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TRANSFORMING CHARACTER EDUCATION THROUGH DIGITAL TECHNOLOGY-BASED ISLAMIC RELIGIOUS EDUCATION: AN EMPIRICAL INVESTIGATION AND THE TAPAK MODEL

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ABSTRACT

The integration of digital technology into Islamic Religious Education (PAI) represents one of the most consequential pedagogical challenges facing Muslim educational institutions in the twenty-first century. This study empirically investigates the effectiveness of Google Classroom-mediated PAI instruction in transforming the character formation of students at Islamic secondary schools in Java, Indonesia. Grounded in Paulo Freire's critical pedagogy (1970) and Thomas Lickona's three-dimensional character framework (1991, 2004), the study employs a sequential explanatory mixed-methods design. Quantitative data were collected from 320 students across eight schools using the Character Formation Index (CFI), a 45-item validated instrument measuring religious character, digital integrity, and academic responsibility, before and after a 16-week implementation cycle. Qualitative depth was provided through semi-structured interviews with 48 students and 16 PAI teachers. Results revealed statistically significant and educationally substantial improvements across all three character dimensions: religious character increased by 38.6% (Cohen's d = 2.38), digital integrity by 45.4% (d = 2.01), and academic responsibility by 41.7% (d = 1.88). Crucially, pedagogical pattern particularly the degree of dialogic-transformative use of the platform emerged as a stronger predictor of character gain than school location or infrastructure quality. These findings ground the formulation of the TAPAK Model (Transformasi Aktif PAI berbasis Karakter / Active Character-Based PAI Transformation), a five-phase instructional framework that systematically operationalises Freirean praxis within Islamic pedagogical tradition. Implications for teacher professional development, curriculum reform, and equitable digital education policy are discussed.

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A. INTRODUCTION

The global acceleration of educational digitalization, catalysed by the COVID-19 pandemic and the broader imperatives of Industry 4.0, has created a paradox of historic proportions for Islamic education. On one hand, digital platforms have democratised access to learning resources at unprecedented scale; on the other, they have introduced profound anxieties about the erosion of moral formation, spiritual depth, and the relational texture that has historically defined Islamic pedagogy (Mishra & Koehler, 2006; Postman, 1992). The question that Islamic educators now urgently face is not whether to digitalize, but how to digitalize without surrendering the soul of tarbiyah.

In Indonesia home to the world's largest Muslim-majority population and a national education system in which Pendidikan Agama Islam (PAI) is a compulsory subject across all school types this dilemma is particularly acute. Data from (Kemendikbudristek, 2022) indicate that over 94% of Indonesian schools had integrated at least one digital platform into instruction by 2023, yet systematic evidence on whether these integrations support or undermine moral and character formation remains thin. The dominant use of platforms such as Google Classroom has frequently reduced to what Wahyuni & Susilo (2023) aptly call digitalisasi semu (pseudo-digitalization): the administrative transfer of conventional content to digital conduits, with no fundamental transformation in pedagogical orientation.

Paulo Freire's foundational critique in Pedagogy of the Oppressed (1970/2005) offers an indispensable diagnostic lens for this phenomenon. Freire identified the banking concept of education in which students are treated as passive receptacles for teacher-deposited knowledge as not merely ineffective, but dehumanising. His alternative, problem-posing education, is characterised by horizontal dialogue, critical conscientisation, and the unity of action and reflection he termed praxis. Applied to digital PAI, the Freirean framework generates a powerful hypothesis: the pedagogical pattern with which a teacher uses Google Classroom is far more determinative of educational outcomes than the mere presence of the platform itself.

Character education in the Islamic tradition encompassing tarbiyah al-akhlaq (moral cultivation), tahdhib al-nafs (self-refinement), and the formation of insan kamil (the complete human being) is not a peripheral goal but the very telos of Islamic education(Ramayulis, 2023). Lickona (1991), whose secular three-dimensional model (moral knowing, moral feeling, moral action) finds striking parallels in the Islamic triad of ma'rifah, wajdan, and 'amal, provides a complementary empirical operationalisation that facilitates measurable assessment of character outcomes. The convergence of these traditions creates a robust theoretical scaffold for the present study.

Prior empirical literature has established that digital technology can enhance cognitive outcomes in PAI (Arifuddin & Maulana, 2023; Pratama & Zulfa, 2024), and that character education broadly benefits from active and dialogic pedagogies (Nuryanto & Fadhilah, 2024). However, the intersection the empirical investigation of digitally-mediated, dialogically-structured PAI as a vehicle for measurable character transformation remains largely unexplored. This study fills that gap through a rigorous mixed-methods investigation across eight Islamic secondary schools in Java, guided by three research questions: (1) How do PAI teachers currently use Google Classroom, and what pedagogical patterns are identifiable? (2) How effectively does Google Classroom-based PAI instruction, when designed dialogically, transform students' religious character, digital integrity, and academic responsibility? (3) What instructional model best operationalises character-oriented digital PAI?

The significance of this study is dual. Theoretically, it advances the concept of Islamic Critical Digital Pedagogy as a synthesis of Freirean praxis and Islamic tarbiyah principles within digital learning environments. Practically, it produces the TAPAK Model—a validated, five-phase instructional framework designed to guide PAI educators in transforming their digital practice from content delivery to character cultivation. Together, these contributions respond

to what Fatmawati & Ridwan (2024) identify as the central challenge of contemporary Islamic education: not the acquisition of digital tools, but the development of wisdom in their pedagogical use.

B. THEORETICAL FRAMEWORK

1. Character Education in Islamic Pedagogical Tradition

Character education in Islam is coextensive with the educational mission itself. The Prophet Muhammad's declaration "I was sent to perfect noble character" (HR. Ahmad) positions akhlaq formation as the axial purpose around which all other educational goals orbit. Al-Ghazali's Ihya Ulumuddin articulates a sophisticated pedagogy of character cultivation rooted in disciplined practice *(riyada)*, spiritual purification (*tazkiyat al-nafs*), and the progressive alignment of the nafs (self) with divine attributes. This classical framework is not merely of historical interest; it provides the normative horizon against which contemporary innovations in Islamic education must be evaluated (Langgulung, 2003; Nata, 2022).

Lickona's (1991) three-component model of good character comprising moral knowing (understanding ethical principles), moral feeling (internalising them emotionally), and moral action (translating them into consistent behaviour) offers a psychologically grounded, empirically measurable complement to the classical Islamic framework. The isomorphism between Lickona's triad and the Islamic concepts of 'ilm (knowledge), iman (faith/feeling), and 'amal (action) has been noted by several scholars and suggests that the two traditions, though epistemologically distinct, are pedagogically convergent (Mansur & Hidayatullah, 2023; Rahmawati & Wahab, 2025).

In the digital context, this convergence must be extended to address emergent character dimensions that neither classical nor mid-twentieth-century frameworks explicitly anticipated. Suhendi et al. (2024) identify digital integrity (honesty in online task completion, avoidance of plagiarism), digital responsibility (awareness of the social consequences of online actions), and digital adab (proper etiquette in digital interactions) as the three most deficient and most urgently needed character dimensions among Muslim secondary school students in contemporary Indonesia. The present study measures all three under the umbrella of the Character Formation Index.

2. Google Classroom as a PAI Learning Environment

Google Classroom is a cloud-based Learning Management System (LMS) developed by Google for Education, launched in 2014 and subsequently adopted by over 150 million users globally (Pratama & Zulfa, 2024). Its core pedagogical affordances—asynchronous content delivery, assignment management with automated deadlines, formative assessment via Google Forms, multi-modal resource integration, and threaded discussion forums—make it uniquely suitable as a platform for PAI instruction that aspires to transcend the limitations of the physical classroom.

Pratama and Zulfa's (2024) meta-analysis of 34 empirical studies on Google Classroom in Indonesian PAI contexts found a pooled effect size of $d = 0.78$ for cognitive outcome improvement, consistent with Cohen's (1988) classification of medium-to-large practical significance. Crucially, however, the meta-analysis identified pedagogical design quality and teacher digital competence rather than platform access per se as the primary moderators of outcome variability. This finding underscores the Freirean insight that the transformative potential of any educational medium is contingent on the consciousness and intentionality with which it is deployed.

Arifuddin & Maulana (2023) further demonstrated that motivational outcomes in Google Classroom-based PAI are significantly higher when the platform is used to facilitate discussion and reflection rather than mere content transmission ($d = 2.1$ vs. $d = 0.9$

respectively). These findings establish the evidentiary foundation for the present study's central hypothesis: that dialogically-oriented use of Google Classroom, theoretically grounded in Freirean problem-posing, will produce substantially superior character formation outcomes compared to transmissive use.

3. Freire's Pedagogy and Islamic Educational Philosophy

Paulo Freire (1970) articulated a pedagogy of radical humanisation in which the fundamental educational act is the naming of the world the collaborative, critical process through which learners come to understand and transform the social conditions that shape their lives. His concept of conscientizacao (conscientisation) resonates profoundly with the Islamic intellectual tradition's emphasis on tafakkur (deep reflection on creation and existence) and the Quranic injunction to 'iqra (read, comprehend, act) as the generative nucleus of all human knowing (Mansur & Hidayatullah, 2023).

The synthesis of Freirean critical pedagogy and Islamic tarbiyah principles which Nuryanto & Fadhilah (2024) term Islamic Critical Pedagogy rests on three convergences: first, both traditions reject the reduction of education to information transmission; second, both locate authentic learning in the engagement of the whole person (intellect, emotion, will, and action); and third, both position the educator not as an authority who deposits truth, but as a guide who facilitates the learner's own discovery of it. In the digital context, this means reconceiving the teacher's role from content provider to learning architect—designing digital environments that provoke reflection, dialogue, and moral action rather than passive reception.

C. METHOD

1. Research Design

This study employed a sequential explanatory mixed-methods design (Creswell & Plano Clark, 2018), in which quantitative data collection and analysis preceded, and subsequently directed, qualitative inquiry. This sequence was chosen because the complexity of character formation simultaneously a psychological process, a social phenomenon, and a spiritual attainment cannot be adequately captured by either quantitative measurement or qualitative description alone. The integration of both paradigms allowed the study to combine the internal validity offered by statistical analysis with the interpretive richness provided by in-depth qualitative data.

The quantitative phase employed a pre-test/post-test design with a 16-week (one full academic semester) intervention period, during which participating schools implemented Google Classroom-based PAI instruction using a structured protocol developed by the research team. The qualitative phase, conducted after quantitative analysis, used semi-structured interviews to explore the mechanisms underlying observed statistical outcomes.

2. Participants and Sampling

The target population comprised all Grade X and Grade XI students in Islamic secondary schools (MAN and SMA Islam) in East Java and Central Java provinces that had been using Google Classroom in PAI instruction for a minimum of one semester prior to the study. Purposive stratified sampling was employed to select eight schools representing urban and semi-urban locations, public and private school status, and varying levels of digital infrastructure maturity. From each school, 39–42 students were recruited for the quantitative survey (total n = 320) and six students plus two PAI teachers were selected for qualitative interviews (total: 48 students + 16 teachers).

Table 1. Research Sample Distribution by School

School (Code)	Location	n (Survey)	n (Interview)	GC Pattern
MAN 1 Surabaya (S1)	Urban	42	6+2	Pattern III
SMA Islam Semarang (S2)	Urban	40	6+2	Pattern II
MAN 2 Malang (S3)	Urban	41	6+2	Pattern II
MAN 3 Yogyakarta (S4)	Urban	40	6+2	Pattern II
SMA Islam Kudus (S5)	Semi-Urban	40	6+2	Pattern I
MAN 1 Solo (S6)	Semi-Urban	39	6+2	Pattern I
MAN 2 Sidoarjo (S7)	Semi-Urban	39	6+2	Pattern I
SMA Islam Purwokerto (S8)	Semi-Urban	39	6+2	Pattern II
Total	—	**320**	**48+16**	—

Note: GC Pattern I = minimal/repository use; Pattern II = interactive but teacher-centred; Pattern III = dialogic-transformative.

3. Research Instruments

The primary quantitative instrument was the Character Formation Index (CFI), developed through systematic adaptation of Lickona's (1991) Character Assessment Scale and the Instrumen Penilaian Karakter Islami (IPAKI) validated by Suhendi et al. (2024). The CFI comprises 45 items distributed equally across three subscales: religious character (15 items), digital integrity (15 items), and academic responsibility (15 items), each rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree).

Instrument validation followed a rigorous multi-stage process. Content validity was established through expert panel review (five PAI curriculum specialists and two educational measurement experts), yielding a Content Validity Ratio (CVR) of 0.89. Construct validity was confirmed via Confirmatory Factor Analysis (CFA) using AMOS 26, with goodness-of-fit indices of CFI = 0.96, RMSEA = 0.048, and SRMR = 0.051 all within acceptable thresholds. Average Variance Extracted (AVE) exceeded 0.50 for all subscales, supporting convergent validity.

Table 2. CFI Psychometric Properties by Dimension

Dimension	No. of Items	Scale	Cronbach's α	Validity (AVE)
Religious Character	15	Likert 1–5	0.91	0.63
Digital Integrity	15	Likert 1–5	0.88	0.61
Academic Responsibility	15	Likert 1–5	0.87	0.59
Total (CFI)	45	Likert 1–5	0.89	0.61 (avg)

Note: AVE = Average Variance Extracted; α = Cronbach's Alpha. All values meet or exceed recommended thresholds (AVE > 0.50; α > 0.80).

The qualitative instrument comprised an 18-question semi-structured interview guide covering four thematic domains: teacher perceptions of digital pedagogy, student experiences of character change, specific Google Classroom features linked to moral

development, and barriers to optimal implementation. Interview protocols were piloted with six students and two teachers not included in the main sample, and refined accordingly.

4. Procedure and Data Analysis

The intervention protocol standardised the structural elements of Google Classroom use across all eight schools while preserving teacher autonomy in content selection and instructional style. Participating teachers received a two-day professional development workshop on the study's pedagogical framework prior to implementation, as well as bi-weekly coaching sessions throughout the semester. All teachers maintained implementation logs, and classroom observation checklists were completed monthly by trained research assistants to monitor fidelity.

Quantitative data were analysed using IBM SPSS 28. Pre-test to post-test change within the full sample was assessed using paired-samples t-tests. To examine the differential effectiveness of the three pedagogical patterns (I, II, III), a one-way ANCOVA was conducted with post-test CFI scores as the dependent variable, pre-test scores as the covariate, and pedagogical pattern as the independent variable, controlling for school size, teacher experience, and student socioeconomic status.

Qualitative data from audio-recorded interviews (mean duration: 47 minutes; transcribed verbatim) were analysed using Braun and Clarke's (2006) six-phase reflexive thematic analysis. Initial coding was conducted independently by two researchers, with inter-rater reliability of $\varkappa = 0.83$ (strong agreement). Disagreements were resolved through discussion and consensus. Triangulation was achieved by cross-referencing interview themes with lesson plan documents, Google Classroom activity logs, and student digital portfolios.

D. RESULT AND DISCUSSION

1. Google Classroom Implementation Patterns

Analysis of implementation logs, observation checklists, and teacher interview data identified three distinct patterns of Google Classroom use in PAI instruction across the eight participating schools, mirroring the typology hypothesised a priori.

Pattern I (Minimal/Repository Use), observed in three schools (S5, S6, S7), was characterised by the use of Google Classroom primarily as a document repository and assignment submission portal. Teachers uploaded lecture notes in PDF format, assigned textbook questions through Google Forms, and collected student submissions digitally. Discussion forums were rarely initiated and, when present, received minimal teacher facilitation. This pattern closely corresponds to Freire's banking model of education transposed into digital infrastructure a phenomenon Wahyuni & Susilo (2023) documented across 12 madrasah and aptly termed pseudo-digitalization.

Pattern II (Interactive but Teacher-Centred), observed in four schools (S2, S3, S4, S8), demonstrated greater platform utilisation, including the use of video content, interactive quizzes via Google Forms, and occasional discussion prompts. However, teacher-student interactions remained predominantly vertical, with teachers directing discourse and evaluating responses rather than facilitating horizontal peer-to-peer dialogue. The pedagogical orientation remained transmissive, despite the richer feature use.

Pattern III (Dialogic-Transformative Use), observed in only one school (S1, MAN 1 Surabaya), represented the aspiration of this study. Students were active co-producers of PAI content: creating short reflective videos, responding critically to peer posts on Islamic ethical dilemmas posed by the teacher, and engaging in asynchronous collaborative projects connecting Quranic values to real-world digital citizenship challenges. The teacher functioned as a learning architect and dialogue facilitator rather than the primary knowledge source—a role explicitly aligned with Freire's (2005) concept of the teacher-student and student-teacher relationship.

2. Character Formation Outcomes: Quantitative Results

Paired-samples t-tests conducted on the full sample (n = 320) revealed statistically significant pre-test to post-test improvements across all three character dimensions of the CFI, with effect sizes in the very large range (Cohen's d > 1.80 for all subscales). Table 3 presents the summary statistics.

Table 3. Pre-Test to Post-Test Character Formation Outcomes (n = 320)

Character Dimension	Pre-Test M (SD)	Post-Test M (SD)	% Change	t (df=319)	Cohen's d
Religious Character	68.4 (8.7)	94.8 (6.2)	+38.6%***	42.67	2.38
Digital Integrity	62.1 (9.4)	90.3 (7.1)	+45.4%***	38.94	2.01
Academic Responsibility	70.2 (8.1)	99.5 (5.9)	+41.7%***	36.12	1.88
Composite CFI Score	66.9 (8.7)	94.9 (6.4)	+41.8%***	41.03	2.09

*Note: M = Mean; SD = Standard Deviation; *** p < .001. All Cohen's d values indicate very large effect sizes (d > 0.80). Pre-test and post-test scores are on a 100-point scale.*

The most substantial gains were observed in Digital Integrity (45.4% improvement, d = 2.01), a finding that carries particular theoretical and practical significance given the widely documented deficits in this dimension among Indonesian Muslim adolescents in digital environments (Mulawarman & Nurfitri, 2023; Suhendi et al., 2024). Religious Character demonstrated the largest Cohen's d value (2.38), reflecting both the pre-test baseline deficit (M = 68.4) and the potency of the dialogically-enhanced PAI model in deepening students' religious self-concept and practice consistency.

ANCOVA results revealed a statistically significant main effect of pedagogical pattern on post-test CFI scores, $F(2, 316) = 47.83$, $p < .001$, partial $\eta^2 = .23$, after controlling for pre-test scores, school size, teacher experience, and student socioeconomic status. Post-hoc Bonferroni-corrected pairwise comparisons confirmed that Pattern III (dialogic-transformative) produced significantly higher character gains than both Pattern II ($p < .001$, $d = 1.14$) and Pattern I ($p < .001$, $d = 1.67$). Specifically, Pattern III students showed a 28% higher improvement in Digital Integrity and a 21% higher improvement in Religious Character relative to Pattern I students. These findings robustly confirm that the quality of pedagogical design not the mere availability of the digital platform is the primary determinant of character formation outcomes.

3. Qualitative Insights: Mechanisms of Character Change

Thematic analysis of interview data identified four primary mechanisms through which Google Classroom-based PAI instruction produced character changes, each corroborated by documentary evidence from classroom logs and student portfolios.

First, temporal flexibility enabling deeper internalisation: students across all three implementation patterns reported that the ability to revisit instructional content particularly micro-lectures, reflective video content, and teacher-produced infographics of Quranic values facilitated what several described as 'heart-level' rather than merely 'head-level' learning. A Grade X student from MAN 1 Surabaya articulated this distinction with notable sophistication: 'When I can re-watch the video before sleeping, I keep thinking about it. The values don't just stay in my notes they start to feel like mine.' This phenomenon aligns with the concept of ta'ammul (contemplative dwelling) in Islamic learning theory and with Wittrock's (1990) generative learning model.

Second, digital context-specificity amplifying moral relevance: students in Pattern II and Pattern III schools reported that PAI content explicitly linked to digital life situations—social media ethics, online honesty, cyberbullying responses felt immediately actionable in ways that abstract doctrinal instruction did not. This finding supports the pedagogical principle of contextual relevance articulated by Knowles (1975) in his theory of self-directed

learning, and suggests that PAI curriculum designers must systematically map Islamic ethical principles onto the specific moral terrain of digital adolescent life.

Third, dialogic accountability generating moral community: in Pattern III schools, students described the Google Classroom discussion forum as a space of mutual accountability in which the quality of their moral reasoning was visible to and challenged by peers. This peer visibility created what several teachers described as emergent social pressure toward integrity, but of a qualitatively different kind from teacher-imposed sanction: a pressure rooted in communal identity and belonging. Nuryanto and Fadhilah (2024) interpret this as the digital equivalent of the Islamic concept of amr bil ma'ruf wa nahy 'an al-munkar (commanding good and forbidding evil) at the peer-learning level.

Fourth, moral production as internalisation evidence: the unique feature of Pattern III implementation requiring students to produce moral artefacts (short ethical videos, digital reflection journals, community service proposals) as the culminating assessment activity was consistently identified by both students and teachers as the most powerful character-forming practice. One teacher articulated the pedagogical logic clearly: 'When students have to explain Islamic values to others, they have to truly believe them first. The production forces the internalisation.' This observation operationalises Freire's praxis concept and constitutes the foundational rationale for the fifth phase of the TAPAK Model.

E. CONCLUSSION

1. Conceptual Foundations

The synthesis of quantitative findings and qualitative insights generated by this study grounds the formulation of the TAPAK Model (Transformasi Aktif PAI berbasis Karakter / Active Character-Based PAI Transformation). The term tapak (footprint or trace) carries deliberate metaphorical weight: the model aspires to produce learners who leave discernible moral traces in the digital world students whose character is expressed not merely in religious self-report or examination performance, but in the quality of their digital actions, the integrity of their online conduct, and the courage of their moral positions in algorithmically curated environments.

The model rests on three mutually reinforcing theoretical pillars: Freire's (1970/2005) praxis theory, which insists that genuine learning requires the dialectical unity of reflection and action; Lickona's (1991, 2004) character formation framework, which specifies that authentic character requires integration of cognition, affect, and behaviour; and the classical Islamic pedagogical tradition's emphasis on tafakkur, ta'allum, and 'amal as the three-fold path to moral formation (Al-Ghazali, Ihya Ulumuddin). The convergence of these three traditions Western critical pedagogy, empirical character psychology, and Islamic educational philosophy gives the TAPAK Model its distinctive theoretical texture and cross-cultural intellectual legitimacy.

2. The Five Phases of the TAPAK Model

Table 4. TAPAK Model: Five-Phase Implementation Framework

Phase	Name (Arabic)	Pedagogical Function	Google Classroom Tool
1	Taqdim (Contextual Presentation)	Multi-modal content delivery linked to contemporary issues	Stream posts, YouTube embeds, Google Docs readings
2	Amali (Active Exploration)	Self-directed and collaborative inquiry using curated resources	Classwork assignments, Google Drive shared folders
3	Problem-Posing (Critical Framing)	Students formulate critical questions linking PAI to digital life	Google Forms, Discussion board prompts

Phase	Name (Arabic)	Pedagogical Function	Google Classroom Tool
4	Afkar (Dialogic Reflection)	Horizontal dialogue; teacher as co-investigator	Classroom Stream comments, Google Meet breakout rooms
5	Karya (Moral Production & Action)	Students produce moral artifacts demonstrating internalized values	Portfolios, digital social action projects, Google Sites

Note: PAI = Pendidikan Agama Islam (Islamic Religious Education); GC = Google Classroom. Phases are sequential within each learning cycle and cyclical across the academic semester.

Phase 1 Taqdim (Contextual Presentation) requires the teacher to curate and present multi-modal PAI content (micro-lectures, infographics, curated readings) that is explicitly anchored to contemporary digital life situations. This anchoring is not merely motivational; it is epistemologically essential to the model's character formation logic, as it establishes the moral terrain on which subsequent reflection and action will occur. The theoretical justification draws on Mayer's (2009) Cognitive Theory of Multimedia Learning, which demonstrates that dual-channel (verbal-visual) presentation enhances retention and conceptual depth by up to 89% compared with single-channel delivery.

Phase 2 Amali (Active Exploration) transitions students from passive reception to active inquiry. Using curated Google Drive resources and guided research tasks, students explore the contemporary manifestations of Islamic values, developing the habit of intellectually owning their learning rather than waiting for it to be delivered. This phase operationalises Knowles's (1975) principles of self-directed learning and activates elaborative interrogation strategies that have been shown to deepen conceptual comprehension in religious learning contexts (Lim & Morris, 2009).

Phase 3 Problem-Posing (Critical Framing) directly implements Freire's methodological contribution. Students are not asked to answer questions about Islamic ethics; they are asked to formulate questions to identify the moral dilemmas embedded in their own digital experience that Islamic teaching must address. This cognitive reversal from answer-reception to question-formulation is the hinge on which the entire model turns, and it is the phase most distinctively absent from conventional digital PAI practice. The ANCOVA finding that Pattern III schools (the only school approaching this phase) produced significantly higher character gains supports its centrality.

Phase 4 Afkar (Dialogic Reflection) creates the horizontal discourse space that both Freire and the Islamic munazharah tradition privilege as the site of genuine intellectual and moral growth. The teacher's role shifts from instructor to co-investigator posing follow-up questions, surfacing contradictions, celebrating moral complexity, and modelling intellectual humility. This phase is implemented through Google Classroom discussion threads and, where infrastructure permits, synchronous Google Meet breakout room discussions. The qualitative finding of 'moral community' formation at Pattern III schools demonstrates the character-forming power of this relational dimension.

Phase 5 Karya (Moral Production and Action) constitutes the most distinctive and theoretically consequential element of the TAPAK Model. Students are required to produce a public moral artefact that demonstrates the integration of Islamic values into digital action: a responsibly crafted social media post addressing a community ethical issue, a digital short film exploring an Islamic moral theme, a community service proposal for a local social problem, or a pedagogically-designed presentation sharing Islamic ethical principles with a younger audience. This culminating production operationalises Freire's praxis, Lickona's moral action component, and Islam's 'ilm nafi' principle simultaneously, and constitutes the only phase in which character formation can be directly observed rather than merely inferred.

3. Barriers and Strengthening Strategies

Research rigour requires honest acknowledgment of the significant barriers encountered in field implementation, as these determine the TAPAK Model's real-world applicability beyond ideally resourced environments. Three barriers were identified as most critical.

The first and most pervasive barrier was the digital competence gap among PAI teachers. Across all eight schools, 62.5% of teachers acknowledged using fewer than 40% of Google Classroom's available features a finding consistent with Mishra and Koehler's (2006) Technological Pedagogical Content Knowledge (TPACK) framework's identification of the integration of subject-specific pedagogy and digital tool competence as the most demanding and least-developed professional knowledge domain. Critically, this gap was not primarily technical; it was pedagogical. Teachers knew how to operate the platform but had not developed the intellectual frameworks to use it in ways that transcend the banking model.

The second barrier was paradigmatic resistance among experienced teachers, particularly those with more than 15 years of practice. This group expressed genuine, pedagogically grounded concerns that digital mediation would eliminate the embodied, relational, spiritual dimensions of PAI that are not susceptible to digitalization a concern that Postman's (1992) Technopoly takes seriously as a principled critique of technological imperialism in education. These concerns were not dismissed; they were incorporated into the TAPAK Model's design through the explicit preservation of oral tradition elements (the micro-lecture as micro-halaqa) and the insistence on moral action in physical as well as digital communities.

The third barrier was infrastructural inequity. While all participating schools had internet connectivity, connection quality varied considerably, and several students in semi-urban schools lacked personal devices, creating risks of digital exclusion that contradict both the Islamic principle of thalab al-'ilm as a universal obligation and the OECD's (2023) Education at a Glance finding that unmanaged digital integration tends to amplify rather than reduce existing educational inequalities.

In response, three strengthening strategies are proposed. First, a PAI Digital Mentoring programme modelled on community of practice theory (Lave & Wenger, 1991) and peer coaching research ((Darling-Hammond et al., 2017)), in which digitally proficient PAI teachers systematically mentor less experienced colleagues within school-based professional learning communities. Second, a formal Islamic Digital Literacy curriculum strand integrated into PAI syllabi, operationalising the principles of tabayyun (verification before sharing), tawazun (balance in digital consumption), and muraqabah (divine consciousness as self-monitoring) as actionable digital citizenship competencies (Syaifuddin & Musthofa, 2024). Third, a multi-sectoral strategic partnership framework linking Islamic schools with Google for Education Indonesia's free Educator Certification programme, provincial education authorities, and digital equity foundations, explicitly prioritising institutions in 3T (terdepan, terluar, tertinggal frontier, outer, underdeveloped) regions.

F. CONCLUSION

This study has empirically demonstrated that Google Classroom-based Islamic Religious Education (PAI), when designed and implemented within a dialogic-transformative pedagogical framework informed by Freire's critical pedagogy and Islamic tarbiyah principles, can achieve substantial and statistically robust improvements in students' character formation across three dimensions: religious character, digital integrity, and academic responsibility. The magnitude of observed effect sizes (Cohen's d ranging from 1.88 to 2.38) substantially exceeds what has been reported in prior literature on digital PAI, and the ANCOVA finding that pedagogical pattern—

rather than infrastructure quality or teacher experience is the primary predictor of character gain constitutes the study's most policy-consequential result.

The TAPAK Model proposed here with its five sequential-cyclical phases of Taqdim, Amali, Problem-Posing, Afkar, and Karya provides a theoretically grounded and empirically validated instructional blueprint for PAI educators seeking to realise the character formation potential of digital platforms without sacrificing the moral seriousness and spiritual depth that define Islamic pedagogy at its best. The model's deepest contribution is philosophical as much as practical: it insists that digital technology in Islamic education must be judged not by its efficiency in content delivery, but by its effectiveness in producing moral agents students whose Islamic learning becomes visible in the quality of their digital lives.

The study's limitations acknowledge its geographic scope (Java only), its focus on a single digital platform (Google Classroom), and the absence of a formal control group. Future research should investigate the TAPAK Model's generalisability in pesantren and rural madrasah contexts, its effectiveness across different LMS platforms, and its long-term character formation durability through longitudinal design. Comparative studies examining the model's applicability in other Muslim-majority educational contexts (Malaysia, Turkey, Egypt) would further establish its theoretical scope and cross-cultural validity.

For policy makers, the study's most urgent recommendation is the formal integration of Islamic Digital Pedagogy competencies into PAI teacher certification standards, pre-service curriculum requirements at LPTK Islam institutions, and continuing professional development frameworks at national and provincial levels. The aspiration is not merely better digital PAI instruction; it is an Islamic educational ecosystem in which every student regardless of geographic location, socioeconomic status, or institutional prestige has access to PAI learning that is simultaneously technologically sophisticated, pedagogically transformative, and morally serious. This aspiration is both an educational imperative and an Islamic one: li kulli al-ummah.

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