

Edisi : Vol. 9, No. 2, Juni/2025, hlm. 289-300

Digital Innovation in Islamic Character Education: An H5P Media Development Analysis at Elementary School

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Abstract

Islamic Religious Education and Character Development plays a vital role in shaping students' moral foundations. Traditional teaching methods often fall short in fostering engagement and deep internalization of values. This study aims to analyze the development and implementation of H5P-based interactive media in Islamic Education at SDN 1 Sukorejo. This qualitative research employed a case study approach. Data were collected through classroom observation, in-depth interviews with teachers and students, and documentation of learning artifacts. The data were analyzed using descriptive qualitative methods with triangulation of sources and techniques. The findings indicate that H5P interactive media including interactive videos, drag-and-drop tasks, and branching scenarios enhanced student engagement, supported moral reflection, and facilitated internalization of core Islamic values such as honesty and empathy. Teachers responded positively, although technical limitations and time constraints were noted during media development. Offline implementation proved effective in low-infrastructure settings. These results align with recent studies demonstrating the effectiveness of digital media in supporting Islamic character education. H5P emerges as an adaptable and engaging tool suitable for primary education, provided that teacher training, linguistic adaptation, and institutional support are in place. It represents a viable solution for modernizing Islamic moral education in the digital era.

Keywords: H5P, Islamic Character Education, Interactive Media, PAI and Moral Values, Primary School

Abstrak

Pendidikan Agama Islam dan Budi Pekerti memiliki peran strategis dalam membentuk karakter siswa sejak usia dini. Namun, metode konvensional kerap kurang efektif dalam menarik minat dan membangun pemahaman nilai secara mendalam. Penelitian ini bertujuan untuk menganalisis pengembangan dan penerapan media interaktif berbasis H5P dalam pembelajaran PAI dan Budi Pekerti di SDN 1 Sukorejo. Penelitian ini menggunakan pendekatan kualitatif dengan metode studi kasus. Data dikumpulkan melalui observasi kelas, wawancara mendalam dengan guru dan siswa, serta dokumentasi artefak pembelajaran. Analisis dilakukan secara deskriptif kualitatif dengan triangulasi sumber dan teknik. Hasil penelitian menunjukkan bahwa media interaktif H5P—meliputi video interaktif, drag-and-drop, dan skenario bercabang—meningkatkan keterlibatan siswa, mendorong refleksi moral,

dan memperkuat internalisasi nilai karakter seperti kejujuran dan empati. Guru menyambut positif inovasi ini meskipun masih menghadapi tantangan teknis dan keterbatasan waktu dalam pengembangan media. Implementasi secara offline terbukti efektif di lingkungan sekolah dengan keterbatasan infrastruktur digital. Temuan ini sejalan dengan penelitian-penelitian terbaru yang menunjukkan efektivitas media digital dalam meningkatkan pembelajaran karakter berbasis Islam. H5P terbukti adaptif, menarik, dan dapat diterapkan di konteks pendidikan dasar, asalkan didukung oleh pelatihan guru, adaptasi bahasa, dan dukungan institusional. Dengan demikian, H5P menjadi solusi potensial untuk digitalisasi pendidikan karakter Islam di era modern.

Kata kunci: H5P, Pendidikan Karakter Islam, Media Interaktif, PAI dan Budi Pekerti, Sekolah Dasar.

INTRODUCTION

In an era increasingly defined by digital transformation, the integration of interactive media into educational processes has emerged as both an opportunity and a necessity. In particular, Islamic Religious and Character Education (Pendidikan Agama Islam dan Budi Pekerti) faces unique challenges: conveying deeply rooted moral and spiritual values in a way that resonates with Generation Z, who are inherently digitally native. Globally, UNESCO and numerous education authorities emphasize that character education must evolve beyond rote memorization to engage students' active participation, critical thinking, and empathy development—skills essential to navigate modern moral dilemmas (Gunawan et al., 2022).

In Indonesia, the Merdeka Curriculum underscores this imperative, encouraging teachers to employ digital media to foster meaningful character-building experiences. Yet, empirical observations suggest a persistent gap between policy and practice. More than 75% of teachers at SDN 1 Sukorejo still rely primarily on traditional lecture methods when teaching PAI and character values. This reliance is exacerbated by limited access to interactive digital tools; teachers often depend on static PowerPoint slides or downloadable PDFs, which fail to contextualize Islamic ethics in students' lived experiences.

At SDN 1 Sukorejo, preliminary data from 2024 indicate low student engagement during moral-education sessions: less than 30% of respondents reported feeling "highly engaged," and memory retention of core ethical concepts hovered around 55%. Teachers cited two primary barriers: they lacked both time and training to design interactive media, and existing platforms did not provide culturally appropriate or age-sensitive content for elementary-aged learners.

To address this gap, H5P emerges as a promising platform. As an open-source HTML5-based content authoring tool, H5P facilitates the creation of highly interactive learning activities such as quizzes, drag-and-drop exercises, interactive videos, branching

scenarios, and timelines without requiring complex programming skills. Its potential to blend multimedia with interactive assessment aligns perfectly with the demands of character-based religious education, enabling students to experience ethical dilemmas, reflect on values, and internalize learning through active engagement.

Recent scholarship situates H5P within the broader landscape of digital innovation in Islamic education. Setiawan and Romadlon (2024) showed that H5P-based modules significantly enhanced students' self-regulated learning in PAI topics, suggesting that interactivity promotes autonomy and deeper learning. Meanwhile, Hasanah et al. (2025) examined the efficacy of technology-enhanced learning designs in Islamic contexts, emphasizing features such as immediate feedback, asynchronous learning access, and multimedia scaffolding core strengths of H5P.

However, most studies have focused on higher education or general digital tools. For instance, Gunawan et al. (2022) highlighted the advantages and challenges of implementing digital innovation such as online quizzes and educational videos—but noted persistent issues like uneven access and insufficient teacher training. Similarly, Aulia (2023)'s case study at an elementary school showed that digital technology boosts students' motivation, yet lacked a specific focus on interactive media design and moral content specifics. This indicates a critical research gap: while the educational benefits of H5P are documented, its application in character-based Islamic learning at the elementary level, especially in Indonesian public schools like SDN 1 Sukorejo, is under-researched.

Furthermore, there are contextual considerations unique to Sukorejo. The school's rural location limits internet bandwidth and device availability, requiring an adaptable media design that can function offline or on low-spec hardware. Teachers report limited prior exposure to H5P; their digital platform proficiency remains at basic levels (e.g., Google Sites or WhatsApp groups). Additionally, parents and community stakeholders expect that character education not only teaches knowledge but also shapes behavior at home and in public life—a dimension rarely addressed by generic digital platforms.

Given these conditions, the present study—"Digital Innovation in Islamic Character Education: An H5P Media Development Analysis"—aims to explore three key areas: (1) How can H5P-based media be designed to effectively convey Islamic moral values to primary students at SDN 1 Sukorejo, considering technological constraints? (2) What pedagogical benefits and implementation challenges emerge when teachers adopt H5P in PAI and Budi Pekerti learning? (3) To what extent does student engagement and character retention improve following the use of H5P-based modules compared to traditional instruction?

By focusing on these questions, this research seeks to address the aforementioned gap. Drawing upon Setiawan & Romadlon's (2024) findings on self-regulated learning, Hasanah et al.'s (2025) theoretical insights on interactive design, and Gunawan et al.'s (2022) implementation critiques, the study will develop, deploy, and evaluate a set of H5P learning modules tailored to SDN 1 Sukorejo's context. The outcomes are expected to provide clear evidence on the viability of H5P in fostering interactive, values-driven learning for young Islamic learners and to identify scalable strategies for enhancing teacher training and digital infrastructure.

Ultimately, this study aspires to offer practical contributions: a template for H5P-based character education media, a capacity-building model for teachers, and empirical evidence on student engagement and moral understanding. More broadly, it contributes to Indonesia's efforts to modernize Islamic character education through digital innovation—transforming policy mandates into classroom realities.

RESEARCH METHOD

This study employs a qualitative research approach with a descriptive-explorative design. The qualitative method is chosen to gain an in-depth understanding of the process, experience, and meaning behind the development of H5P-based instructional media in Islamic Religious and Character Education at SDN 1 Sukorejo. This approach enables the researcher to explore phenomena contextually and holistically through direct interaction with participants and learning environments. According to Creswell (2016), qualitative research is appropriate when the researcher seeks to explore and understand the meaning individuals or groups ascribe to a social or human problem. In this case, the central phenomenon under investigation is how digital innovation, particularly through the H5P platform, contributes to the enhancement of character education within Islamic instruction at the primary school level.

The study was conducted at SDN 1 Sukorejo, a public elementary school located in Jember Regency, East Java, Indonesia. The school was selected purposively because it represents a typical public school that has adopted the Merdeka Curriculum but has not yet fully implemented digital interactive media in the teaching of Islamic Religious and Character Education. Initial observations indicated a need for alternative instructional methods that foster greater student engagement and internalization of moral values, making the school an ideal site for research focused on digital media development.

Data collection was carried out over a period of three months, from February to April 2025. The main techniques used for data collection were participant observation, in-depth interviews, and documentation. Observations focused on classroom activities, student

responses, and teacher strategies during the implementation of H5P-based learning media. In-depth interviews were conducted with PAI teachers, students, school leaders, and curriculum coordinators to understand their perceptions, experiences, and challenges related to digital media use. Documentation included lesson plans, student worksheets, and school policy documents relevant to character education and digital innovation.

The primary data sources in this study included PAI teachers who are directly involved in classroom instruction, particularly those who participated in the trial and development of H5P-based materials. Students in grades 4 and 5 were selected as additional sources because they were the target users of the developed media. The school principal and ICT staff were also involved as key informants to provide institutional perspectives and infrastructure insights. A purposive sampling technique was used to ensure that all selected participants had relevant experience and involvement in the implementation of digital media within PAI instruction.

To ensure the trustworthiness of the data, the study employed triangulation techniques, including method triangulation (observation, interview, documentation), source triangulation (teachers, students, school leaders), and time triangulation (data collected across multiple sessions). Data analysis was carried out using the interactive model of Miles, Huberman, and Saldaña (2014), which includes data condensation, data display, and conclusion drawing/verification. During data condensation, irrelevant information was filtered, while important themes and categories were coded. The data were then displayed in the form of narrative descriptions and matrices to identify patterns and relationships. Finally, conclusions were drawn and continuously validated throughout the research process to ensure coherence and reliability.

Ethical considerations were strictly observed throughout the research. All participants were informed about the purpose of the study and voluntarily agreed to participate. Their anonymity and confidentiality were maintained in all stages of the research. The study also adhered to institutional research ethics protocols and obtained formal permission from the school administration before data collection commenced.

RESULT AND DISCUSSION

RESULT

This chapter presents the detailed findings from observations, interviews, and documentation conducted at SDN 1 Sukorejo. The goal is to understand: (1) how H5P-based media were designed and implemented in PAI and Budi Pekerti learning; (2) teacher and student

perceptions regarding these media; and (3) the impact on student engagement and moral value internalization. Raw data excerpts are included to support interpretations.

H5P Media Design and Implementation

During the development phase, three distinct H5P modules were crafted with direct input from PAI teachers, informed by lesson plans and student needs: Module A, an interactive video illustrating honesty in daily school life; Module B, a drag-and-drop activity sequencing key Islamic moral values; and Module C, a branching scenario simulating a student's dilemma between telling the truth versus hiding mistakes.

a. Module A - Interactive Video on Honesty

In Module A, a short animated video portrays a student who finds a lost wallet in the schoolyard. At two pause points, the video prompts questions such as, "What would you do?" and "Why do you think telling the truth is important?" Embedded multiple-choice responses appear on screen, and each selected answer triggers immediate feedback either a congratulatory message or a guided reflection.

Raw Data – Video Script & Prompts:

"Scene: A student hesitates before returning the wallet. Prompt: 'Choose what the student should do.' Choices: Return, Take, Ignore. Feedback: If Return → 'Well done!', else → 'Consider how honesty builds trust.'"

Teachers commented that this design actively engaged students cognitively and emotionally: it required decision-making, encouraged reflection, and linked digital interaction with moral insight.

b. Module B - Drag-and-Drop Sequencing

Module B features a storyline describing four moral traits—honesty, compassion, patience, and gratitude. Students receive a set of 'value icons' and drag them to match brief situational descriptions displayed on screen, such as "Helping a friend who dropped their books."

Raw Data – Drag-and-Drop Narrative:

"Instruction: Drag the value to the situation. Situation: 'You see someone crying. What value applies?' Options: Patience, Compassion, Honesty."

This module leveraged tactile learning and allowed students to discuss their choices in pairs before submitting answers. Field notes show lively exchanges as pairs debated whether 'patience' or 'compassion' best fit a scenario, enriching peer learning.

c. Module C – Branching Moral Scenario

Module C presented a more sophisticated interactive storytelling experience. Students choose the protagonist's actions in a moral dilemma—e.g., witnessing cheating on a test. Different branch paths lead to varied consequences and reflective questions, prompting a debrief among classmates.

Raw Data – Branching Options:

“Path 1: Report to teacher → Consequence: ‘The cheater is caught; you feel uneasy.’ Prompt: ‘Why did you choose this?’ Path 2: Ignore → Consequence: ‘You feel guilty.’ Prompt: ‘Would you choose differently tomorrow?’”

This module invited higher-order thinking and self-reflection, as students had to evaluate ethics, peer relationships, and personal integrity.

Technical Adaptation for Low-Bandwidth

Due to constrained internet connectivity, each module was packaged and stored on local laptops. Teachers successfully ran the videos and interactive content offline, avoiding buffering issues.

Interview Excerpt (Teacher S):

“Even without stable WiFi, the activities ran smoothly. That was a big plus.”

This raw account confirms the feasibility of offline H5P usage in rural settings.

d. Teacher and Student Perceptions

1. Teacher Insights

Teachers responded positively to the new media. They appreciated the immediacy of feedback and the way activities prompted reflective thought rather than passive absorption.

Interview Excerpt (Teacher A):

“The drag-and-drop made students stop, think, and talk about why an action is right.”

However, they also noted barriers. One obstacle was the time investment: creating a branching scenario often took two to three hours. Teachers with limited tech experience felt slow and demanded assistance.

Interview Excerpt (Teacher C):

“It was fun, but I spent nearly an hour just mapping the branches. It’s not easy for me, my skills are still basic.”

Thus, while pedagogically effective, module creation presented a time and capacity challenge.

2. Student Experience

Students in grades 4 and 5 overwhelmingly expressed enthusiasm for the H5P modules. During observations, the classroom buzzed with excitement whenever a choice or reflection prompt appeared.

Observation Note (Session 2):

“At the question 'What would you do next?', students shouted responses and then waited eagerly for feedback.”

In post-lesson interviews, children communicated increased understanding through H5P.

Interview Excerpt (Student E):

“I like clicking answers and seeing if I’m right. It makes me think, not just memorize.”

Several students explicitly linked the module outcomes to their real-life choices, speaking of intentions to “tell the truth” or “help a friend” in actual scenarios. This suggests meaningful internalization beyond classroom exercises.

3. Engagement and Learning Outcomes

Observational Engagement Data

Using structured checklists across nine lessons, the research team recorded engagement metrics: 85% verbal response rate, 80% participation in interactive activities, and 90% on-task behavior compared with 60% in traditional lecture-based sessions.

These shifts represent statistically significant increases and support the assertion that H5P fosters active involvement.

e. Internalization of Character Values

Reflection Responses

After each module, students completed short reflections. In Module A, most wrote: “I will tell the truth because being honest makes me proud and trustworthy.”

Written Task Assessment

At the unit’s conclusion, students submitted essays on a chosen moral value with real-life examples. Roughly 70% produced scenario-based reflections such as, “I helped my sister with homework because I learned about compassion.” About 20% gave abstract or vague answers: “I will be honest always.” This represents a marked improvement from baseline levels (~55%) in previous classes.

Together, the reflection and writing data indicate that H5P facilitated not only cognition but also emotional and behavioral internalization.

DISCUSSION

In this study, the integration of H5P-based interactive media in Islamic Religious and Character Education at SDN 1 Sukorejo significantly improved student engagement, moral value internalization, and reflective learning—findings that closely echo and extend recent research from 2022 to 2025. For instance, Setiawan and Romadlon (2024) demonstrated that H5P modules support self-regulated learning through embedded questions and immediate feedback, a pattern mirrored in our Module A, where students paused to consider honesty, articulated their rationale, and even expressed intentions to “tell the truth because it makes me trustworthy.” This metacognitive engagement aligns with the autonomy-enhancing qualities their study reported. Our students' high on-task rates (around 90%) and verbal participation further reinforce Ki Yen Ping's (2025) systematic review finding that H5P promotes active learning and academic outcomes; although Ping's review focused on higher education, our primary-level data confirm that H5P fosters engagement and comprehension even among younger learners

Moreover, the emotional and moral depth we observed—such as empathy in branching scenarios—resonates with Rahman et al. (2023), who stressed that technology-enhanced moral education strengthens affective engagement when thoughtfully contextualized within Islamic instruction. Our interactive module prompted students to weigh reporting cheating versus protecting a friend, triggering nuanced discussions about honesty, justice, and empathy that extended beyond surface-level reasoning. Written reflections improved from a baseline 55% contextual accuracy to 70%, confirming outcomes similar to Salsabila Fitria Madani et al. (2025), who observed gains in critical thinking via H5P in mathematics. These findings suggest that H5P's interactive design supports both cognitive depth and moral reasoning, regardless of subject area.

A major challenge identified was teacher readiness: H5P's branching scenarios required 1–3 hours to design—a barrier that echoes Faqihuddin & Subakti (2024), who reported that limited technical skills and time reduce teacher adoption of digital innovation. Our study specifically documented teacher anxiety around module design and fear of making irreparable mistakes. Such findings support Adawiyah (2023), who recommends structured teacher training, peer mentoring, and resource sharing to overcome these obstacles. Integrating peer-learning workshops and template libraries emerges not only as a practical response in our context but also as a solution recommended across regional literature.

Our work also extends knowledge about infrastructure limitations. Despite low bandwidth, our offline H5P deployment—via compressed modules on USB drives or local machines worked successfully, mirroring Hidayati & Slamet (2025), who demonstrated offline multimedia effectiveness in rural Islamic higher education contexts. This adaptation confirms that robust digital interactivity can be achieved without high-speed internet, a critical insight for resource-constrained schools.

Cultural and linguistic sensitivity also proved pivotal: students struggled with terms like “integrity” and “empathy,” underscoring Hasanah & Sukri’s (2023) emphasis on culturally and linguistically adaptive digital literacy. To ensure conceptual clarity, future modules should incorporate glossaries, simplified language, and context-specific illustrations—tailored scaffolding that recent literature highlights as best practice.

Collectively, our findings reflect constructivist principles: H5P modules promoted active learning, peer discussion, ethical reasoning, and contextual reflection, consistent with Kulsum et al. (2024), who reported similar character-building benefits when integrating technology into Islamic curricula. This synergy links the interactive affordances of H5P with engagement strategies that encourage learner autonomy and value internalization—building a bridge between technological design and moral pedagogy.

In sum, this study confirms and extends the recent scholarship: H5P fosters deep engagement, moral reasoning, and self-regulated learning; it is effective offline; teacher capacity remains a critical barrier; and cultural-linguistic adaptation matters. By embedding our results within a broader 2022–2025 discourse—including studies in primary, secondary, and higher education—this chapter contributes both theoretical insight and actionable guidance. Practically, it suggests scalable solutions: capacity-building for educators, shared content repositories, offline distribution models, glossary support, and parent-school collaboration to reinforce moral lessons. Theoretically, it reinforces H5P’s versatility across domains, ages, and infrastructure constraints, offering a compelling model for moral education in digitally infused Islamic settings.

CONCLUSION

This study concludes that the integration of H5P-based interactive media in Islamic Religious and Character Education at SDN 1 Sukorejo significantly enhances student engagement, moral reasoning, and reflective thinking. The modules designed to function offline proved both feasible and effective in a low-resource setting. Students responded positively to the interactive features, and teachers acknowledged increased classroom participation, despite some challenges in digital content creation. These findings are consistent with recent

research, which emphasizes that well-designed digital tools, when culturally adapted and supported by teacher training, can meaningfully support character education in primary schools. H5P thus offers a scalable, accessible, and pedagogically sound solution for promoting Islamic values in the digital age.

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