

Development of Religious Moderation Application Based on Go Moderate Application in Improving the Moderate Attitude of Madrasah Aliyah Students

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Abstract

This research focuses on the development and evaluation of the "GO MODERATE" application, a digital learning tool designed to foster religious moderation among students in Madrasah Aliyah. Religious moderation, a balanced and tolerant approach to Islam, is essential for promoting social harmony and preventing radicalism in the context of Indonesia's national identity. The study aims to bridge the gap between traditional religious education and modern digital learning tools. Using the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation), this research employs a Research and Development (R&D) approach to create an interactive mobile application that integrates the principles of religious moderation. The research involved students from MAN 2 and MAN 3 Cianjur, who used the app for several weeks. Data was collected through interviews, questionnaires, and pre-test and post-test evaluations. The findings show that the "GO MODERATE" app significantly improved students' attitudes towards moderation, with validation from both educational and religious moderation experts confirming its feasibility and effectiveness. The study concludes that the app is a valuable tool for enhancing Islamic Religious Education (PAI) and character-building in the digital era, offering a model for integrating technology into moral education.

Keywords: Religious moderation, digital learning, Islamic Religious Education, mobile application, ADDIE model

INTRODUCTION

Madrasah Aliyah as an Islamic secondary education institution plays a strategic role in shaping the character of Indonesia's younger generation, particularly in embedding the values of religious moderation. Religious moderation is understood as an approach to *agama* that is balanced, tolerant, and steers clear of extremism. Within the framework of *kebangsaan* (national identity), these values are indispensable for fostering social harmony, maintaining unity, and reinforcing an inclusive and tolerant national identity (Akhmadi, 2019; Chotimah et al., 2022; Mulyana, 2023; Subchi et al., 2022; Syahnan & Ja'far, 2021). Nevertheless, amid rapid advancements in the digital era and the challenges posed by value globalization, the process of internalizing moderation values within the *madrasah* environment continues to encounter obstacles. These include limited availability of interactive learning media, reliance

on conventional pedagogical methods, and the suboptimal utilization of digital technology in learning activities.

The importance of this issue is highlighted not only due to the urgency of religious moderation in preventing *radikalisme*, but also in light of the emergence of the digital generation that demands innovative approaches to learning. Today's learners are a cohort deeply familiar with technology, tending to respond more effectively to interactive, flexible, and contextual digital media. Consequently, innovative technology-based learning is critically needed to more effectively and relevantly strengthen the process of internalizing moderation values. One notable innovation is the development of digital applications that serve as both learning media and instruments for assessing students' attitudes regarding moderation.

Two prior studies provide valuable insights into the instillation of religious moderation and digital integration within Islamic educational contexts, while also exposing significant gaps that the current research seeks to address. Maulandani and Wahyudi (2025) conducted a qualitative investigation into the implementation of religious moderation programs at *Madrasah Aliyah Negeri 2 Pamekasan*, revealing that well-structured moderation curricula can bolster student tolerance. However, their research focused solely on traditional classroom activities and did not exploit digital technologies for learning. In contrast, Khoirohnissah (2023) examined the digital transformation of *madrasah* management at *Kemenag Sleman*, concluding that platforms such as *EMIS* improved data processing, yet did not connect the use of technology with character formation or moderation education. This study seeks to bridge these gaps by incorporating interactive digital media—in the form of the “GO MODERATE” application—within the learning process of *Madrasah Aliyah*. Its novelty lies in the systematic development of the application via the ADDIE model, validation by subject matter experts, field implementation, and assessment of its influence on fostering moderate attitudes directly through digital approaches, thereby enriching both theoretical and practical discourses in contemporary Islamic education.

The objective of this study is to design and evaluate a digital-based learning model aimed at internalizing religious moderation values in *Madrasah Aliyah*, with a specific focus on the “GO MODERATE” application. The research not only results in an educational product in the form of an application, but also details a development process grounded in the systematic ADDIE model, validation by *ahli* (experts), direct implementation within *madrasah*, and an evaluation of its impact on students. The findings of this research are expected to make a substantive contribution to enhancing the quality of *Pendidikan Agama Islam* (PAI) learning in *madrasah*, fortifying the moderate character of students, and enriching the practices and literature of technology-based Islamic education in Indonesia. Thus, the discussion articulated in this article is timely and vital, advancing the transformation of learning in a more innovative manner and in alignment with efforts to strengthen national character through methodologies attuned to the needs of the digital era.

METHOD

This study used Research and Development (R&D) to develop a digital-based religious moderation learning application and to test its effectiveness and validity. The development model employed was ADDIE (Analysis, Design, Development, Implementation, and Evaluation), which provided systematic stages in designing and evaluating educational

products.

Data were collected through interviews, documentation studies, questionnaires, observations, and tests. Interviews and documentation supported the needs analysis; questionnaires and observations measured responses and the implementation of the application; and tests assessed changes in students' attitudes. The study subjects were students of MAN 2 and MAN 3 Cianjur, selected because they had implemented a religious moderation habituation program that had not been optimally supported by digital media.

RESULTS AND DISCUSSION

GO MODERATE Application Concept

An application is a software developed to perform certain functions through digital devices. According to Norton (2005), an application is a set of digital instructions designed to complete specific tasks on a computer or mobile device. Trentham (2014) added that applications are used by end users in completing work, including in the field of education.

Mobile apps are a type of application developed specifically for mobile devices such as mobile phones and tablets. There are three main types: native, web-based, and hybrid. This study focuses on hybrid apps because of their advantages that they can run across platforms (iOS and Android), are memory-saving, and easy to develop (Wijaya, 2022).

The Grand Theory in this study uses the theory of religious moderation According to Yusuf Al-Qardhawi (2001) which states that Islam is a religion of the middle way (*wasathiyyah*), avoiding exaggeration and neglect. The main principles raised are *tawasuth* (middle way), *tawazun* (balance), *i'tidal* (straight/firm), *tasamuh* (tolerance), and *shura* (deliberation). This teaching is in line with QS. Al-Baqarah [2]: 143 which affirms Muslims as "the middle people". Furthermore, the Middle theory in this study refers to the religious moderation policy implemented by the Ministry of Religion of the Republic of Indonesia (Directorate General of Pendis No. 7272 of 2019). Islamic education is expected to be an agent of change in strengthening tolerance, inclusivity, and anti-violence. However, obstacles are still found in the lack of educational media and standardized evaluation facilities that can be accessed by students digitally. And for Applied Theory, referring to the theory about the use of applications in learning, the use of mobile-based applications in education is not just a tool, but can function as the main medium in the delivery of materials, discussion activities, reflection, and evaluation of learning. Mayer (2005) in Multimedia Learning Theory emphasizes that structured digital media can effectively improve students' conceptual understanding and attitudes.

The GO MODERATE application is a digital-based learning media designed to internalize the values of religious moderation to madrasah students, especially at the Madrasah Aliyah level. This application integrates technological approaches with pedagogical principles to support Islamic Religious Education (PAI) learning that is more contextual, interactive, and relevant to the characteristics of the digital generation.

GO MODERATE was developed in the form of an Android-based mobile application so that it is easily accessible to students in various situations and times. This application not only presents learning materials on the principles of moderation (*tawassuth*, *tasamuh*, *tawazun*, and *i'tidal*), but also comes with features for evaluating students' attitudes and understanding, as well as interactive forums to build a collaborative learning experience.

The name GO MODERATE is an acronym and an invitation that contains a philosophical meaning: "GO" symbolizes the invitation to move, act, and transform representing the spirit of active and dynamic learning. "MODERATE" refers to the values of inclusive, tolerant, and civilized religion, as defined by the Ministry of Religion (2020) in the framework of Religious Moderation as a strategy to strengthen national character in socio-religious life. Conceptually, "GO MODERATE" means an invitation to actively develop and practice a moderate attitude in religious and social life, especially among the young generation of madrasas.

The theoretical foundation for the development of the GO MODERATE application is based on several educational theories and the following learning technology approaches:

Teori Konstruktivisme (Constructivism Learning Theory)

According to Jean Piaget and Lev Vygotsky, constructivism emphasizes that knowledge is actively constructed by learners through social experiences and interactions. In this context, the GO MODERATE application provides space for students to:

1. Construct the meaning of moderation values from real material and situations.
2. Discuss, reflect, and evaluate their understanding through quizzes, discussion forums, and self-evaluation features.

Educational Technology and Learning Media

Richard E. Clark (1994) states that technology can increase the effectiveness of learning if it is used appropriately to support instructional strategies. Technology does not automatically enhance learning, but it can be a catalyst when integrated with the right pedagogical approach. However, Clark also emphasized that interactive media, such as digital applications, can accelerate the delivery of information and expand access to learning, according to the needs of the times. In the context of GO MODERATE, technology is used to bridge the gap between abstract religious values and the context of the digital life of the younger generation.

Theory of Cognitivism and Multimedia Learning

According to Mayer (2001) in *the Cognitive Theory of Multimedia Learning*, learners learn more effectively when text, images, audio, and interactivity are harmoniously combined. The GO MODERATE app uses interactive multimedia such as educational videos, visual quizzes, and infographics to increase student understanding and engagement.

Policy Context: Religious Moderation as a National Mandate

Strengthening religious moderation is a national strategic program launched by the Ministry of Religion of the Republic of Indonesia. In the document "Religious Moderation" (Ministry of Religion of the Republic of Indonesia, 2020), it is explained that moderation education needs to be instilled through media that is in accordance with the times. The GO MODERATE application is here as an answer to this need, which is to integrate the value of moderation with a digital platform that is contextual and adaptive to technological developments.

Analysis of the Needs of Religious Moderation Applications Based on the GO

MODERATE Application

Value education, according to Thomas Lickona, should be explicit, structured, and involve the active participation of learners. Digital applications support this process interactively and continuously. Halstead and Taylor emphasize the importance of technology-based active learning strategies, such as videos, simulations, and contextual discussions. In line with Reigeluth, effective learning must be student-centered. The GO MODERATE app is designed to facilitate self-paced learning and actively build understanding. In the context of Islamic education, this application is a means of conveying the value of wasathiyah in an interesting and massive way for the younger generation.

This research uses Research and Development (R&D) methods to design applications based on real needs. Observations and interviews were conducted to analyze the performance of the system as well as students' interest and motivation towards religious moderation material.

The results of the analysis show that there is no digital application that interactively and comprehensively measures and instills the values of religious moderation. GO MODERATE is here to fill this gap, presenting materials, videos, attitude tests, and other supporting features. The app is designed to support active, fun, and flexible learning, in line with Vygotsky and Piaget's theories of digital constructivism.

GO MODERATE Religious Moderation Application Design

1. Application Design

a. Design of Digital-Based Religious Moderation Application (GO MODERATE)

The design stage is an important foundation in the educational application development process. In designing GO MODERATE, the instructional design approach is used with reference to the principles of Dick & Carey (2009), which emphasizes the importance of needs analysis, the formulation of learning objectives, and the design of structured teaching materials.

Application design is done by following flowcharts and storyboards to illustrate the flow of navigation and the appearance of the user interface. The main features of this application include:

Table 1. Features and Functions of Pages in the GO MODERATE App

No.	Page Name	Main Functions
1	Splash Screen	An initial view that displays the logo and name of the app.
2	Onboarding	Introduction to the application, its purpose, and the benefits of its use.
3	Login & Account Registration	User authentication (login and registration).
4	Home	The main menu navigates to the app's entire features.
5	Online Attendance	Monitoring and recording of student attendance.
6	Core Material of Religious Moderation	The main content presentation is based on the four pillars of religious moderation.
7	Moderation Discussion	A space for interaction, reflection, and discussion between users.
8	Materi Video Podcast	Strengthening understanding through audiovisual media (video/podcast).
9	Religious Moderation Test & Results	Evaluate moderate attitudes through tests and report

		results.
10	Qibla Directions, Prayer Schedules, & Nearby Houses of Worship	Religious features that support cross-faith needs.
11	Infraq or Online Alms	Character features shared through online donations.
12	Profile, About Apps, & Logout	User information, app description, and account exit button.

According to Clark & Mayer (2011), the use of appropriately designed interactive multimedia can increase the effectiveness of learning through *cognitive theory of multimedia learning*.

b. App Accessibility

The GO MODERATE app is accessed by three main components:

Table 2. The Role and Benefits of the GO MODERATE Application for Education Stakeholders

Component	Benefits/Experience	Theoretical Foundations
Student	Gain a contextual, interactive, and relevant religious moderation learning experience.	<i>Student-Centered Learning</i> (Piaget & Vygotsky)
Parents	Involved in strengthening children's character education through integrative features and activity monitoring.	<i>Ecological Theory of Child Development</i> (Bronfenbrenner)
Teacher	Using applications as a medium to help learning, reflection, and digital literacy based on moderate values.	<i>Digital Literacy & Reflective Pedagogy</i>

With a collaborative approach, this application becomes an integral part of the Pancasila-based value education ecosystem that is responsive to the needs of the 21st century.

Development of the GO MODERATE Religious Moderation Application

Development is carried out based on technology using *Flutter* and *Dart* for mobile applications and *Laravel* for *backend management*. This process follows the principles of the ADDIE model (Analyze, Design, Develop, Implement, Evaluate). The app is built following a prototype that has been designed at the *storyboard stage*. In the development process, aspects of *user experience* (UX) and *user interface* (UI) are very much considered to ensure the comfort and ease of use of the application by madrasah students. In line with the opinion of Reiser & Dempsey (2018), the development of technology-based learning media must integrate learners' needs, pedagogical principles, and relevant technological features.

Implementation of the GO MODERATE Religious Moderation Application

Implementation using the model of Kemmis & McTaggart (1988) through four stages: planning, implementation, observation, and reflection. This process is carried out in the Madrasah Aliyah environment to see the real effectiveness of the application in the context of learning.

Students use the app for several weeks, with intensive monitoring of learning activities, discussions, and evaluation results. According to the theory of experiential learning (Kolb, 1984), learning that involves hands-on experience (such as the use of interactive applications)

is more effective in shaping attitudes and values.

Table 3. Recapitulation of Observation Results of the Implementation of the GO MODERATE Application

Yes	Observed Aspects	Observation Score 1	Observation Score 2	Average Score
1	The internet connection is working well	4	3	3,5
2	The application is already installed on the device, either a cellphone or a laptop	3	3	3,0
3	Students are able to log in to the application	4	4	4,0
4	Religious moderation material can be read well	4	4	4,0
5	Test questions can open well	4	4	4,0
6	Values can be seen when the test is already running	4	4	4,0
Total Average Score		3,83	3,66	3,75

The results of the implementation observation show that *the GO MODERATE* application runs well in terms of technical and functionality. Some key points:

1. The stability of the internet connection varied slightly between sessions (scores of 4 and 3), but remained in the good to very good category.
2. The application installation process is generally running smoothly (score remains 3), but it can still be improved with initial technical assistance.
3. Key aspects such as app access, materials, test questions, and score performance always scored maximum (4.0) in both sessions, indicating that the app's key features are functioning very well and stably.
4. The overall average score of 3.75 is in the excellent category, indicating that the app is already very feasible to use in the context of digital learning based on religious moderation values.

Evaluation of the GO MODERATE Religious Moderation Application to Moderate Attitudes

The evaluation stage is the final stage in the development process of the GO MODERATE application, which aims to assess the effectiveness of the application in improving the moderate attitude of Madrasah Aliyah students, especially in MAN 2 and MAN 3 Cianjur Regency.

This evaluation refers to Robert Maribe Branch's view that evaluation is necessary to assess the quality of the product and the learning process, both before and after implementation. In this study, the evaluation carried out is formative, that is, the evaluation carried out during the development process for revision needs.

Evaluation is carried out through two approaches:

Qualitative: Collect input, criticism, and suggestions from experts as well as field trial results for gradual improvement of the application. Quantitative: Analyze pre-test and post-test data to measure the impact of application on improving students' moderate attitudes. In addition, the evaluation also includes external factors, such as the support of teachers, parents,

and schools, to better understand the context of acceptance and successful application implementation.

The results of the evaluation show that the application is feasible in terms of content, design, and ease of use (*user friendly*). This evaluation is not only the end of the development stage, but also the beginning of a continuous process to improve religious moderation education innovations in Indonesia. Collaboration between developers, educators, and stakeholders is the key to success towards a more moderate, inclusive, and technology-adaptive education.

GO MODERATE Religious Moderation Application Validation Test

Table 4. Results of GO MODERATE Application Validation by Two Expert Groups

Yes	Expert Group	Aspects Assessed	Average Score	Category
1	Educational/Application Technology Expert	Design, functionality, navigation, and display of the app interface	3,91	Excellent
2	Religious Moderation Expert	Content appropriateness, moderation values, and material relevance	3,66	Good

The validation of *the GO MODERATE* application is carried out to ensure quality both in terms of technical and material substance. The two groups of experts involved are:

1. Educational/Application Technology Experts, who focus on technical aspects such as visual design, navigation clarity, system reliability, and ease of use. The validation results obtained an average score of 3.91, which is included in the excellent category. This shows that the application is already feasible in terms of technology and user interface.
2. Religious Moderation Expert, who evaluates the feasibility of learning content, the values of religious moderation, and the suitability of the material with the principles of religious moderation version of the Ministry of Religion. The average score given is 3.66, classified as good, which means that the app's content has reflected moderation values fairly representative but can still be further improved.

This validation shows that the GO MODERATE application meets the quality, effectiveness, and technical criteria. Sugiyono (2017) emphasized the importance of validation to ensure that learning instruments or media meet content and technical standards before implementation.

The Impact of the GO MODERATE Religious Moderation Application on Moderate Attitudes

The impact of digital-based religious moderation applications on the moderate attitude of students in Aliyah madrasah is depicted based on *pretest and posttest* data can be seen in the following bar diagram.

Based on (N-Gain Statistics), the following results were obtained:

Table 5. Average value of N-Gain

N	Minimum	Maximum	Mean	Hours of deviation	N-Gain Criteria
302	-0,77	0,95	0,60	0,31	Keep

An average N-Gain value of 0.60 indicates that the improvement in the student's moderate attitude is in the "Moderate" category. This indicates that the use of the GO MODERATE application has a positive impact on the development of students' moderate attitudes, although it can still be further improved.

Paired t-Test Results

H₀: There is no significant difference between before and after using the app.

H₁: There is a significant difference between before and after using the app.

From the results of the paired t-test, the following values were obtained:

Sig. (2-tailed) = 0,000 < 0,05 → H₀ declined

This means that there is a significant impact of the use of applications on improving students' moderate attitudes.

These results reinforce that the digital approach based on the values of religious moderation in the GO MODERATE application is statistically and pedagogically effective, and is in line with behavioristic theory (Skinner) which states that positive reinforcement from learning experiences is able to gradually change students' attitudes and behaviors.

CONCLUSION

The study demonstrated that the digital-based religious moderation application, GO MODERATE, was systematically developed through a comprehensive needs analysis and designed in a digital mobile format with flowcharts and storyboards. The application received excellent validation from technology experts and positive validation from religious moderation specialists. Its implementation at MAN 2 and MAN 3 Cianjur was rated good to very good and significantly improved students' moderate attitudes. Formative evaluation confirmed the app's effectiveness, practicality, and relevance for contextual Islamic Religious Education (PAI), particularly for the digital generation. As a strategic innovation for strengthening moderate character education, GO MODERATE is recommended for wider adoption in madrasas. Future research may expand testing across different regions and educational levels to assess adaptability and explore the integration of artificial intelligence and data analytics to personalize learning and better measure student progress.

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