



Development of Learning Media Based on Gamification of Hijayyah Letters in Elementary Schools

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Abstract

Post-pandemic learning activities, especially in elementary schools, have been carried out face-to-face learning. Before all face-to-face learning activities are implemented, all parties must have implemented limited face-to-face learning. Limited face-to-face learning is a learning process that is carried out face-to-face between students and a limited number of school educators/teachers. Limited face-to-face meetings are carried out with 2 sessions, namely the morning session and afternoon session with 1 class in each session ranging from 10-16 students by implementing students and teachers wearing masks while learning takes place, seating between students is provided distance by emptying 1 table, before and after learning takes place students are required to use hand sanitizers. This study aims to produce a gamification-based learning media that can be used as an independent learning medium so that students can learn without being assisted by anyone and this media can be played anytime and anywhere. The research model used is the ADDIE model. The ADDIE development model consists of five stages including analysis, design, development, implementation, and evaluation. The results of the study show that the validation of this learning media trial shows that of the 29 instrument grids given to 19 grade 1 students, 17 instruments are valid.

Keywords:

face-to-face learning is limited, gamification, ADDIE development model, Elementary School

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INTRODUCTION

Education is very important because the acquisition of knowledge is a basic human need that must be fulfilled throughout life. Education is a conscious effort to prepare students to achieve their goals for success and future jobs through teaching, education and preparation for education. This educational process not only forms a vision and provides certain skills, but also frames and creates good attitudes so that children act according to societal norms. (Dwiana et al., 2021). The principles which are separated into parts of attitude, knowledge as well as research work have to be attained by students in primary and secondary education. (Amrizal M et al., 2022). Educators as executors in learning activities in the field can advance the development of interactive learning media and can be useful following the development of the times so that students can be more interested and motivated to participate in educational and learning exercises and can easily master the material presented by educators (Z & Saputra, 2022). In addition, the 21st century is marked



by very rapid changes, especially in the field of innovation. The progress made has resulted in innovative advances.

Learning media is part of teaching and learning activities which play an important role in achieving the learning process in the classroom. The use of an appropriate and directed learning environment certainly affects the development of student learning outcomes. Accuracy in applying an appropriate learning environment can affect student learning outcomes (Dr. Nurdyansyah et al., 2019). It can be said that learning media can convey a message (educational material). Thus arousing sympathy, drawing attention to the desires and motivations and feelings of students participating in learning and educational activities to achieve learning goals (Dr. Nurdyansyah et al., 2019). The presence of learning media is one of the main elements of success in learning, because it functions as a scaffolding for the delivery of subjects. The use of media in education has positive effects and tremendous advantages in working with student learning processes (Harsiwi & Arini, 2020). Learning media with the help of mobile phones has advantages such as living anywhere and anytime. Makes it easier to think of it as being used as a student learning aid (Oktariyanti et al., 2021).

With regard to technical issues, the designer should offer challenges as a desirable additional feature for the assessment. This support can be a decision-making mechanism or other game mechanism that provides situational learning in gamified assessments. However, this research has limitations for future research in the same area of interest (Darmawansah, 2020).

In Blockchain education, graduates are expected to not only have a diploma, but also acquire the necessary additional information that supports graduation requirements during the learning process. Compared to before, the final learning outcomes obtained were only diploma documents, as a sign of graduation after the learning process. Then, learning outcomes or E-Portfolio become the basis for proving internationally recognized higher education. Learning outcomes can come from different educational institutions, practical work experiences, online studies, and other learning processes. GamiChain's educational idea is oriented towards three elements, namely E-Course, E-Portfolio, and E-Assessment, which will determine the graduate requirements determined by the tertiary institution. Therefore, the previous activity, namely the learning process, became a type of open learning that is comfortable for building a higher education system that is not limited by space and time and adapts to the needs of the times in a new economic model characterized by a sharing economy (Anggy, et.al, 2021).

Society is no stranger to the rapid growth of new technologies. This growth will certainly affect learning techniques in education as well. The widespread use of computers and smartphones initially only offered opportunities for educational experts to develop applications that support quality education to replace the existing education system. This not only helps students absorb the material presented, but

also makes it easier for teachers to communicate with students (Bahroni & Purwanto, 2018).

It's nothing new if today's children play with smartphones more often than their friends. Such conditions are found almost everywhere. This condition will certainly worry parents (Rahmawati, 2020). However, an increase in the number of children playing smartphones is not always seen as a bad thing. It should be used for more precise activities like training. One example is through games or digital games. Psychology-based games can increase children's curiosity about something. Games can also increase creativity and explore self-potential and solve problems (Yao & Wang, 2020). Learning in the form of games is an effective way for child development. Hijaiyah Letter Recognizing Game is a type of Islamic educational game that focuses on teaching children with special needs how to recognize hijaiyah letters. This game was made using Construct 2 software. This game is equipped with interesting pictures so that students are more interested and excited to learn hijaiyah letters. (Rahmawati, 2020). Learning through play requires children to train their motor skills. The slightest achievement can be a valuable achievement for them. And the recognition he received increased his desire to learn something.

Gamification which is a derivative of using games is used to solve problems by thinking while playing games. Gamification was introduced as a new approach to the education system, as it effectively increases student motivation and engagement by incorporating game design principles into the learning environment. (Dichev & Dicheva, 2017; Göksün & Gürsoy, 2019). Gamification is used as a way to test various strategies, including problem solving, individual or group learning, and as an assessment tool. (Ahmad, et al., 2020). This is one of the efforts to make the delivery of e-learning more interesting, so education and entertainment are needed. Game elements are used to motivate, entertain and involve students so that learning objectives are still achieved. One thing that motivates students is the need for instant feedback, guides, and study partners to make learning more interactive. (Yusfin, 2011).

The following gamification features are adapted from Erin (2013). Glover (2013); Cape (2013); O'Donnovan (2013). At least most of the items included in the game are points, badges, leaderboards, levels and following scenarios. Each of these elements is described below. This must be communicated to show how the game increases the excitement of the player. Points can be used to mark upgrades and unlock locked content. Badges are emblems or digital badges that you receive for successfully completing certain missions or challenges. Badges can be ribbons, trophies or other symbols. Players are usually awarded badges to measure their performance in certain skills referenced in the game. In other words, the leaderboard is a list of the names of the best players according to their success in the game. Level is the level or degree of difficulty. The higher the level, the more difficult and complex the missions or tasks you have to complete. To play Level 2, you must

complete Level 1 (although some games are limited to multiple levels at a time). Basically, there are certain features or levels that are unlocked and cannot be played if you have not completed the previous mission, task or level. The scenario (story and theme) is the action that drives the game. This helps to make the game more interesting and realistic as possible, because the themes contained in certain games have a certain context.

The hijaiyah letter recognition application can be used as an alternative to strengthen learning through games and encourage children to complete letter guessing games by strengthening their memory. (L. Zahrotun: 2015). Children can learn hijaiyah letters through interactive tutorials. This interactive learning application can also help users learn the shape and pronunciation of hijaiyah letters as a basis for learning or reading the Qur'an. There is also a practice quiz to measure how well application users understand hijaiyah letters (W. Gunawan, 2019).

Construct 2 is an HTML 5-based game creation tool specifically for 2D platforms developed by Scirra. Construct2 does not use a special programming language, so to develop games with Construct 2 users do not need to understand programming languages which are relatively more complicated and difficult (E.Pujiono, 2018). The end result of the game built by Construct 2 can be run in various browsers such as Chrome, Firefox, Internet Explorer and Opera. The advantages of Construct 2 are as follows. Can be used to make 2D games, Multiplatform (HTML5, Web, Android, etc.), Suitable for beginners who want to learn to make games from scratch. No need to learn complicated programming because it adopts a visual programming system and a drag and drop system. very easy drop.

The problem in elementary schools, especially in grade 1 after the covid 19 pandemic, is that students forget the order, shape and pronunciation of hijaiyyah letters, and when students are still in kindergarten, they also carry out online learning so that the learning material provided by the teacher is not fully absorbed by students and the learning media used by the teacher is also limited. Based on the theory and problems previously described, it can be concluded that the importance of gamification-based learning media in learning Islamic religious education so that it can help students understand the material better, it is necessary to collect information from teachers and students, about the need for gamification-based learning media and the presentation of gamification-based learning media. Teachers and students can be informants regarding this learning media. Therefore, this research produces Learning Media Based on Gamification of Hijaiyyah Letters as a learning media that can be used by students when students are at home. This Learning Media will be developed into a game application that is easily accessed by students using mobile phone. In the game application there are several levels that students must play sequentially.

METHODS

This research aims to produce learning media based on gamification of hijaiyyah letters for Islamic religious education subjects for elementary school students in Surakarta City. The schools that became the research samples were 3 elementary schools in Surakarta City. Each school only has 1 class (not parallel) and only has 1 Islamic religious education teacher. The following details the number of student respondents in table 1 below

Table 1. List of research sample schools

School Name	Respondent
SD Negeri Nayu Barat II	24
SD Negeri Bibis Wetan	22
MI Al Barokah	22
Total	68

The research and development method (Research and Development) was used in this study. The research and development method are a research method used to make certain products and test the effectiveness of these products (Sugiyono, 2016). The product is not always a physical object or hardware such as books, stationery or other learning tools. But it can also be in the form of software. This research procedure uses the ADDIE development model. Developing learning design with ADDIE approach (Analysis, Design, Development, Implementation and Evaluations). The research subjects are grade 1 elementary school students, validation of material experts and media experts and the object of research is Islamic Religious Education learning media with hijaiyyah letter material (Azwar, 2014). Figure 1 shows the ADDIE model

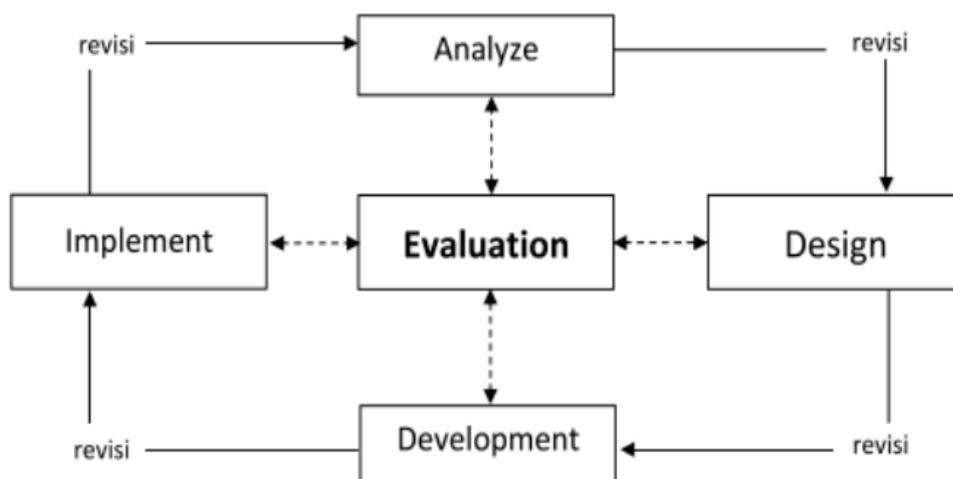


Figure 1. ADDIE model

The following is a step-by-step diagram of the ADDIE model learning design development process:

Table 2. Instructional Design: The ADDIE Approach

	Concept	General procedure	Information
Analyze	Identification cause of occurrence deep problem learning and the pre-planning think or decide about the eyes lesson or course to be given	<ol style="list-style-type: none"> 1. Validation 2. Define instructional objectives 3. Analyse students 4. Audit possible sources 5. Changing a management plan project 	Analysis Summary
Design	Result verification or that achievement desired (destination learning) and determine method or strategy will be applied	<ol style="list-style-type: none"> 1. Do a task inventory 2. Set performance goals 3. Generate a test strategy 4. Calculating return on investment 	Brief design
Develop	Develop and validate learning resources as well development material and strategy that supporter needed	<ol style="list-style-type: none"> 1. Generate contents 2. Sort and develop media supporters 3. Develop guidance for Students 4. Develop guidance for Teachers 5. Conduct Formative Revisions 6. Conduct Trials 	Learning Resources
Implementation	Preparation learning environment, and execution study with involve students	<ol style="list-style-type: none"> 1. Engage students 2. Engage teachers 	Implementation Strategy
Evaluation	Judging quality products and processes learning	<ol style="list-style-type: none"> 1. Define evaluation criteria 2. Choose an evaluation tool 3. Make revisions 	Evaluation Plan

Source: Instructional Design: The ADDIE Approach

The first stage is Analysis, at the analysis stage there are two things that are done including analyzing content needs based on the syllabus (curriculum), namely in this phase, the development material is determined in accordance with the curriculum for Islamic religious education material. We also analyze the characteristics of related Islamic religious education subjects through curriculum analysis. and software needs analysis, namely the purpose of the needs analysis at this stage is to analyze the functional needs of the system, analyze non-functional needs, and analyze the systems needed and can be implemented in software

applications. The second stage is Design, the activities at this planning level consist of learning media planning, interface planning, and learning media development planning. The third stage is Development, the development steps in this phase include developing syllabus-aligned materials, creating and evaluating syllabus-aligned materials, developing game-based learning media, and learning aids needed by teachers and students. The results of this development phase are gamification-based learning media products that are arranged according to applicable competencies and questionnaires to measure the validity and response of research subjects.

The fourth stage is Implementation, in implementing the use of gamification-based learning media, there are some minimum software and hardware requirements for gamification-based learning media. The last stage is Evaluation, the process of ensuring the success of the learning media built in accordance with the initial development expectations. In fact, the evaluation phase can occur at the end of one of the four phases or stages above. The assessment that takes place at each of the four phases above is called formative assessment and aims to improve as quickly as possible. The evaluation phase is the final step in the ADDIE learning system design model. Evaluation is a process conducted to add value to a learning program (Trisiana and Wartoyo, 2016). Only formative assessment is used in this phase and aims to collect data on the effectiveness and efficiency of the learning media to achieve the set objectives. The data is intended to improve and complement the learning media in question to make it more effective and efficient. Formative assessment consists of expert assessment, individual assessment, small group assessment, and field test. After a product is declared feasible by an expert, individual testing, small group testing, and field testing are carried out. If the research still finds shortcomings, then the learning media developed must be re-evaluated. Evaluation activities in this phase are not only limited to product design, development and implementation, but are carried out in all phases of the ADDIE model development.

The types of data used in this research are qualitative and quantitative. This data was obtained from surveys of material and media experts. Responses from teachers as learning practitioners and answers obtained from experiments with first grade students. The data collection tool used is means validity, only limited to measuring what the test is intended to do (Sukardi, 2011). The questionnaire is a means of collecting information in data collection in this development research. Questionnaires or surveys have many advantages as data collection tools (Arikunto, 2013). Questionnaire is a data collection technique that is done by giving a set of questions or written statements to respondents to answer (Sugiyono, 2016). The form of questionnaire questions can be in the form of open questions and closed questions. Open questions, which are questions that expect respondents to write their answers in the form of descriptions about a matter, on the other hand closed questions are questions that expect short answers or expect respondents to choose one of the alternative answers from each question that has been available. In this study, the questionnaire used was a closed questionnaire in the form of a checklist with a Likert scale divided into five categories. This form of questionnaire was

chosen because it is faster to fill in and easier to fill in answers, because the questionnaire filler only needs to provide a checklist in the column that has been provided, and also makes it easier for researchers to analyze data on all questionnaires that have been collected. Data analysis techniques in this study were carried out using quantitative descriptive analysis techniques.

RESULTS & DISCUSSION

The first stage begins with analysis, namely field research and literature research. Fieldwork was conducted by directly interviewing PAI teachers from three schools, namely SD Negeri Nayu Barat II, SD Negeri Bibis Wetan, and MI Al Barokah. Curriculum analysis revealed that the curriculum of the three schools is an independent curriculum. Analysis of subjects and learning outcomes (curriculum) is used to support direction in designing learning media to meet the objectives to be achieved. Field studies were conducted by directly observing the conditions when the teacher explained and interviewing PAI teachers in three schools. Literature search was conducted by looking for research literature relevant to the research to be conducted.

The second stage is design. The planning stage begins with flowchart design, storyboard design, material preparation, preparation of evaluation tools, and collection of supporting materials. Figure 2 shows the preparation of the material.

CAPAIAN PEMBELAJARAN KURIKULUM MERDEKA BELAJAR

Institusi	: SDN NAYU BARAT II SURAKARTA
Mata Pelajaran	: PENDIDIKAN AGAMA ISLAM DAN BUDI PEKERTI
Kelas	: FASE A
Tahun Pelajaran	: 2022-2023

A. Rasional Mata Pelajaran Pendidikan Agama Islam dan Budi Pekerti

Pendidikan Agama Islam dan Budi Pekerti secara bertahap dan holistik diarahkan untuk menyiapkan peserta didik agar mantap secara spiritual, berakhlak mulia, dan memiliki pemahaman akan dasar-dasar agama Islam serta cara penerapannya dalam kehidupan sehari-hari dalam wadah Negara Kesatuan Republik Indonesia. Pendidikan agama Islam dan Budi Pekerti secara umum harus mengarahkan peserta didik kepada (1) kecenderungan kepada kebaikan (al-ḥanīfiyyah), (2) sikap memperkenankan (al-samḥah), (3) akhlak mulia (makārim al-akhḫāq), dan (4) kasih sayang untuk alam semesta (rahmat li al-ālamīn). Dengan Pendidikan Agama Islam dan Budi Pekerti, dasar-dasar tersebut kemudian diterapkan oleh peserta didik dalam beriman dan bertakwa kepada Allah Swt., menjaga diri, peduli atas kemanusiaan dan lingkungan alam. Deskripsi dari penerapan ini akan tampak dalam beberapa elemen Pendidikan Agama Islam dan Budi Pekerti terutama dalam akhlak pribadi dan sosial, akidah, syari'at dan sejarah peradaban Islam.

C. Karakteristik Mata Pelajaran Pendidikan Agama Islam dan Budi Pekerti

Pendidikan Agama Islam dan Budi Pekerti mencakup elemen keilmuan yang meliputi (1) Al-Qur'an-Hadis, (2) Akidah, (3) Akhlak, (4) Fiqih, dan (5) Sejarah Peradaban Islam.

Elemen-Elemen Mata Pelajaran Pendidikan Agama Islam dan Budi Pekerti.

ELEMEN	DESKRIPSI
Al-Qur'an dan Hadis	Pendidikan Agama Islam dan Budi Pekerti menekankan kemampuan baca dan tulis Al-Qur'an dan hadis dengan baik dan benar. Ia juga mengantar peserta didik dalam memahami makna secara tekstual dan kontekstual serta mengamalkan kandungannya dalam kehidupan sehari-hari. Pendidikan Agama Islam dan Budi Pekerti juga menekankan cinta dan penghargaan tinggi kepada Al-Qur'an dan Hadis Nabi sebagai pedoman hidup utama seorang muslim.

Figure 2. Shows the preparation of the material

The third stage is the development stage, where researchers make learning media in accordance with the plans that have been made previously at this stage. During the development process, researchers used Corel Draw and Construct 2 to create learning media. Please note that the learning media contains questions for each level, as well as instructions for each level. After the learning media has been made, the next step is validation by media experts and material experts. Verification by media experts includes language aspects, device technology aspects, and visual communication aspects. Figure 3 shows the development of learning media.





Figure 3. Shows the development of learning media

The fourth phase is the implementation phase. In this phase, we refined the app according to the suggestions from the media and material experts, then tested it with students. The pilot test has four phases: field trial, small group trial, medium group trial, and field trial. Student testing includes aspects of learning motivation, usability, presentation attractiveness, and usefulness of the learning media.

Following are the results of the validation of the test instrument grid for class 1 student learning media which is divided into two factors. The results of the validation of the first factor learning media test instrument grid.

In the first factor, the validity of each item is indicated by the total column. Based on the r table, the minimum Pearson Correlation value is 0.4329 because it uses 19 respondents (N) with a limit of 0.05. It can be seen that all Pearson correlations values for each item are above 0.4329. This is marked with an * or ** in the Total column in the output table. So that the 8 items of this questionnaire are valid

In the second factor, the validity of each item is indicated by the number of columns. Based on the r table, the minimum Pearson Correlation value is 0.4329 because it uses 19 respondents (N) with a limit of 0.05. It can be seen that all Pearson correlation values for each item are above 0.4329. These are marked with * or ** in the Total column in the outputs table. So that the 9 items of this questionnaire are valid

The fifth phase is the evaluation phase. In this phase, the evaluation results are managed and conclusions are drawn. It can be concluded from the survey results of media experts, material experts, and students that gamification-based learning media on the theme of Hijayyah letters has been declared feasible.

CONCLUSION

Based on the results of research and development conducted, the researcher concluded that game-based learning media was developed using Construct 2 with the ADDIE development model of analysis, design, development, implementation, and evaluation. Starting with a needs analysis that becomes a standard for media production, media design to storyboard production. The media was then created and evaluated by media experts and material experts to test the feasibility of the media. The next step is media improvement based on media expert evaluation and materials to collect information and media feasibility reports.

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