International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

Deconstruction Of The Pai Curriculum Based On Technological Pedagogical Content Knowledge (Tpack) Towards Mainstreaming Islamic Cybernetics Education

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Abstract

Conventional Islamic Religious Education Curriculum Still based on epistemology monodisciplinary that places revelation as the only one source truth without room dialectics adequate with digital reality, so that give birth to dichotomy religious and general knowledge, fragmentation content, as well as approach pedagogical normative- doctrinal neglect to transformation method know digital native generation. Research This aim For deconstruct Islamic Education curriculum in TPACK framework towards mainstreaming education Islamic cybernetics. Types research used is studies literature with data sources in the form of books, articles journal scientific, and reports results research. Research results disclose four findings main based on the subtitles studied. First, the epistemological problem conventional Islamic Education curriculum lies in the orientation normative-doctrinal, structure dichotomous monodisciplinary, and resistance to integration technology that causes religion to be alienated from reality existential participant educate in the room cyber. Second, deconstruction paradigmatic succeed dismantle binary opposition of revelation-reason and text-context as well as foundation monodisciplinary, open road going to organization curriculum transdisciplinarity and pedagogy transformative. Third, TPACK synthesis produces design repeat PAI content becomes contextual-applicative, pedagogy become constructivist-heutagogical, and technology as ecosystem Study adaptive that allows personalization spiritual learning. Fourth, mainstreaming education Islamic cybernetics produces prototype interconnection theoanthropocentric- digital ecosystem that places God as the Center of Control Transcendent, human as a self-organized learner, and technology as extended cognition in system curriculum autopoietic. Research conclude that transformation Islamic Education curriculum towards

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E-ISSN: 2986-0733

paradigm Islamic cybernetics is inevitability For answer digital disruption without lost essence revelation. Its implementation realized through curriculum platform development cybernetics adaptive, reorganization content transdisciplinary, strengthening teacher capacity as a learning experience designer, as well as compilation framework ethics cyber based Islamic values..

Keyword: Deconstruction Islamic Education Curriculum, TPACK, Islamic Cybernetics Education, Transdisciplinary.

INTRODUCTION

Islamic Religious Education in Indonesia is facing challenge increasingly paradoxical emerged in the era of digital disruption. In one side, PAI learning is required For maintain authenticity and purity Islamic teachings as spiritual and moral guidelines for participants educate, but on the other hand reality show that contemporary Muslim generation grow and develop in all-in-one digital ecosystem connected, where is the way they think, communicate, and construct knowledge has transform fundamentally. Applicable PAI curriculum during This Still designed with framework epistemological century middle that emphasizes transmission knowledge One direction and minimal interaction with development digital technology, so that create inequality between experience studying in class with reality life participant students who have integrated in a way intense with digital devices, social media, and intelligence artificial in daily life they. Condition This exacerbated by the reality that Islamic Education teachers in general Not yet own adequate Technological Pedagogical Content Knowledge competency For designing relevant religious learning in a way cultural and technological for digital native generation (Maulana & Asy'ari, 2023).

Revolution industry 4.0 and acceleration post digital transformation the COVID-19 pandemic has push occurrence convergence between the physical, digital, and biological worlds that have implications wide to all over aspect life humans, including method man understand, appreciate and practice religious teachings. Phenomenon like the rise study religious through digital platforms, the emergence of authority religious new in social media, and the use of intelligence artificial in digital fatwa is reality that is not can neglected by Islamic education. Unfortunately, the response PAI curriculum towards phenomenon This Still nature reactive and patchy embroidery, not yet touching on the fundamental transformation of the framework epistemological and pedagogical. In fact, Islamic education has not quite enough answer prophetic For guide people in navigate moral and spiritual complexity in space increasingly cyber No differentiated from room physical. Absence framework curriculum that is systematic

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integrate Islamic values with digital literacy and ethics cyber potential cause participant educate experience spiritual disorientation and inability in face challenge ethics in the digital era (Rahmawati & Setiawan, 2022). Thinking systematic means think about all component with consider the role of each component and how interact One each other so that set goals can achieved completely. Harmonious interaction or heterogeneous between one element with other elements will influence results and will influence succeed whether or not objective (Azmi et al., 2022).

In a way philosophical, the dichotomy that has been take root between religious knowledge and science general in system Islamic education in Indonesia is inheritance history that continues reproduced through structure a curriculum that separates in a way firm between eye Islamic Education lessons with science and technology. Dichotomy This has criticized in a way widely discussed by thinkers contemporary Islamic education as form reductionism contradictory epistemology with Spirit integrative Al-Qur'an which is precisely push reading to verses qauliyah and verses Kauniyah in a way simultaneous and mutual strengthen. In digital era context, dichotomy This the more problematic Because reality cyber No Again allows rigid separation between knowledge domains, but rather demand approach transdisciplinary capable respond complexity problem contemporary in a way holistic. Islamic education is necessary find return root its integrative epistemology, which in its golden age Islamic civilization is proven capable give birth to Muslim scientists who mastered science and technology at a time own complete spiritual depth (Abdullah, 2021).

Technological Pedagogical Content Knowledge framework developed by Mishra and Koehler actually has offers an integration model technology in learning that is not instrumental, but rather transformative. TPACK views that integration effective technology in learning occurs at the intersection between knowledge content, knowledge pedagogy and knowledge technology, which produces configuration unique For every context learning. However Thus, the implementation of TPACK in religious education, especially Islamic Religious Education, is still very limited and tends to be understood in a way simplistic as use device soft or digital applications as tool help teaching, without touch fundamental transformation at the content and pedagogical levels. In fact, the potential of TPACK for deconstruct and reconstruct PAI curriculum is very big, because framework This allows design experience learning that is not only integrate technology in a way meaningful, but also transformative method participant educate understand and appreciate religious teachings in context digital life that is all about connected (Wijayanti et al., 2024).

Phenomenon cybernetics as knowledge about control, communication, and feedback

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come back in system complex, good organic and artificial, offering perspective revolutionary new for Islamic education. Cybernetics allows understanding about curriculum No as defined static document top -down, but rather as system continuous adaptation update self through mechanism bait come back from participant students, teachers, society, and the digital environment. In perspective this, Islamic education can conceptualized as ecosystem smart learning, where Allah is source mark transcendent functioning as center control that provides direction and meaning, human as learners autonomous which has self-organization capacity, and technology as extended cognition that expands capacity human cognitive and spiritual aspects. Mainstreaming perspective cybernetics in Islamic education opens possibility For develop a curriculum model that is not only responsive to change, but also able to perform autopoiesis or renewal self in a way sustainable without lost essence values revelation of a nature eternal (Firdaus et al., 2023).

Study This leave from fundamental problems in the form of gap between structure PAI curriculum which is still based on epistemology monodisciplinary and pedagogy transmissive with reality demanding digital ecosystem integration knowledge in a way transdisciplinarity and pedagogy transformative. Gap analysis show that studies previously tend discuss integration technology in PAI in general partial and instrumental, not yet There is research that is comprehensive do deconstruction paradigmatic PAI curriculum and reconstructing it in TPACK-oriented framework going to mainstreaming education Islamic cybernetics as adaptive and autopoietic system. Urgency study This lies in the need urge For provide framework conceptual that can become runway transformation responsive Islamic Education curriculum to digital disruption at the same time guard authenticity Islamic values, so that religious education does not the more alienated from reality life participant educate. The purpose study This is For analyzing epistemological problems conventional PAI curriculum, deconstructing foundation its monodisciplinary, synthesizing TPACK framework in design repeat curriculum, and formulate prototype education Islamic cybernetics as direction new mainstreaming religious education in the digital era.

METHOD

Study This use approach studies literature or library research which is fundamentally based on exploration and analysis critical to sources relevant textual with focus study. Selection type study This based on characteristics material objects that are conceptual-philosophical, namely deconstruction TPACK -based PAI curriculum towards mainstreaming education Islamic cybernetics, which requires search deep to construction theoretical from various literature.

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Study literature allows researchers For conducting critical dialogue between text, identify gap conceptual, as well as build synthesis theoretical new without must jump to field in a way empirical. In context this, researcher positioning self as instrument the main thing that is active selecting, interpreting, and constructing knowledge from diverse source literature that has been verified validity academic approach this is very appropriate used when objective study is develop framework conceptual or theoretical models that are exploratory and transformative, as attempted in reconstruction curriculum Islamic education towards paradigm integrated cybernetics with technology pedagogical contemporary (Zed, 2022).

Data sources in study This consists of from three category main selected in a way purposive based on relevance and contribution to topic study. Category First is books scientific which includes literature about curriculum Islamic education, TPACK framework, cybernetics, philosophy education, and Islamic epistemology. Books This functioning as foundation theoretical that provides depth conceptual and framework philosophical for the entire process of deconstruction and reconstruction curriculum implemented. Category second is article journal scientific national and international reputable published in range the period from 2021 to 2026, which presents findings study latest and discourse latest about integration technology in religious education, development TPACK -based teacher professionals, as well as application principle cybernetics in design curriculum. Article journal This chosen through search systematically on academic databases reputable such as Scopus, Web of Science, SINTA, and Garuda with using keywords specifics that have been determined. Category third is report results study from institutions credible such as UNESCO, OECD, Ministry of Religion, and centers studies Islamic education that provides empirical data and analysis policy about digital transformation of religious education in Indonesia and the world. Third category this data source each other complete and form triangulation strengthening sources validity findings research (Creswell & Guetterman, 2023).

Data collection techniques in study This implemented through procedure systematic and structured documentation, following designed stages For ensure comprehensiveness and accuracy of the data collected. Stage First is heuristics, namely search and collection sources relevant literature through library searches physical and digital, online academic databases, repositories institutions, as well as catalog publisher. At this stage this, researcher use instrument sheet recording bibliographic For documenting metadata for each sources found, including Name author, year published, title, publisher, and keywords. Stage second is verification or criticism source, where the researcher do selection and evaluation to every sources that have been collected based on criteria authenticity, credibility and relevance with

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focus research. Stage third is codification, namely organizing sources selected to in category appropriate thematic with subtitles research, so that facilitate the analysis and citation process. Stage fourth is digitization and storage, where all source converted to in digital format and stored in system management reference based device soft For ensure accessibility and traceability during the analysis process ongoing (Sugiyono, 2023).

Data analysis techniques in study This use approach analysis content qualitative or operationalized qualitative content analysis through a series step rigorous and in-depth analysis. The analysis process started with data reduction, namely selection, simplification, and abstraction information from sources literature that has been codified. At this stage this, researcher read in a way intensive every source, marking segments relevant text, and extract concepts related keys with deconstruction curriculum, TPACK framework, and education Islamic cybernetics. Furthermore, researchers do categorization and coding thematic, where the concepts that have been extracted grouped to in categories and subcategories that reflect themes main research, such as epistemological problems, deconstruction paradigmatic, TPACK synthesis, and prototype cybernetics. The next step is synthesis and interpretation, where researchers build connection logical between category, identify patterns conceptual, and develop narrative analytical linking findings from various source become One unity coherent argument. As the peak, researchers do construction theoretical in the form of conceptual model formulation education Islamic cybernetics which is original synthesis of results analysis, which then validated through discussion with framework theoretical that has been established (Krippendorff, 2022).

Testing techniques validity of data in study literature This apply four trustworthiness criteria that have been adapted For context study based text. Criteria First is credibility or credibility achieved through triangulation source, namely compare and confirm information from three type different sources, namely books, articles journals and reports research. In addition In addition, researchers also applied member checking in form discussion with expert Islamic education and technology education For confirm interpretation and findings conceptual results generated. Criteria second is transferability or transferability is met through presentation rich and in-depth description (thick description) of context, process, and findings research, so that reader can evaluate the extent of the concept produced can transferred to other similar contexts. Criteria third is dependability or guaranteed dependability through an audit trail, namely documentation in a way systematic and transparent all over traces of the research process, starting from search source, selection literature, analysis process, to withdrawal conclusion. Criteria fourth is confirmability or confirmability achieved through practice

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reflexivity, where researchers in a way aware identify and document possible assumptions, biases, and positionalities influence data interpretation, as well as guard distance critical between subjectivity researchers and the objectivity of the data analyzed (Abdussamad, 2021).

RESULTS AND DISCUSSION

Genealogy and Anatomy Conventional Islamic Education Curriculum: Identifying Epistemological Problems in the Digital Era

Genealogy conventional Islamic Religious Education curriculum in Indonesia shows root historical sources from tradition transmission classical Islamic scholarship that emphasizes authority text and reproduction knowledge linearly. The fundamental structure of the applicable PAI curriculum during This built on foundation epistemology monodisciplinary that places revelation as the only one source truth without give room adequate dialectics with reality empirical and developmental modern science. Construction This give birth to anatomy curriculum with a character dichotomous, where religious sciences are positioned in a way separate and superior to sciences profane, so that create canyon increasingly epistemological wide in the middle the digital revolution demands integration knowledge in a way holistic and transdisciplinary (Rahman, 2022).

Structure organization content conventional Islamic Education curriculum arranged rigidly in categories that are fragmentary, including the Qur'an, Hadith, Aqidah Morals, Fiqh, and the History of Islamic Culture are presented as entities standing knowledge Alone without clear interconnection. Sorting This reflect inheritance epistemology century the middle that has not been touched by the way think systemic and holistic which becomes character the main digital era. As a result fragmentation this, participants educate experience difficulty in understand Islam as system integral and relevant values with complexity life contemporary marked by convergence technology information, intelligence artificial, and interconnected digital ecosystems connected (Hassan & Abdullah, 2023).

The most fundamental epistemological problem lies in orientation PAI curriculum which is normative-doctrinal and tends ignore dimensions critical-reflective in the learning process. Approach dominant pedagogical is indoctrination values religious in a way One direction, where the teacher plays a role as source authority single and participant educate positioned as recipient passive that must be memorize and accept truth without a deep dialectical process. In the context of the digital era marked by democratization access information and multiplicity source knowledge, approach kind of This become the more No relevant Because fail equip participant

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educate with ability think critical and digital literacy required For sorting and responding flood information religious in space cyber (Williams et al., 2021).

Absence integration technology in framework epistemological PAI curriculum is manifestation from resistance to modernity rooted in assumptions that technology nature neutral or even threat to purity religious teachings. Paradigm This ignore reality that technology has become environment life environment of the digital generation that does not can separated from method they think, communicate, and build understanding about the world. The PAI curriculum that ignores to fact this is in essence has fail operate function prophetic For guide people in face challenge his time, because of the religion that was taught alienated from reality existential participant growing students in all-in-one digital ecosystem connected (Kurniawan, 2023).

In a way philosophical, epistemological problems conventional Islamic Education curriculum centered on his inability in respond change method ways of knowing triggered by the digital revolution. Epistemology underlying tradition curriculum This based on linear logic and structure hierarchical that is not Again adequate For understand reality Cyber education is non -linear, distributed, and complex. Contemporary Islamic education need reorientation epistemologically capable bridge method analog- based thinking text holy with method digital thinking based on data, algorithms, and networks, so that religion does not trapped in shell epistemology that makes it lost Power relevant in the middle civilization in progress transform fundamentally (Thompson & Ibrahim, 2022).

Identified epistemological problems in conventional Islamic Education curriculum can understood through framework analysis cybernetics which emphasizes mechanisms bait return and adaptation system to change environment. Rigid and closed curriculum to innovation technology basically is the system that is experiencing entropy, namely trend going to chaos and loss energy Because No capable do exchange information with environment external in a way effective. In perspective cybernetics, systems healthy education must nature open and capable perform autopoiesis, namely ability For update self in a way continously through interaction with environment, including today 's digital environment become a natural habitat generation new (Mulyadi & Putri, 2023).

Fragmentation content the scattered PAI curriculum in eye separate lessons is antithesis from Spirit integration science that becomes inevitability in the digital age. Revolution technology information has push convergence various discipline science and creating fields knowledge new nature interdisciplinary and transdisciplinary, such as bioinformatics, neurotechnology, and intelligence artificial that is not can understood through approach

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monodisciplinary. Islamic education must respond phenomenon This with develop framework epistemologically capable integrate revelation, reason, and data in One unity system coherent knowledge, as implied by the concept of true monotheism is integration and unity (Abdurrahman, 2022).

Approach normative- doctrinal dominating PAI pedagogy is necessary reviewed repeat in context digital society characterized by democratization knowledge and multiplicity authority. The post-truth era and the echo chamber phenomenon on social media has create challenge new in need ability critical digital literacy that is not Possible developed through pedagogy indoctrination. Contemporary Islamic education must transform from the transmission model to an empowering transformation model participant educate For become subject active in construct understanding contextual and responsive religious to dynamics of the times (Rahman & Hidayat, 2024).

Absence integration technology in PAI curriculum is reflection from dichotomy that has been take root in contemporary Islamic thought between tradition and modernity. In fact, classical Islamic history show that Muslim civilization once become pioneer in integrate science, technology, and spirituality in One harmonious unity. Revitalization Spirit integrative This become imperative for contemporary Islamic education that must be find return balance between maintenance authenticity teachings and adaptations to demands of the times, as confirmed by the rules jurisprudence which states that law changed along changes in times, places and circumstances (Hassan et al., 2023).

Transformation epistemological PAI curriculum requires shift from method think mechanistic going to method think cybernetics that understands reality as complex, adaptive, and interconnected systems connected. Cybernetics as knowledge about control and communication in system, good machine and organism live, offer framework strong conceptual For understand How Islamic education can functioning as intelligent and responsive system. In framework this, curriculum No Again understood as static documents instead as an ongoing program updated through mechanism bait come back from participant education, society, and the digital environment that continues to evolved (Widodo et al., 2021).

Deconstruction PAI Paradigmatics: Unpacking Foundation Monodisciplinary Going to Framework Transdisciplinary

Deconstruction paradigmatic to PAI curriculum begins with demolition to structure binary opposition that has been take root in epistemology conventional Islamic education. Opposition between revelation and reason, text and context, as well everyday and worldly This

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become fundamental framework in understanding Islam has create hierarchy inhibiting knowledge development thinking integrative analysis library show that this binary structure No nature nature but is construction historically formed in context fight epistemological between various sect Islamic thought in its formative period, so can and need deconstructed For open road for paradigm newer relevant with the digital era that demands synthesis and integration (Anderson & Yusuf, 2022).

Demolition foundation monodisciplinary PAI curriculum reveals existence assumptions hidden that religious truth is exclusive and not need validation from sources knowledge other. Assumptions This contradictory with the spirit of the Qur'an which is precisely push reading to verses kauniyah (signs in nature) universe) as source equivalent knowledge with verses qauliyah (text revelation). In perspective cybernetics, nature universe and digital technology are system information that also contains possible signs read as manifestation from laws God, so that separation between religious knowledge and science general become No own base solid epistemology (Mulyadi, 2024).

Deconstruction to structure compartmentalized curriculum in eye lesson separated open possibility For organize PAI content in general transdisciplinary, namely beyond boundaries discipline knowledge going to holistic understanding about reality. Approach transdisciplinary allows themes like not quite enough answer man as a caliph on earth reviewed in a way simultaneous from perspective theology, ecology, digital economy, and intelligence artificial in One unity meaningful learning. Organization curriculum kind of This more in accordance with method Work brain humans and more relevant with complexity problems contemporary that is not can solved through approach monodisciplinary (Rahman, 2023).

Shift from pedagogy transmission going to pedagogy transformative is consequence logical from deconstruction paradigm monodisciplinary. If knowledge No Again understood as entities that have so and stay transferred, but rather as ongoing construction develop through dialogue and interaction, then the role of teachers is shifting from transmitter to facilitators and co-learners who work together with participant educate construct understanding. In context this, digital technology is not just tool help but become environment learning that is possible occurrence connection with diverse source knowledge and community learning beyond limit room class conventional (Harrison et al., 2023).

deconstruction process also reveals the need redefinition about draft success in Islamic education. During In this case, the success of PAI is measured from ability participant educate in reproduce verbal religious knowledge and performing rituals outwardly, without notice whether knowledge the has transformed become reflected spiritual awareness in behavior ethics in the

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digital world. Paradigm new demand indicator success that includes ability participant educate in navigate moral complexity in space cyber, developing digital empathy, and using technology For welfare people man as manifestation from mercy lil ' alamin (Hidayat, 2022).

Deconstruction binary opposition in epistemology Islamic education finds its relevance with development latest in theory complexity and post- structuralist thinking that emphasizes that reality nature liquid and mutual connected. The desired Islamic cybernetics education precisely need liberation from confinement binary thinking to be able to develop a learning model that values ambiguity, paradox, and uncertainty as characteristics inherent from complex system. In framework this, faith and knowledge is not conflicting entities but two interrelated dimensions complete in journey man look for truth, as illustrated by metaphor light in the Qur'an which describes Lord as Light illuminating heaven and earth all something (Sari & Nuraini, 2023).

Shift going to framework transdisciplinary in PAI curriculum in line with findings in neuroscience that shows that brain man Study in a way associative and holistic, not in checkered separate disciplines. Integrated learning various perspective science in study something theme create network richer nerves and facilitates knowledge transfer to diverse contexts. The implication is that Islamic education needs to designing experience learning that is possible participant educate see relatedness between concepts religious with phenomenon science and technology, so formed complete understanding about How Islamic values operate in multidimensional reality (Kusuma & Pratama, 2024).

Transformation pedagogical from the transmission model to the transformative model is response to change profile participant education in the digital era that is not Again can satisfied with approach lectures and memorization. The digital generation is accustomed learners with interactivity, personalization, and access instant to information, so that need approach participatory and problem -based learning project. Pedagogy transformative in PAI context integrates method learning based problems (problem-based learning) that involve participant educate in overcome issues ethical and spiritual that emerges from use digital technology, such as data privacy, social media addiction, and dehumanization in virtual interaction (Fauzan, 2022).

Redefinition draft success Islamic education must consider findings psychology positive and educational character that emphasizes importance dimensions affective and psychomotor besides cognitive. The success of PAI in the digital era is not Enough measured from score exam written about religious knowledge, but rather must covers ability participant educate in show digital integrity, spiritual resilience in face content negative, and creativity in utilise technology For preaching and service social approach evaluation authentic in nature portfolio and based

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project become more relevant For measure achievements This multidimensional learning (Nuraini & Setiawan, 2023).

Deconstruction paradigmatic in the end open room For think about return position man in digital ecosystem of Islamic perspective. Human as caliph no only responsible answer to natural physique but also towards room cyber that has become an integral part of life contemporary. Islamic cybernetics education must equip participant educate with awareness that every actions in the digital world have consequence ethical and spiritual, as well as that technology can become means For get closer self to Lord if used in framework values divine (Yusuf & Rahmawati, 2024).

TPACK synthesis in Islamic Education Curriculum: Redesign Content, Pedagogy, and Technology as System Intelligent

Synthesis TPACK (Technological Pedagogical Content Knowledge) framework in PAI curriculum produces design fundamental review of three interrelated domains of knowledge intersecting. Domain Content Knowledge (CK) or knowledge content experience transformation from textual-normative understanding of religion going to understanding contextual-applicative that integrates findings science contemporary. PAI material is not Again served as doctrine that must be accepted without discussion, but rather as system open value For dialogued with reality contemporary, including issues bioethics, intelligence artificial, and digital ethics that become challenge new for people religion in the 21st century (Kusumawati, 2024).

The Pedagogical Knowledge (PK) Domain is transformed from approach teacher - centered instruction towards approach constructivist and empowering heutagogy participant educate as agent autonomous learning. The TPACK framework encourages use of learning strategies active such as inquiry-based learning, project-based learning, and flipped classroom which enable participant educate construct understanding his religion through exploration, experimentation, and collaboration. Approach This more in accordance with character digital generation that is accustomed to with self-directed and collaborative learning modes through digital platforms, as well as allows personalization learning in accordance with speed, force learning, and the interests of each individual (Rahmawati, 2023).

Domain Technological Knowledge (TK) in the context of PAI is not just covers skills operational use device soft or application, but rather expanding become understanding critical about How technology form method think, interact, and understand reality. Islamic Education teachers need to control literacy deep technology, incl understanding about social media algorithms, filter bubble mechanisms, and implications ethical from big data, to be able to guide

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participant educate in navigate digital landscape with high spiritual awareness. Technology in framework This positioned as environment learning (learning ecosystem) that mediates interaction between participant educate with content, teachers, and peers learners in a network that transcends limit geographical and temporal (Abdullah & Hassan, 2022).

Intersection between content, pedagogy, and technology in TPACK gave birth to a PAI learning model that is emergent and adaptive, where all three component the each other influence and shape unique configuration For every context learning. For example, the use of simulation virtual reality (VR) for learning Islamic history combines understanding content about incident history, experiential learning pedagogical strategies, and technology immersive that creates experience deep learning. Another example is use of discussion platforms asynchronous AI- based that enables personalization question reflective in accordance with level understanding and spiritual development of each participant education (Miller et al., 2021).

TPACK synthesis in The Islamic Education curriculum also requires development system transformative assessment, going beyond test write conventional going to assessment based authentic digital performance. E-portfolio, digital storytelling project about Islamic values, and contributions participant educate in the discussion forum online religious becomes proof more learning meaningful than just score exam. System assessment kind of This allows holistic assessment covers dimensions cognitive, affective, and spiritual, as well as give bait constructive feedback For development self participant educate in a way sustainable in a lifelong learning framework that becomes character education 21st century (Wijaya, 2022).

Implementation TPACK framework in PAI curriculum transforms the role of teachers transmitter content become designer experience learning (learning experience designer) that integrates technology in a way pedagogical and meaningful. Changes role This need development sustainable and based teacher professionalism community community of practice, where Islamic Education teachers share knowledge with each other share experience, practice good, and source digital power in ecosystem collaborative research latest show that development Effective teacher professionalism in the digital era is informal, distributed, and occurs through network social and sharing platforms content, not only through formal training that is top-down (Hakim & Fadillah, 2023).

Challenge main in TPACK synthesis in PAI is resistance from those who view integration technology as form westernization or secularization Islamic education. Concerns This need responded to with a wise and based approach argumentation solid theology, showing that technology in essence is neutral and reliable tool used For strengthen spirituality if developed in framework Islamic values. Discourse about Islamic digital ethics and jurisprudence technology

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need developed as an integral part of PAI curriculum, so that participant educate own framework clear normative in interact with technology without lost identity his Islam (Syahputra & Maulida, 2022).

TPACK synthesis also opens up opportunity For develop PAI content that is dynamic and responsive to development technology latest. Emergence technology such as blockchain, metaverse, and brain-computer interface present questions ethical and theological new must responded to by Islamic education. The PAI curriculum based on TPACK has flexibility For accommodate these emerging issues through mechanism update sustainable content, so that Islamic education remains relevant and become references in discourse ethics global technology (Wardhana & Safitri, 2024).

Personalization learning enabled by TPACK integration is very much in line with the concept of fitrah in Islam which views every man born with potential unique that is necessary developed individually. Technology adaptive based intelligence artificial allows adapted Islamic Religious Education learning with profile learning, level understanding and spiritual needs of each participant educate, a a difficult possibility realized in the learning model classical conventional. Personalization this also allows differentiation content in accordance with diversity schools of thought and traditions religious beliefs participant educate, so that Islamic education becomes more inclusive and respectful diversity (Irawan, 2022).

At the system level, TPACK synthesis demands transformation infrastructure and policies Islamic education that supports integration technology in a way meaningful. Availability of digital learning platforms, adequate internet access, and policies that encourage innovation learning become prerequisites that must be met fulfilled. But what is more important is change culture organization schools and madrasas towards culture open, collaborative, and improvement - oriented learning continuous improvement, where experimentation and decision making measurable risk in innovation learning appreciated and supported (Kurniawan & Lestari, 2024).

Going to Mainstreaming Islamic Cybernetics Education: A Prototype Interconnection Theoanthropocentric- Digital Ecosystem

Mainstreaming education Islamic cybernetics projects prototype curriculum built on interconnection three axis Main: God as the Control Center Transcendental that becomes source values and goals end education, human as a self-organized learner who has autonomy and responsibility answer in the learning process, as well as technology as extended cognition that expands capacity human cognitive and spiritual. Trichotomy This form ecosystem learning that is cybernetics, where there is mechanism bait constant feedback loop between third component said, creating adaptive, self-correcting, and evolving systems in accordance with internal and

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external dynamics. In prototype this, Islamic education does not Again understood as a linear transfer of knowledge, but rather as system complex and multidirectional communication (Rahmat, 2023).

God as the Control Center Transcendent functioning as source values, meanings, and purposes that provide direction and coherence throughout activity learning. Different with system cybernetics secular which places efficiency and optimization as mark highest education Islamic cybernetics orients the entire learning process on achievement proximity with Allah (taqarrub) illallah) and embodiment the caliphate in charge answer. Concept This in line with human nature as creatures that have dimensions transcendence and necessity will transcendent meaning just material and intellectual achievements, as hinted at in the Qur'an that objective creation humans and jinn is For worship to Allah (Suryadi, 2022).

Man as a self-organized learner in ecosystem Islamic cybernetics has capacity For organize his learning self -organization based on the principles of monotheism that have been internalized. Autonomy learners This is not freedom without direction, but rather responsible freedom answer in framework values divine being moral and spiritual compass. Digital technology enables personalization radical learning, but in perspective Islamic cybernetics, personalization the still bound by guidance revelation and exemplary behavior Prophet Muhammad as a complete learning model (uswatun hasanah), so that freedom individual No trapped in moral relativism is a problem in post-modern society (Nasution & Rahayu, 2024).

Technology as extended cognition in framework Islamic cybernetics is expanding tool capacity man in understand, process, and respond information from environment, including spiritual information. The evolving concept of the extended mind in philosophy cognitive contemporary find its resonance with Islamic understanding that reason man own limitations and needs help external, good in the form of revelation and tools cognitive development through science and technology. In context this, intelligence artificial intelligence, big data, and the Internet of Things can become means For read signs the greatness of God in nature universe (verse kauniyah) in a more comprehensive and in-depth, during used in framework monotheistic awareness that prevents vanity technological and dehumanization (Anderson et al., 2023).

Prototype this also includes the mechanism of curriculum autopoiesis, namely ability curriculum For update himself Alone in a way sustainable based on bait come back from participant education, society, and development knowledge knowledge. Different with curriculum conventional which is static and only revised in a way periodic, curriculum cybernetics nature dynamic and continuous adapt self with change environment without lost essence and values fundamentals. Mechanism This allows Islamic education for always relevant

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and responsive to challenges of the times, at the same time guard authenticity teachings that originate from from revelation of a nature eternal and universal (Hasanah, 2024).

Mainstreaming education Islamic cybernetics marks shift paradigmatic from the education model based curriculum standard towards an educational model based ecosystem complex and adaptive learning. Shift This is response to reality digital society characterized by volatility, uncertainty, complexity, and ambiguity (VUCA), where the approach rigid and standardized education No Again capable equip participant educate with required competencies For survive and thrive. Islamic education as system must transform become resilient and adaptive systems, capable of respond change without lost orientation the value that is its raison d'être (Firdaus & Kholid, 2022).

Draft man as a self-organized learner in perspective Islamic cybernetics has implications important to design experience learning. Environment Study need designed as a space that is rich in stimulus and provides diverse source learning that allows participant educate explore, experiment, and construct his understanding alone. Technology adaptive AI- based can play a role as assistant personal learning that provides recommendations, scaffolding, and challenges in accordance with development participant educate, while teachers play a role as a spiritual mentor who guides journey transformation self participant educate going to maturity perfect faith and morals (Syamsuddin & Hidayati, 2024).

Development curriculum cybernetics need infrastructure supporting technology connectivity and interoperability between various platforms and sources Study. Learning Management System (LMS) used in Islamic education is necessary evolve become an open digital ecosystem, enabling integration with various applications and services external through a standard API (Application Programming Interface). More far, utilization blockchain technology can give solution For verification credentials learning, digital portfolios that are not can manipulated, and the system reputation that drives accountability in community learning (Rahman & Puspitasari, 2023).

Dimensions ethics and safety become attention Serious in implementation education Islamic cybernetics, considering integration deep technology bring risk data misuse, breach privacy, and manipulation algorithmic that can threaten spiritual autonomy of participants educate. Islamic education is necessary develop framework comprehensive digital ethics, which does not only arrange legal-formal aspects but also touching spiritual dimension of interaction human-technology. Concepts like ihsan in media social, wara ' in consumption digital content, and muraqabah (awareness supervised by Allah) in every online activities are necessary internalized as runway ethics Muslim cyber (Hasan & Nurhayati, 2021).

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International Journal of Technology and Education Research

https://e-journal.citakonsultindo.or.id/index.php/IJETER

E-ISSN: 2986-0733

Mainstreaming education Islamic cybernetics in the end culminating in a vision big about role Islamic education in form civilized digital civilization. In vision this, Muslims do not only become consumer passive technology developed by civilization other, but become contributor active coloring development technology with Islamic spiritual and ethical values. Islamic education in the digital era must capable give birth to generation of Muslim techno-sapiens who dominate science and technology at a time own spiritual depth, so that capable become witness and mercy for universe in context global digital civilization (Santoso et al., 2022).

CONCLUSION

Study This conclude that conventional Islamic Religious Education curriculum experiencing fundamental epistemological problems rooted in the structure monodisciplinary, dichotomy religious and general knowledge, as well as approach normative- doctrinal neglect to digital reality, so that need deconstruction paradigmatic in a way comprehensive going to framework transdisciplinary capable integrate revelation, reason, and data in One unity system coherent knowledge. Synthesis The TPACK framework produces design repeat transformative PAI curriculum content become contextual-applicative, pedagogy become transformative-heutagogical, and technology become ecosystem mediating learning interaction multidirectional between participant students, teachers, and resources knowledge. Peak from the entire process of deconstruction and synthesis This is prototype education Islamic cybernetics built on interconnection three axis main, namely God as the Control Center Transcendent, human as a self-organized learner, and technology as extended cognition, which forms ecosystem learning adaptive, self-correcting, and autopoietic without lost essence revelation. With Thus, mainstreaming education Islamic cybernetics is not robotization religious learning, but rather fundamental transformation towards system intelligent, responsive and relevant Islamic education with digital civilization, at the same time still rooted in values eternal divine.

Implementation results study This realized through curriculum platform development TPACK -based PAI cybernetics equipped with system intelligence artificial adaptive For personalization learning in accordance spiritual and cognitive profile every participant educate, accompanied by strengthening teacher capacity through development programs professional sustainable based community digital practices to be able to play a role as designer experience learning and spiritual mentoring. Islamic educational institutions in general gradually apply reorganization content curriculum in a way transdisciplinary in form modules thematic integrative that studies issues contemporary like ethics intelligence artificial, digital ecology, and

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bioethics from Islamic perspective, supported system assessment authentic based digital portfolio. Government and stakeholders policy need compile regulations and policies that encourage innovation digital learning in madrasas and Islamic schools, including provision infrastructure technology, standards platform interoperability, as well as framework ethics and safety cyber based Islamic values. Multi- stakeholder collaboration between institutions education, industry technology and organization religious become key For build ecosystem education inclusive, sustainable and capable Islamic cybernetics give birth to generation of Muslim techno-sapiens who dominate science and technology at a time own spiritual depth as form real mercy lil ' alamin in the era of global digital civilization.

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