DEVELOPMENT OF *YOUTUBE BASED E-LEARNING INTEGRATED GOOGLE CLASSROOM* IN ISLAMIC LECTURES

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Abstract

Conventional Islamic religious lectures face challenges in interactivity and predominantly employ lecture-based teaching methods, reducing student engagement. Therefore, an integrated E-Learning approach is needed to enhance critical thinking, creativity, and collaboration skills among students in Islamic religious education at the university level. This research applies the Analysis, Design, Development, Implementation, and Evaluation (ADDIE) model in developing Project-Based Integrated YouTube Learning Media for the Islamic Religious Studies course at Borneo Tarakan University. The ADDIE model is adapted to specify the media development and implementation steps, focusing on project-based interactivity and teaching methods. Construct testing involves the researcher as the lecturer, and content testing involves 26 students as users. Qualitative data in this research are analyzed using iterative steps of reading/recalling, describing, and classifying, while quantitative data are analyzed using descriptive statistics. The research results show that Google Classroom integrated with YouTube has been developed and tested for Islamic Studies. Construct testing indicates that this learning media is "feasible" based on assessments by the Teaching Team Coordinator and instructional media experts. User responses indicate that its construct reliability is "good." The research findings demonstrate that using Project-Based Integrated YouTube Learning Media significantly improves student learning outcomes in the context of the Islamic Religious Studies course at Borneo Tarakan University. This confirms that the integration of E-Learning with the ADDIE model contributes to the enhancement of teaching quality.

Keywords: *learning media; YouTube; ADDIE; Islamic Religion.*

Introduction

Psychomotor skills have been used to improve students' understanding and ability to improve students' skills(Maulani, Rahardja and Adila, 2016). Several methods have been carried out, including various application-based media and simplified field

approaches. However, many aspects of lectures still require adjustments. The essence of Islamic education is to develop a deeper understanding of Islam, hone critical thinking skills in interpreting the Quran and Hadith, and encourage its application in everyday life(Umam, 2020). In addition, Islamic education in universities also aims to equip students with an understanding of the history and development of Islam, ethics, and morality, and practical skills in Islamic worship and rituals.

Students need help in achieving the expected competencies in Islamic lectures. One of the challenges they may face is the complexity of Islamic material that includes theological, Islamic law, historical, philosophical, and ethical aspects. This broad and in-depth material requires a deep understanding and critical thinking skills to interpret and apply the concepts taught(Nafi *et al.*, 2023). In addition, students may also need help overcoming differences in views and interpretations that exist in the study of Islam. These differences can lead to conflicts of understanding and require additional effort to achieve a comprehensive understanding(Hidayatullah, 2019). In addition, Islamic religious studies also involve spiritual aspects and diverse values.

The number of units of competence in Islamic lectures, theoretical learning in the classroom, and individual understanding through books, modules, e-modules, and animations proved to be insufficient. Some researchers argue that to master complex competencies, a comprehensive understanding is required(Z. Arifin, M. Nurtanto, A. Priatna, N. Kholifah, 2020). Therefore, weaknesses in such understanding can be overcome, and practical application of practices can be achieved using YouTube Based E-Learning integrated Google Classroom(Syakur and Sabat, 2020). Islamic religious material that covers theological aspects, Islamic law, history, philosophy, and ethics has its complexity(Sari and Pratama, 2023). Deep understanding requires a more than conventional learning approach. In this context, practical and relevant learning media are needed to conditions in the field and facilitate access. Concept E-Learning Based YouTube integrated Google Classroom developed by the researchers combines existing learning elements. It has an innovative and interactive nature, as evident in actual practice realized through interactive videos and accessed through online media"YouTube."

The conflict of understanding arising from differences in views and interpretations in the study of Islam is a real challenge. Approach E-Learning The

proposed should include concrete strategies to help students navigate the diversity of interpretations. E-Learning Form Google Classroom integrated with YouTube, opening doors to give students practical experience. This approach provides an opportunity to bridge theory with practice, deepening students' understanding. This is supported by previous research stating that learning through Smartphones or Laptops provides greater flexibility for all users without any restrictions(Papadakis *et al.*, 2018).

The hope is to provide new insights related to YouTube's effectiveness and usage implications in the context of Islamic education. This research can bridge the knowledge gap that existed in the previous literature. This contribution has the potential to open up new directions in the development of teaching and learning methods in this field. This research gap suggests further exploring the potential benefits, challenges, and effectiveness of using YouTube in Islamic religious lectures(Yudihastira and Mutia, 2020). Lack of prior research on integrated Classroom Learning YouTube Islamic religious lectures also hinders understanding its effects(Fitri, 2023) on student engagement, critical thinking skills, and knowledge acquisition. Testing the effectiveness of e-learning using integrated classroom YouTube is expected to fill the knowledge gap and provide insight into the effectiveness and implications of this innovative approach in Islamic religious education.

"The application of Project-Based Learning Media Integrated with YouTube in Islamic Studies course at Tarakan University Borneo, developed through the ADDIE model, significantly improves student learning outcomes in terms of engagement, critical thinking skills, creativity, and collaboration skills, compared to conventional teaching methods based on lectures." This hypothesis is assumed based on research findings that this learning media has been tested and is "feasible" and "good" according to the assessment of the Teaching Team Coordinator and instructional media experts. Taking into account the complexity of Islamic religious material and the challenges students face in understanding it, it is estimated that the E-Learning approach integrated with ADDIE is able to overcome these difficulties and positively affect student understanding, engagement, and learning outcomes. This hypothesis can be tested through comparative analysis between groups that apply new methods with groups that continue to use conventional teaching methods.

Literature Review

Project-Based Learning

Project-based learning model is a method that focus on meaningful questions and problems, problem-solving skills, decision making, and finding various sources of information. This model also provides opportunities to work collaboratively and concludes with a presentation of a real product. The basic principle is to emphasize the core concepts and principles of a discipline, facilitating students to conduct investigations, solve problems, and other meaningful tasks. This approach is student-centered and produces tangible products as evidence of successful learning. According to Thomas(Nugroho, 2021), project-based learning gives lecturers and teachers the opportunity to involve work projects in the classroom. The application of project-based learning (PBL) is one form of active learning, which basically creates a connection between technology and student's everyday life problems or school environment related projects. Syakur states that the project-based learning model has great potential to create interesting and beneficial learning, also encouraged to be more active in the learning process(Syakur and Sabat, 2020).

The crucial criteria that guide the student learning process in Problem Based Learning are as follows; First, focusing on meaningful questions, problems, and encouraging students to implement critical thinking. Furthermore, the development of problem-solving skills becomes an important aspect, where students are face with challenges. The decision-making process also ensuring that students to consider consequences and alternatives before making decisions. Varied sources of information are accessed by students, enriching their understanding of a particular topic. Collaboration among learners is emphasized, allowing the exchange of ideas and active involvement in projects. The basic principle of this model is to highlight the core concepts and principles of the discipline, encouraging students to conduct investigations and solve problems. This model can be considered a form of active learning that creates a close connection with the reality around them. The application of project-based learning models, encourages them to become more active and committed in the learning process.

E-Learning

E-learning comes from a combination of two words, namely “e” which stands for “electronic” and “learning”. Horton interprets e-learning as any form of use of information and computer technology to create learning experiences(Horton, 2011). In general, e-learning is a learning method that utilizes electronic media, especially computer devices. E-learning is often referred to by various terms such as online learning, virtual learning, distributed learning, or web-based learning, and they all refer to the same concept(Manuela, Bacao and Oliveira, 2016). In its implementation, e-learning uses computer technology, including intranet and internet. The learning paradigm has undergone a significant change, switching from teacher-centered learning to student-centered learning with e-learning. Students are no longer completely dependent on teachers as the sole source of knowledge, as e-learning allows them access to accurate and up-to-date information without being constrained by the constraints of space and time. E-learning allows students to learn from various locations and at various times, provided there is an adequate internet connection.

The key elements in E-learning involve various elements(Intan and Leonard, 2015). First, learners become a key component that must meet their needs, especially since instruction is delivered remotely, separating those with diverse backgrounds. Secondly, faculty play an important role in the success of E-learning. Instructors must understand the characteristics of learners without direct contact, apply teaching methods according to learning expectations, develop delivery technology, and focused on their role as teachers and facilitators. Furthermore, the facilitator has to understand the learner's needs and instructor's expectations, and willing to follow the teacher's direction. Facilitators provide equipment, collect assignments, proctoring exams, and act as instructor extensions. Support staff are an important element to ensure the details of the E-learning program run smoothly, such as learning registration, material distribution, ordering textbooks, scheduling facilities, and processing grades. Lastly, administrators serve as decision makers, deal-makers, and mediators, ensuring effective technological resources usage to achieve the institution's academic mission.

Research Methods

This research uses research and development methods (*Research and Development / R&D*). The R&D method was chosen because it allows researchers to design, develop, and test innovative products that fit specific needs and learning objectives. The resulting product will be field-tested and revised to reach the expected level of effectiveness. The author developed and tested the Learning Media product *Google Classroom* Integrated *YouTube* for Islamic Religious Lectures in this study. The procedure applied in this study follows the model *ADDIE*, which consists of five stages: Analysis, Design, Development, Implementation, and Evaluation(Cahyadi, 2019). Google Classroom and YouTube were chosen as the leading platforms for learning media because the combination provides unique advantages, including broad accessibility, multimedia formats, and interactive features. As a popular video platform, YouTube provides visual resources, while Google Classroom facilitates the organization and interaction of classes online. Using both is expected to create a better learning experience for students.

The Analysis phase includes needs, target audience, and task and topic analysis. The Design Phase includes the design of objectives, material sequences, instructional, delivery, and evaluation strategies, as well as the product's initial design. The Development phase includes content development, learning tools, first-stage product testing, and product revision. The Implementation phase includes implementation and distribution, student activity management, second-stage product testing, second-stage product revision, and third-stage product testing. The Evaluation Phase includes the evaluation of reliability in terms of construct and content.

The data collection techniques and procedures in this study involved a series of careful and structured steps. Researchers conduct construct testing, including to assess the suitability of learning objectives, material sequence, instructional, delivery, and evaluation strategies; then assess the suitability of the results of needs analysis, target audiences, and tasks and topics; then assess the suitability of content, storyboards, and learning tools, including elements of interoperability, compatibility, performance, navigation, structure, security, and usability of media that Developed. The subjects of research in construct testing and E-Learning media content were 26 students majoring in Management as users. Using students as research subjects provides a direct perspective

of the target audience so that the results of construct and content testing can reflect the product's reliability in terms of construct and content.

The stages of testing are carried out as follows(Mustikasari, 2019): (1) the first stage of product testing, namely testing in terms of constructs; (2) the first phase of product revision; (3) the second stage of product testing, to determine construct reliability based on student responses as product users; (4) second phase product revision; (5) third stage of product testing, to determine the reliability of the content based on tests successfully passed by students as product users; (6) evaluation of product reliability in terms of content and construct; (7) Product Repair.

Data collection instruments used in this study included personalized, structured formal interviews, user experience questionnaires (*user experience questionnaire (UEQ)),* and *posttests*. Formal structured interviews are conducted as construct tests to obtain qualitative data on product reliability in terms of construct and recommendations for improvement or development. The User Experience Questionnaire is used to obtain quantitative data on product reliability in terms of constructs based on student responses as product users(Sari and Ma'rifah, 2020). A posttest was used to obtain quantitative data on product reliability in terms of content based on tests successfully passed by students as product users.

Qualitative data from Structured Formal Interviews are analyzed through literative reading/memos, descriptions, and classifications. Quantitative data from the User Experience Questionnaire was analyzed using Data Analysis Tools UEQ developed by Laugwitz, Held, & Schrepp (Putra *et al.*, 2021) and quantitative data from Posttest was analyzed using SPSS 16.0 for data processing. Such processing includes descriptive statistics, normality tests, homogeneity tests, and t-independent tests (two-sample t-tests) to compare the average of one variable between two groups. All these stages form a holistic approach to ensure the reliability and effectiveness of the learning products developed.

Results and Discussion

Analysis

The analysis carried out at the beginning of development was carried out through direct observation methods. This process is described in the following steps: (1) selecting the location of the research object (specific schools and classrooms) to be

observed, (2) gaining a general understanding of the research object and making preliminary notes, (3) identifying who, what, when, and for how long it will be observed, (4) making repeated observations over time to get the best understanding of the research location and its individuals, (5) Create descriptive and reflective field notes. The findings and discussion of this analysis stage are explained in the needs analysis, target audience analysis, and task and topic analysis sections on the discussion.

Needs Analysis

The problem faced by students is the difficulty in obtaining correct/valid learning materials (in accordance with the Semester Learning Plan (RPS)) from the internet. Based on observations, students simply enter search keywords on Google, choose the first result, copy and copy it, almost without reading what they choose and without considering the validity of the information obtained. This reinforces the researchers' initial argument about the importance of successful research, where the need for effective learning requires a true and valid source of information. The results of this study provide a solid foundation for developing online learning media that can help students access accurate and structured learning materials.

Target Audience Analysis

Analysis of the target audience is the next important step. Course design and delivery will be influenced by key characteristics of the learners (e.g. prior knowledge and skills, geographical origin, learning context, and access to technology). The author obtained this based on observations, knowledge, and skills that have been obtained by students before entering Islamic, scientific, and technological materials, consisting of the application of knowledge and understanding in an emphasis on innovation in Islam, the use of technology for human benefit, ethics in the use of technology in Islam, and fatwas related to technology issues. Computer skills and student competencies before starting Islamic lectures on Islamic Religious Education Materials are discussed at the previous level in school, where students have taken Islamic subjects since elementary school.

The location where students will participate in this course is in the classroom and guided by lecturers, and outside the classroom on independent learning. Students can access the internet in lectures in class using a smartphone or laptop by utilizing a Wi-Fi connection or personal internet data. While in independent learning outside the

classroom, students can also use smartphones or laptops by utilizing a Wi-Fi connection if students are in the campus Wi-Fi zone. From these findings, it can be concluded that students, as the target audience, have sufficient potential as potential users of *YouTube-based* E-Learning *media* to be developed.

Task and Topic Analysis

Based on the semester learning plan (RPS), the main task of students in the Islamic Religion Course is to apply an understanding of Islam, science, and technology and provide basic knowledge about Islamic views on technological developments, and fiqh which discusses its implementation in everyday life. Basically, this material consists of the application of knowledge and understanding in an emphasis on innovation in Islam, the use of technology for human benefit, ethics in the use of technology in Islam, and fatwas related to technology issues.

In the design phase, these tasks and topics as a result of the findings in this step will be considered in the design stage. These findings will be used to determine the content for real-life oriented lecture flows aimed at developing or strengthening students' critical thinking skills, as well as adding insight or achieving educational goals.

Design

Learning Objectives

The overall interpretation of the learning outcome objectives of the specific learning objectives is carried out by reviewing the tasks and elements identified in the analysis of previous tasks and topics. The objectives of the targeted learning outcomes in the Islamic Religion Course are the achievement of basic knowledge (cognitive) to the level of "applying", and the achievement of basic skills (psychomotor) to the level of "manipulating".

Sequence Determination

The outcome of the learning structure, where each element corresponds to the objectives of the learning outcome and contributes to the achievement of the overall learning objectives. The learning sequence diagram of the Islamic Religion Course is shown in Figure 1.

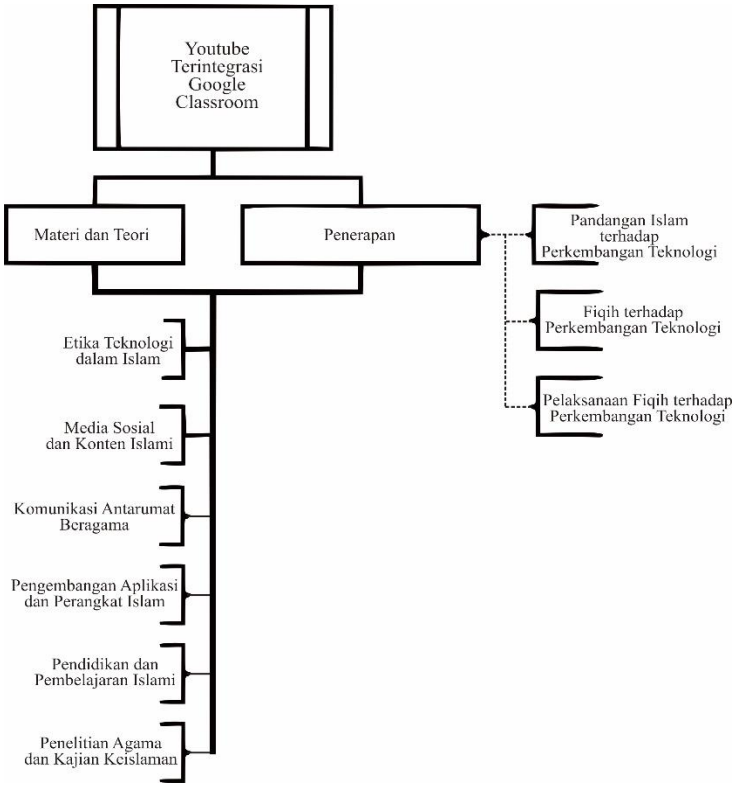

Figure 1. Learning Sequence Diagram

Instructional Strategies, Implementation, and Evaluation

The design of learning strategies in *this E-Learning* media uses expository methods, which include presentations and demonstrations. The delivery of learning materials in the form of presentations and demonstrations in *E-Learning* media is carried out through video content on *YouTube* that has been selected in accordance with Islam, science, and technology materials. Lecture assessment is carried out by assessing the results of video studies presented by students in class, then followed by a question and answer session related to the video presented.

Initial Product Design

The main pages of *YouTube and* Google Classroom *Integration-Based E-Learning* Media are the *Stream* page, *Students* page, and *About* page . Figure 2 shows the design structure of this learning media. Content Development Content Development in *Google Classroom-Based* E-Learning *Media* YouTube Integrated and containing information and knowledge is developed in two ways: (i) Content is produced and uploaded, and (ii) existing content or learning materials are reused (uploaded)

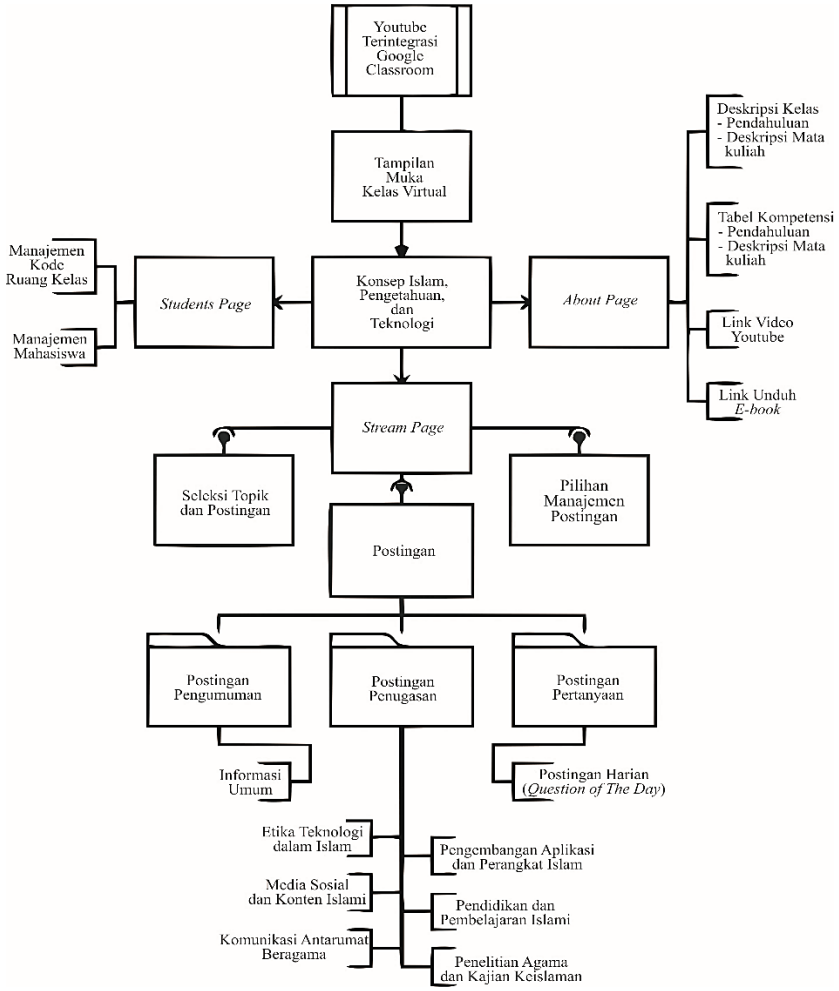

Figure 2. *E-Learning Media Structure Design*

Storyboard Development

The storyboard describes all components of the interactive product YouTube *Integration-Based E-Learning* Media for Islamic Religious Education Courses, including text, images, interactions, and assessments. In *this* E-Learning learning media, *the developed storyboard* consists of: web structure, references, courses, competencies, authors, screens, posts, topics, screen types, screen titles & screen subtitles, main text, media descriptions, and notes for program creators.

Lecture Material Development

Elements that build the integration of E-Learning media *such as text, images, audio, and video are assembled in lecture materials, this process is carried out by utilizing author tools or* authorware *that have been made specifically to develop* E-Learning *without the need for in-depth programming.* YouTube *serves as the main source* in this developed E-Learning *medium, a number of learning materials are*

presented in video material links in Google Classroom, and elements of learning video content on *YouTube* are integrated into Google Classroom.

The arrangement implemented in *YouTube* and *Google Classroom* Integration-Based *E-Learning* Learning Media is timeline-based, where online learning is implemented in steps from one learning post to the next learning post on the Stream page. Learning starts from accessing assignment posts containing YouTube presentations and demonstration videos *as* well as summary assignment instructions with video references in the assignment posting package, then access continues to posting Daily Questions (*QOTD*) with the same learning topics as the previous assignment.

Product Early Stage Testing

A structured formal interview was conducted that included important points in the interview to the coordinator of the Islamic Religious MKWU, Islamic Religious MKWU Lecturer Teammates, and Learning Media Experts to obtain qualitative data on product suitability and product improvement recommendations.

Table 1. Interview Checklist for Islamic MKWU Coordinator

	None	Enough There Is	Exist
Learning Objects			√
Order			√
Instructional Strategies			√
Delivery Strategy		√	
Evaluation Strategy			√

According to the results of the interview which is also listed in Table 1, the chief coordinator of the Islamic Religion MKWU assessed that the learning objectives in the Islamic Religion course were possible and appropriate to complement learning needs in the application of the Independent Curriculum. The distribution of lecture materials and the order of material in achieving learning objectives, according to the Chief coordinator of MKWU Islamic Religion, has also increased because it is in accordance with the core material on basic competencies. This is in accordance with the explanation of Sumawati et al. (Sukmawati *et al.*, 2022) which states that quality *E-Learning* could be better if the content *E-Learning* decoupled for easy receptivity of new knowledge and allows flexible scheduling. The chief coordinator of the Islamic Religious MKWU also considered that the method of exposure in the media *E-Learning* Involving

presentations and demonstrations using video is already possible. This is in line with research stating that watching(Nugroho, 2021).

Table 2. Interview Checklist for Lecturer Teammates

	None	Enough There Is	Exist
Needs Analysis			√
Target Audience Analysis			√
Task and Topic Analysis			√

Based on the results of the interview, which are also mentioned in Table 2, practitioners judged that the media *E-Learning* which is developed allows and is useful in the implementation of an independent curriculum, where instructions are given by lecturers to students to learn with learning material sources from the internet in guided and independent learning. He also considers that the series of lessons developed in the media *E-Learning* This is already possible because it is in accordance with the core material in the basic competencies of knowledge and skills of Islamic Religion courses. According to Sukmawati(Sukmawati *et al.*, 2022) quality *E-Learning* can be better made by considering learning that is relevant and specific to students' needs and roles, including skills, knowledge and information.

Table 3. Interview Checklist for Learning Media Experts

	None	Enough There Is	Exist
Developing Material Content		√	
Storyboard		√	
Learning Tools		√	
Interoperability		√	
Compatibility		√	
Performance		√	
Availability		√	
Structure			√
Security		√	
Uses		√	

Based on the results of the interview, which is also mentioned in Table 3, learning media experts assess that the content in the *developed E-Learning* media is possible. He recommends organizing content to separate from one subject to another with different web navigation pages , and this element has been revised as shown in the explanation of the first stage of the product revision. *The storyboard* that is arranged is quite possible in describing all components of interactive *E-Learning* media.

The learning structure is also considered possible, and other aspects of the courseware, such as ease of use, compatibility, navigation, security, and usability, are considered quite possible by the author. However, he recommends enriching the learning of this model and considering alternative connectivity if online access cannot be arranged. As according to Sukmawati(Sukmawati *et al.*, 2022) which explains that "Solutions for low-cost Internet connectivity can be considered, such as LAN-based LMS, players *offline*, and technology *Mobile Learning*".

Product First Stage Revision

At the revision stage of this product (*E-Learning learning media*), several virtual classroom pages that regulate each Islamic Religious Education Course. In addition, alternative offline video connectivity was previously produced, organized in folders, and then distributed to college students in the form of digital copies. The first phase of product revision showed a positive response to recommendations and input from stakeholders. Resetting virtual classrooms and providing alternative offline video connectivity are actions that are responsive to such input. It reflects an open attitude towards continuous improvement and improvement in the development of learning media.

Implementation

Installation and Distribution

YouTube and Google Classroom have been installed on Google's servers. Design and development has been carried out at the Design and Development Stage early in the process. Access distribution is done by distributing *Google Classroom* virtual classroom codes to students. This class code is used as a password for students to be able to enter the virtual classroom of the Islamic Religious Education Course.

Student Activity Management

YouTube E-Learning learning media integrated *with Google Classroom* for Islamic Religious Education courses is a media that can be accessed by students outside the classroom (at home or computer lab) independently after directed learning in class with lecturers, and continued with in-depth discussions at the next meeting. In this study, implementation planning with study time divided in each meeting for two semesters could not be fully realized due to limited research time. Therefore, *Google Classroom's* integrated YouTube E-Learning Lecture Media is only accessed by

students at the end of the overall focused lecture in class in addition to directed lecture reviews for students, and in addition to before the evaluation of the *Project* in class at the next meeting.

Second Phase Product Testing

Figure 3 shows that responses from students expressed through user experience questionnaires (KPP) on 26 assessment aspects in the use of *YouTube-based* E-Learning Learning Media integrated *with Google Classroom* generally resulted in positive scores. Attractiveness (points 1, 12, 14, 16, 24, and 25), Readability (points 2, 4, 13, and 21), Efficiency (points 9, 20, 22, and 23), Reliability (points 8, 11, 17, and 19), Stimulation (points 5, 6, 7, and 18), and Novelty (points 3, 10, 15, and 26) have positive values with details of 26 items of positive values, 0 items of neutral values, and 0 negative value items.

Schrepp (Schrepp and Hinderks, Andreas, Thomaschewski, 2019) states that the standard interpretation of the mean scale is that values between 0.8 to 0.8 represent a neutral evaluation of the corresponding scale, a value of >0.8 represents a positive evaluation, and a value of < 0.8 represents a negative evaluation value. The second stage of product testing showed that the average value on the Traction, Readability, Efficiency, Reliability, Stimulation, and Novelty scales was >0.8, a positive interpretation of this assessment indicates that the reliability of the Lecture Media *E-Learning* Based *YouTube* In terms of construction aspects is "good" significantly.

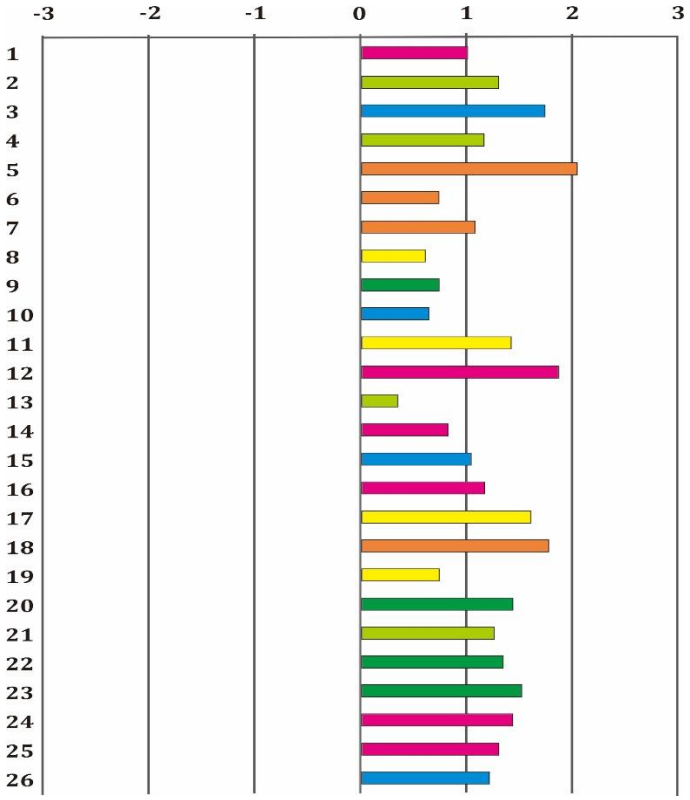

Figure 3. Average Value per Item

Schrepp (Schrepp and Hinderks, Andreas, Thomaschewski, 2019) Also explained that the result is considered "good" (reliable) if the confidence value is <0.5. The results of the second stage of product testing show that the confidence value of the entire scale is <0.5, so it can be concluded that the user ratings on the entire scale can be "trusted". Schrepp (2015, p. 9) recommends that the Alpha value of the scale should be > 0.7 in order to be said that users rate the scale "consistently". The results of the second phase of product testing showed that the Tensileness, Readability, Reliability, Stimulation and Novelty Scales had an Alpha value of > 0.7, so it can be concluded that users rated the scale as "relatively consistent". On the other hand, the Efficiency scale has an Alpha value of 0.69, therefore it can be said that users rate this scale relatively "less consistently". However, in general, user ratings on the entire scale are done "consistently," "not randomly," or "thoroughly."

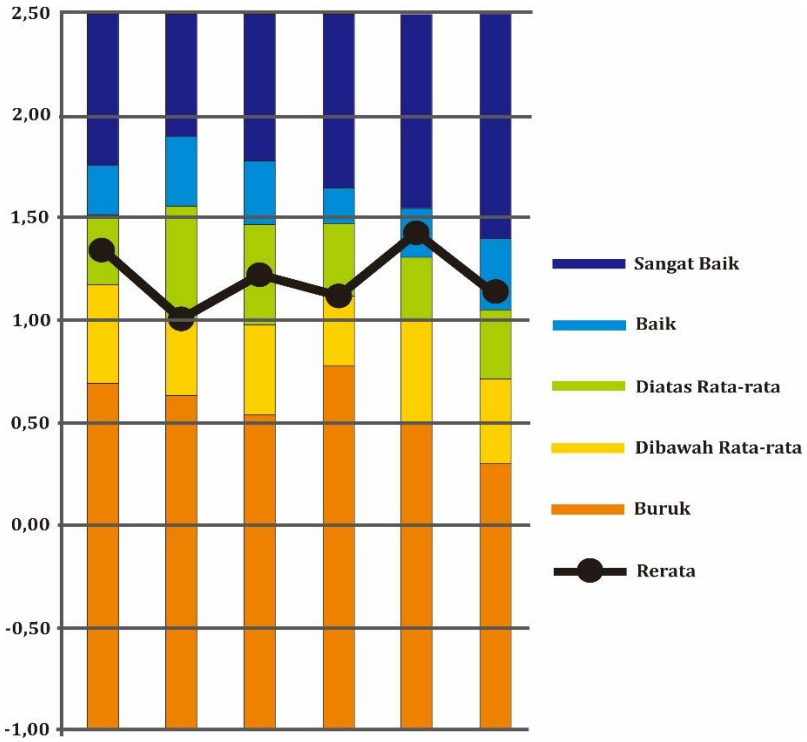

Figure 4. Reference Chart

Figure 4 shows a comparison of Lecture Media *E-Learning* Based *YouTube* and *Google Classroom* other products in the data used as references (Schrepp, 2015, p. 5). The Attractiveness scale results are "above average," the Readability scale is "below average," the Efficiency scale is "above average," the Reliability scale is "below average," while the Stimulation and Novelty scale is "good." The results of the second stage of product testing show that the reliability of the Lecture Media *E-Learning* integrated *YouTube* In terms of construction in general it is "good". This is in line with Sukmawati's explanation(Sukmawati *et al.*, 2022) which states that "Learning media is a tool used by organizations and institutions to deliver and manage their learning process. Learning media gives students access to information, tools, and resources to support the delivery and management of education".

Second Phase Product Revision

Based on the results of the second stage of the test using the User Experience Questionnaire (KPP), the overall impression of users on the product is "good" as previously described in the second phase of product testing. The second stage of product testing gave positive results on aspects such as traction, readability, efficiency, reliability, stimulation and novelty. This result can be considered as a sign that the implementation of E-Learning learning media has received a positive response from

users, namely students. The interpretation of the value scale also supports the conclusion that users give positive assessments of various aspects of learning media construction.

Third Stage Product Testing

The normality test *of posttest data* in the third stage of product testing showed that the posttest results of both groups had a normal distribution. The significance score for the group of students who used *Google Classroom*'s integrated *YouTube-Based* E-Learning *Lecture Media (YTGC) was* 0.495, while the group of students who used the internet website without control (non-YTGC) was 0.531. This data homogeneity test shows that the results of posttest data have the same variance (homogeneous) with a posttest significance value of 0.068. The mean of the YTGC group was 8.25 and the Non-YTGC group was 6.63. Normally distributed and homogeneous data, independent t-test showed that Sig. (2-tailed) was 0.024. This means there is a significant difference between the average posttest results of the YTGC and Non-YTGC groups.

The third stage of testing with an independent t-test showed that the group of students who used Google Classroom's integrated YouTube-Based E-Learning Lecture Media (YTGC) had a significantly higher average posttest result than the non-YTGC group. This can be interpreted as an indication that this learning media has a positive impact on the achievement of student learning outcomes.

Evaluation

Reliability of Construction Aspects

Expert assessments and user responses to the *E-Learning* lecture media implemented are carried out to determine its reliability in terms of construction aspects. This was measured using a Structured Formal Interview in the first phase of product testing given to experts, and a User Experience Questionnaire (KPP) in the second stage of product testing given to students. Based on the first stage of product testing, experts consider that YouTube-Based *E-Learning Lecture Media* and *Google Classroom* as a whole in terms of construction aspects are considered "possible" for the lecture process. The recommendations of the lecturer teammates as evaluators of learning media are: (1) organizing content separately from one subject to another with different web navigation pages, and (2) considering alternative access connectivity. These recommendations have

been implemented in the first phase of the product revision to improve the "reasonably feasible" elements of the assessment.

Based on the second stage of product testing, the Traction, Readability, Efficiency, Reliability, Stimulation and Novelty scales have positive ratings with reliable and consistent results. The satisfaction score is the highest, indicating that students consider learning using *YouTube-Based E-Learning Lecture Media and Google Classroom* relatively "fun". It can be concluded, based on the results of construction testing in the second phase of product testing, that the reliability of *YouTube* and *Google Classroom-Based* E-Learning *Lecture Media* in terms of construction aspects is "good" significantly.

Reliability of Content Aspects

In the third stage of product testing, tests were carried out for YTGC and Non-YTGC student groups to determine the reliability of YouTube and Google Classroom-Based E-Learning Lecture Media in terms of content. Measurements are carried out using *posttest-only* instruments provided to users to measure the achievement of lecture objectives. Based on the third stage of product testing, the YTGC group had significantly better learning outcomes based on the syllabus compared to the Non-YTGC group. The mean of the YTGC group was 8.25, while the average of the Non-YTGC group was 6.6364. With 18 posttest question items with a minimum score of 13.5 (75/100), the posttest results of both groups of students are still below the minimum passing score. However, it is clear that students who use *YouTube-Based* E-Learning *Lecture Media* and *Google Classroom* have significantly better learning outcomes compared to students who use the internet to access websites without control.

Product Improvements

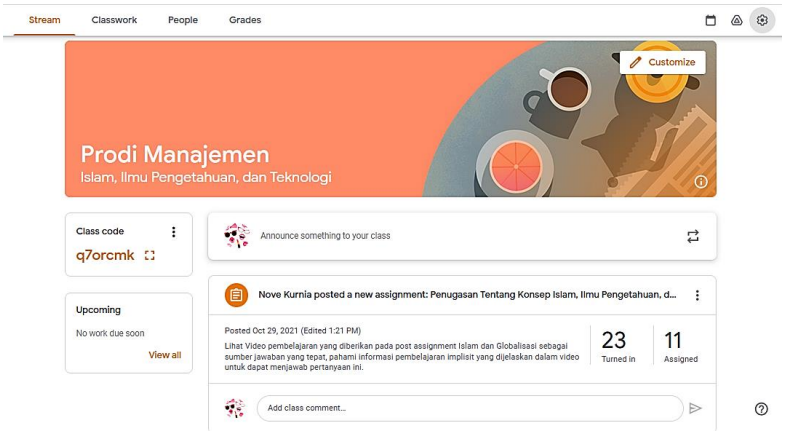

Figure 5. View from Stream *Page*

End Products

Improvements to *YouTube-based* E-Learning Learning Media integrated with *Google Classroom* have been carried out in the first stage of product revision, second stage product revision, and product improvement process. No content or construction has undergone significant changes to the move from a G-Suite for Education account to a personal Google account, except for the interface language (from English to Indonesian) and a customized background image on the main page of the virtual classroom. Figure 5 shows the final preview of the *YouTube-based* E-Learning *Media* on the Stream page.

Conclusions and Recommendations

This study and development has implemented the stages of Analysis, Design, Development, Implementation, and Evaluation (*ADDIE).* The result of the educational product from this research is *YouTube-based* E-Learning Learning *Media* integrated with *Google Classroom* which includes Islamic, Science, and Technology Materials. This material covers the application of knowledge and understanding in the emphasis on innovation in Islam, the use of technology for human benefit, ethics in the use of technology in Islam, and fatwas related to technology issues.

The results of the content test showed that students who used Google Classroom*'s integrated* YouTube-based E-Learning Learning Media had significantly better learning outcomes than students who used the internet to access websites without restrictions. Students using highly accessible internet sites (e.g., Non-YTGC) may be able to produce answers quickly, but the reliability of those results cannot be guaranteed. This does not mean that all of these sites provide unreliable information, but they need to be checked carefully. The competence of information sources, the experience of the authors, and their academic qualifications should be carefully considered. In addition, the Non-YTGC student group must be disciplined in distancing themselves from untrustworthy websites and entertainment in order to achieve the best results in their tasks. Less accessible sites have a major drawback: they are difficult to access, because carefully checking information takes longer, this situation makes it difficult for students who use the internet without control to work on assignments in a limited time (for example, tests in this study).

The negative impact of affordability in online learning has been reduced by using this *YouTube-based* E-Learning Learning Media. Lecture material is published by lecturers for students on the Stream page as learning material that can be followed in a directed or independent manner. The Stream page contains announcements, assignments, and questions published by professors. Students can view information, announcements, work to do, or questions to answer on the Stream page, Student Work page, or on Google's virtual calendar. Lecturers then evaluate student work, provide assessments, and provide comments or feedback to students. The use of *YouTube-based* E-Learning *Learning Media* integrated *with Google Classroom* as a trustworthy internet resource has an important role in academic study. This study presents implications that can help improve the effectiveness and sustainability of YouTube-based E-Learning Learning Media integrated with Google Classroom. First, it is necessary to conduct more intensive socialization to lecturers about the benefits of using this platform in accordance with Islamic ethics. Special training is needed to ensure lecturers can maximize the features in Google Classroom.

In the context of using Learning Media, lecturers need to be empowered to design more creative and interesting materials in order to improve the quality of learning. Such as development of modules or guidelines to increase creativity. It is also necessary to increase collaboration between lecturers to exchange experiences and strategies in utilizing the platform. Institutions also need to provide access for all students through personal Google accounts. This can be accompanied by training for students to maximize the potential of this Learning Media. As an additional step, educational institutions may consider infrastructure upgrades and technical support to optimize use of the platform.

First, further research can lead to a deeper understanding of the use of *E-Learning media*, particularly *YouTube* and *Google Classroom*, in the context of higher education. A deeper analysis of user experience, challenges faced, and perceived benefits can provide richer insights, allowing research to explore nuances and dynamics that might otherwise be missed in broader analysis. Second, research can focus on learning effectiveness studies by comparing the learning outcomes of students who use *E-Learning Learning* Media with groups that do not use. This approach can provide more detailed information about the impact of the use of *E-Learning* media on the

achievement of learning objectives, providing a solid empirical basis for policy decisions in education.

Advice for Higher Education: First, universities can prioritize human resource development by providing training to teaching staff regarding the effective use of *E-Learning* media. This training can include teaching strategies optimized for the online environment, online assessments, and utilization of specific features of the *E-Learning* platform. Second, it is important to ensure that the use of *E-Learning* media is well integrated in the curriculum. Lecturers also need to have clear guidelines on how to integrate content from *E-Learning* platforms into daily teaching. This will ensure consistency in teaching approaches and technology utilization.

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