:

Table 5: Homogeneity Test

		Levene			
		Statistical	df1	df2	Sig.
Teaching	Based on Mean	1,915	1	38	.175
Achievement	Based on Median	1,937	1	38	.172
	Based on Median and with adjusted df	1,937	1	37 330	.172
	trimmed mean Based on	1960	1	38	.170

Based on data of the above-obtained value of Sig Based on Mean $0,175 > 0.05$, so it can be concluded that the data variance of the experimental and the control class are homogeneous. Because the data was usually distributed, parametric statistical tests were carried out through the paired samples and independent samples. It is known that the learning outcomes for the experimental group using learning interactive multimedia-based Islamic religious education teaching materials with 20 students which the average value for the experimental group was 84.45, while for the control group using PPT learning was 78.70. Thus, statistically descriptive, it can be concluded that there was a difference in the average students' learning outcomes between the experimental and the control class. Furthermore, to prove the presence or absence of significant differences, then carried out independent samples test followed:

Table 6: Test for the difference between the two averages (t-test)

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Results Learning	Equal variances assumed								1,915 .175 2,527 .016 5,750 2,275 1,144	38
	Equal variances not assumed			35,421 .0161 0,367			5,750	2,275	1,133	2,527

Based on the output, table 6 is known to the Sig. Levene's Test for Equality of Variances is $0.175 > 0.05$, which means that the data variance between the experimental and the control class is homogeneous. Furthermore, in the output table of the independent samples test, it is known that the value of Sig. (2-tailed) of $0.016 < 0.05$, as the basis for a decision independent samples can be concluded that H_0 is rejected and H_1 accepted. Thus, it can be supposed that there was a significant difference between the average students learning outcomes between the experimental class using interactive multimedia-based Islamic religious education teaching materials and the control class that used PPT.

Furthermore, from the table, it is known that the value *means the difference* is 5,750. This value showed the difference between the average students learning outcomes in the experimental and control classes, namely $84.45 - 78.70 = 5.750$ with a difference of 1.144 to 10.356 (95% *Confidence Interval of the Difference Lower Upper*).

Thus the t-value is calculated $2.527 >_{t-table} 2.042$; based on decision comparison of the t-value calculated with the t-table. It can be concluded that H_0 is rejected, which showed that there was a difference in the average students learning outcomes between the experimental class and the control class. The result of teaching Islamic Religious Education based on Interactive Multimedia with a scientific approach effectively improves students' learning outcomes.

After testing the product's effectiveness, the final stage of the field group try-out, teaching carried out with an assessment or students' response to the quality of teaching materials developed based on the results of field trials for Islamic Religious Education based on Interactive Multimedia. (Field group try-out) above obtained an average value of 3.5 so that it can be concluded that the teaching materials of Islamic Religious Education based on Interactive Multimedia that has been developed are feasible to use.

Discussion

In this study, the product is a learning device consisting of printed teaching materials as textbooks for students and teachers and interactive multimedia programs. Those are used through the application *Adobe Flash* format SWF which becomes an integral part of the development. Printed teaching materials are mutually exclusive related to providing material and evaluating the process of teaching activities for Islamic Religious Education and Character Education for fourth-grade elementary school students.

The teaching steps used in interactive multimedia-based Islamic Religious Education teaching materials refer to scientific teaching steps, including observing, asking questions, collecting data, associating, and communicating (Kadarwati & Malawi, 2017). In addition, this study also develops learning implementation plans (RPP), student worksheets (LKS), and teaching assessment instruments material to produce interactive multimedia-based teaching materials. I am a pious child in grade IV Elementary School.

The interactive multimedia-based teaching materials that have been developed are considered essential for fourth-grade elementary school students. This interactive multimedia learning contains pictures and animations related to supporting learning materials deemed problematic by students because they are abstract. In addition, it is also equipped with animations that can provide understanding according to students' thinking power because the research emphasizes the concrete operational stage, namely at the age of 7 or 8 - 11 or 12 years at the elementary school level (Lee & Owens, 2004).

Based on the product trial stages, which were carried out through theoretical testing and empirical testing, the interactive multimedia-based Islamic Religious Education teaching material model is a suitable learning model to use. The trials conducted by media experts on the products developed got an average score of 4.4, which was included in the interval > 4.2 with "very good" criteria. Furthermore, based on the results of product trials by material experts, an average score of 4.6 is included in the interval > 4.2 with "very good" criteria. For product trials conducted by linguists, an average score of 4.7 was included in the interval > 4.2 with "very good" standards. Based on the results of product trials conducted by the three experts, the average value of 4.6 (very good) is based on the aspects of media quality, material quality, and language quality. The product of Islamic Religious Education teaching materials based on interactive multimedia that developed is feasible for the next stage of research.

The developed model also scored in the "very good" category through individual trials and small-scale trials at the field trial stage. Through individual trials with the subject of three teachers, the product got an average score of 4.6 with the criteria of "very good". Furthermore, in the *small group try-out* with 14 students as the subject, they got an average score of 3.3 on a scale of 4 with the criteria of "very good", and in the *large group try-out* the material was The teaching materials developed got an average score of 3.5 on a scale of 4 with the criteria of "very good". Thus, the model of Islamic Religious Education teaching materials based on interactive multimedia is feasible to use.

Based on the results of the t-test through the *Independent Samples Test*, it is known that the value of Sig. (2-tailed) of $0.016 < 0.05$, which indicates a difference in the average student learning outcomes between the experimental and control classes. Islamic Religious Education teaching materials based on Interactive Multimedia with a scientific approach are considered appropriate and effective in improving student learning outcomes. Thus, teaching materials developed according to the needs and characteristics of students are considered practical and effective to improve student learning outcomes (Octaviani, 2017).

Based on field trials, learning is carried out using a scientific approach (*scientific approach*). The steps taken by the teacher begin with the process of observing, where the teacher provides a stimulus to students in the form of images or films presented using an LCD projector related to the material being taught. When the teacher shows media pictures, students actively ask questions related to the material presented, here it appears that the use of interactive multimedia in learning can improve students' ability to communicate, this is in accordance with research conducted by (Zaim, (2016) that multimedia can improve students' ability to communicate). Communicate orally and in writing with the language being studied.

Furthermore, at the stage of deepening the material, the teacher forms students into small groups and divides tasks for each group. The exploration process carried out by students is seen in student activities to obtain material assigned by the teacher from various learning resources. Students take advantage of the developed teaching materials; here, the teacher is not the only primary learning resource and acts as a facilitator during the learning process. At this stage, the teacher also asks students and their groups to present the results of their discussions on a multimedia display. With a quiz application that demands student collaboration, this is in accordance with research (Fahmadia&Mukminan (2016), which revealed that the strategy was *Teams Games Tournaments* media-assisted proven to improve student learning outcomes and positive attitudes. Research (Sulik et al., 2020) also shows that students show much more extraordinary perseverance in doing exercises or tests packaged in games because they will provide more meaningful learning experiences than students who are given praise when they succeed in doing the assignments given by the teacher.

Interactive multimedia-based Islamic Religious Education teaching materials are considered suitable for teaching students because it developed in animation, video, and audio packaged. So that the students feel more interested in learning than using textbooks only, this is in accordance with the advantages of interactive multimedia, according to Munadi (2013); namely, students are invited to be involved auditorily, visually, and kinetically so that the information can be easy to understand. The field trial showed enthusiasm and seriousness in learning because students were interested in using interactive multimedia. The attractiveness of these media is under research conducted by Hasan (2018), which states that learning with a scientific approach through ICT makes students more active, creative, effective, and fun learning to achieve learning goals.

The interactive multimedia-based Islamic Religious Education teaching materials developed in this study include the contents of the material, examples, and exercises available in the developed program that students can select in the desired order to attract students' interest in learning. This is in accordance with the advantages of interactive multimedia, according to Sharon (2011), which allows students to individually control the pace and sequence of learning, which provides much control over learning outcomes. Thus digital technology should be recognized as one of the main tools to improve teaching through technology (Limani et al., 2019).

The development of interactive multimedia- is one solution to fulfill students' and teachers needs related to existing problems in implementing the 2013 curriculum. It is in line with stated by Gunawan(2017) which the solution in solving the teacher's obstacles in implementing the 2013 Curriculum mainly faced to assist teachers, the development of learning tools, scientific approaches, teaching models, and students' assessment learning outcomes.

Through an interactive multimedia-based learning model developed with scientific learning, students are more active in communicating and expressing their opinions. This is in line

with Sodik (2017), which stated that students taught with a scientific approach in the 2013 curriculum have better results than those because scientific learning steps help students more easily understand the material and practice language in real situations directly.

In addition, using interactive multimedia will improve learning outcomes. Students' social attitudes can be seen by applying *drill and practice* and *game* strategies in the learning process. Games in learning are generally carried out in groups. Learning carried out through discussion will attract a sense of cooperation among students (Hamdini&Latipah, 2017). This is in line with the educational concept of Imam Al Gozali, which stated that the academic approach in developing moral values could be made in two ways, namely, fighting (Mujahadah) and getting used to doing good deeds (Ismail et al., 2013).

Conclusion

The development of interactive multimedia-based Islamic Religious Education teaching materials has been feasible and effective for Islamic Religious Education learning activities for grade IV Elementary School. In addition, the development of teaching materials could improve the quality of teaching. The developed model consists of two products; students' textbooks, teacher guides and interactive multimedia-based teaching media programs. The complement are related to the developed books and media; the multimedia can be *downloaded* on the *barcode* listed on the front page. Teachers and students' book cover. Multimedia-based applications can be used productively in teaching because it includes analysis and description of competencies, materials, examples, and evaluations. The teaching media was developed through the stages of scientific testing, both theoretical and empirical. The identified deficiencies program can be used on computers or devices supported by *Adobe Flash SWF*. The teaching material developed did not include the lesson material content, but the teaching material produced can be a reference for further developing other materials.

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