Golden Generation 2045 Curriculum: Integrating Islamic Value, Digital Competence, and Reproductive Health To Address Indonesia's Demographic Bonus

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ABSTRACT

Indonesia is currently experiencing a demographic bonus period, presenting both a golden opportunity and a significant challenge on the path towards Golden Indonesia 2045. However, low digital competence, moral degradation, and adolescent reproductive health issues threaten the realization of a superior generation. This study aims to formulate an integrative 'Generation 2045' Curriculum Model that unites three main pillars: Islamic values, digital competence, and reproductive health. Employing a holistic curriculum integration framework grounded in the Maqasid al-Shari'ah (Objectives of Islamic Law) and 21st Century Skills paradigms, this research utilizes a qualitative literature study method with content analysis. The study produces a curriculum model that positions Islamic values as the philosophical-ethical foundation, digital competence as the tool, and reproductive health as the well-being guarantor. This model is operationalized through thematic integration, pedagogical approaches such as project-based learning, and implementation at the levels of school operational curriculum, extracurricular activities, and community engagement. Its implementation anticipates key challenges including teacher readiness in interdisciplinary teaching, the need for policy alignment within the Merdeka Curriculum framework, and disparities in digital infrastructure. The findings indicate that integrating these three pillars creates a mutually reinforcing synergy, is culturally relevant, and offers a holistic preventive approach. This model is proposed as an educational strategy to ensure the demographic bonus can be optimally utilized to realize a Golden Generation 2045. Furthermore, it calls for empirical research and development (R&D) cycles for model validation and field testing.

Keyword: Digital Competence; Demographic Bonus; Integrative Curriculum; Reproductive Health

INTRODUCTION

Indonesia is in a period of demographic bonus, which represents both a golden opportunity and a major challenge towards the vision of Golden Indonesia 2045. Data from the Central Statistics Agency (BPS) and the National Development Planning Agency (Bappenas) show that the proportion of the productive age population (15-64 years) will peak at around 70% of the total population during the 2030-2040 period.[1] This demographic phenomenon is a double-edged sword. On one hand, it offers tremendous potential for a demographic dividend in the form of an abundant workforce, high creativity, and rapid economic growth if managed optimally[2] On the other hand, it has the potential to become a disaster resulting in a lost

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[1] BPS, *Keadaan Angkatan Kerja di Indonesia Agustus 2023* (Jakarta, 2023).
[2] Ronald Lee dan Andrew Mason, "Fertility, Human Capital, and Economic Growth over the Demographic Transition," *European Journal of Population / Revue européenne de Démographie* 26, no. 2 (2010): 159–82, https://doi.org/10.1007/s10680-009-9186-x.

generation[3] if the younger generation is not adequately prepared, especially in facing technological disruption and shifting social values.

The challenges faced by today's youth are multidimensional. First, the challenges of the Industrial Revolution 4.0[4] and Society 5.0[5] demand mastery of digital competencies a global prerequisite as noted in OECD (2019) skills assessments. Furthermore, the challenge of delivering culturally-sensitive reproductive health education aligns with global debates,[6] while the integration of religious values with modern curricula finds parallels in discussions in other Muslim-majority contexts such as Malaysia and Jordan. Second, the flow of globalization and digitalization[7] also brings impacts of moral degradation and identity crisis, requiring a strong filter in the form of robust character education. Third, the issue of adolescent reproductive health remains a serious problem.[8] Data from the Indonesian Demographic and Health Survey (IDHS) records concerning rates of child marriage and adolescent pregnancy, which not only impact health but also threaten their educational future and productivity.[9] While existing literature has addressed these challenges in isolation for instance, studies on integrating Islamic values in education,[10] frameworks for digital competence,[11] and the importance of reproductive health education[12] a significant research gap persists. There is a paucity of studies that propose a unified curriculum model explicitly designed to synergistically integrate all three pillars. Most approaches remain siloed, leading to fragmented educational responses. This study aims to bridge this gap by constructing a holistic curriculum model where Islamic values provide the ethical foundation for developing digital competence and managing reproductive health, specifically tailored to harness Indonesia's demographic bonus.

The national education system bears the primary responsibility for addressing these challenges. However, curriculum approaches that are often still segmented and unintegrated result in a heavy learning burden that fails to address fundamental needs. Character education, digital competence, and reproductive health are often taught as separate subjects or programs, thus losing their context and transformative power.[13] Here, Islamic values, which are an integral

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[3] Rosi Smith, "The Lost Generation," dalam *Education, Citizenship, and Cuban Identity* (Palgrave Macmillan US, 2016), https://doi.org/10.1057/978-1-137-58306-2_5.

[4] Delipiter Lase, "Pendidikan di Era Revolusi Industri 4.0," *SUNDERMANN: Jurnal Ilmiah Teologi, Pendidikan, Sains, Humaniora dan Kebudayaan* 12, no. 2 (2019): 28–43, https://doi.org/10.36588/sundermann.v1i1.18.

[5] Sihan Huang dkk., "Industry 5.0 and Society 5.0—Comparison, complementation and co-evolution," *Journal of Manufacturing Systems* 64 (Juli 2022): 424–28, https://doi.org/10.1016/j.jmsy.2022.07.010.

[6] U N Women dan UNICEF, *International technical guidance on sexuality education: an evidence-informed approach* (UNESCO Publishing, 2018).

[7] R M Wibawanto Nugroho Widodo dkk., *Pancasila Di Era Globalisasi Dan Digitalisasi: Panduan Memahami dan Mengamalkan Pancasila dalam Konteks Modern* (Deepublish, 2024).

[8] Lee dan Mason, "Fertility, Human Capital, and Economic Growth over the Demographic Transition."

[9] Sukamdi Puspasari dan Ova Emilia, "Paparan informasi kesehatan reproduksi melalui media pada perilaku seksual pranikah: analisis data survei demografi kesehatan Indonesia 2012," *Berita Kedokteran Masyarakat* 33, no. 1 (2017): 31–36.

[10] Awang Moslem Awang Annuar dan Jati Kasuma Ali, "Systematic Literature Review on the Relationship Between Islam and Organizational Performance," *International Journal of Academic Research in Business and Social Sciences* 11, no. 10 (2021): 367–83, https://doi.org/10.6007/IJARBSS/v11-i10/11176.

[11] Klaus Schwab, "World economic forum," *Global Competitiveness Report (2014-2015)*, 2015; OECD, "An OECD learning framework 2030," dalam *The future of education and labor* (Springer, 2019).

[12] Lynn Meskell, *A future in ruins: UNESCO, world heritage, and the dream of peace* (Oxford University Press, 2018).

[13] Ahmad Muzajjad Faqihudin, "Separated Subject Curriculum (Curriculum in Learning Islamic Religious Education at Darussalam Boarding School Purwokerto)," *International Proceedings of Nusantara Raya* 2 (2023): 272–76.

part of the Indonesian national identity, emerge as a crucial ethical and spiritual foundation. Islamic values not only teach individual morals but also provide a moral framework for using technology wisely (digital ethics) and maintaining physical and spiritual health as a form of gratitude and guardianship of Allah's trust.[14] The integration of Islamic values with national insight and modernity is a necessity for shaping a generation that is superior, virtuous, and healthy.[15]

Therefore, this study intends to formulate an integrative curriculum model that unites three main pillars: Islamic values, digital competence, and reproductive health. This model is proposed as an educational strategy to ensure the demographic bonus can be utilized optimally to realize a Golden Generation 2045 that is intelligent, competitive, virtuous, and physically and mentally healthy. The research problem is: How can a curriculum model that integrates Islamic values, digital competence, and reproductive health be designed to address the challenges of the demographic bonus in realizing the Golden Generation 2045? This research aims to develop an integrative curriculum model that combines Islamic values, digital competence, and reproductive health as a strategic effort in preparing the younger generation to face the challenges of the demographic bonus. Theoretically, this research is expected to contribute significantly to the scientific treasury, particularly in the realm of curriculum development, by providing an integrative and contextual theoretical model. Furthermore, this study also offers a new perspective in dialoguing Islamic values with modern concepts such as digital competence and reproductive health education, thereby enriching academic discourse amidst increasingly complex contemporary challenges.

Practically, this research has broad relevance for various stakeholders. For policymakers in the Ministry of Education, Culture, Research, and Technology and the Ministry of Religious Affairs, the findings of this research can serve as valuable consideration in formulating and developing national curriculum policies that are more adaptive and relevant to the needs of the contemporary era. For educational institutions, both schools and madrasas, the results of this research can be a reference in designing holistic learning programs oriented towards shaping student character and competence. For teachers and educational staff, this research can enhance understanding of the urgency of an integrative approach in the learning process. Meanwhile, for parents and the wider community, this research is expected to strengthen awareness about the importance of collaboration between formal and informal education in shaping a superior and virtuous younger generation.

In terms of originality and novelty, this research presents several significant distinctions compared to previous studies. First, this research promotes a holistic integrative approach by explicitly designing a curriculum framework that unites three main pillars Islamic values, digital competence, and reproductive health which have often been discussed separately in various literature. Second, the developed curriculum model is not generic but is specifically designed to address the strategic challenges of the Indonesian nation, namely the demographic bonus and the vision of Golden Indonesia 2045, thus having strong and contextual national relevance. Third, this research positions Islamic values not as a complementary element, but as a philosophical and ethical foundation framing the utilization of digital competence and the management of reproductive health, such as transforming the concept of *amr ma'ruf nahi munkar* in digital literacy and placing the concept of *'iffah* (maintaining personal purity) as the

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[14] Mukhsin Mukhsin dan Ilzam Hubby Dzikrillah Alfani, "Imam Shafi'i's Educational Thought And Its Implications For Contemporary Islamic Education," *Oasis : Jurnal Ilmiah Kajian Islam* 9, no. 1 (2024): 34, https://doi.org/10.24235/oasis.v9i1.18405.

[15] Mukhsin Mukhsin dkk., "The Role of Nahdlatul Ulama and Muhammadiyah Youth in Promoting Islamic Moderation in Indonesia," *An-Nida'* 48, no. 2 (2024): 183–205, https://doi.org/10.24014/an-nida.v48i2.32457.

basis for reproductive health education. Fourth, this research adopts a future studies perspective by not only focusing on current educational needs but also projecting competency and character needs for the next two decades through future-oriented curriculum design, an approach rarely found in similar research.

METHOD

This study employs a qualitative research design with a systematic literature review (SLR) approach[16], aimed at conceptual model building. The SLR protocol was chosen to ensure a comprehensive, transparent, and replicable synthesis of existing knowledge to develop the integrative Generation 2045 curriculum model. For the purpose of this study, the three pillars are defined as follows: Islamic values **r**efer to universal ethical principles derived from the Qur'an and Sunnah that govern human conduct.[17] In this model, the focus is on values pertinent to technology and well-being, Digital competence extends beyond technical literacy to encompass critical digital citizenship, computational thinking, and the ethical creation and use of digital content, framed here within an Islamic ethical framework.[18] Reproductive health adopts a holistic WHO definition, encompassing physical, mental, and social well-being in matters related to reproduction.[19] It is approached not merely biologically but through a lens of personal responsibility (*taklif*) and preservation of dignity (*'iffah*) and progeny (*hifdz al-nasl*).

Data consisted of primary and secondary sources. Primary sources included: (1) National strategic documents (e.g., Golden Indonesia 2045 Roadmap, Law No. 20/2003 on National Education System, Merdeka Curriculum guidelines); (2) Core Islamic texts (the Qur'an and Hadith) and authoritative exegeses (*tafsir*) on relevant verses; and (3) Foundational works by key Islamic education thinkers. Secondary sources comprised peer-reviewed journal articles, books, and reports from reputable international organizations (e.g., WHO, UNESCO, World Bank). A systematic search was conducted in digital databases (Scopus, ERIC, Google Scholar, and national journal portals) using keyword combinations: (demographic bonus or demographic dividend) AND (Indonesia) AND (curriculum or education); (Islamic values OR character education) AND (digital literacy OR digital competence); (adolescent reproductive health OR sexuality education) AND (school OR curriculum). To minimize selection bias, strict criteria were applied: inclusion**:** (1) Publications from 2013-2024; (2) Documents explicitly addressing at least two of the three main pillars (Islamic values, digital competence, reproductive health) in an educational context; (3) Sources from reputable publishers, accredited journals, or authoritative institutions; and exclusion: (1) Non-academic opinion pieces or popular media articles without rigorous referencing; (2) Publications with a primary focus outside education and human development; (3) Duplicate publications or inaccessible full texts.

The analysis followed the interactive model by Miles and Huberman[20], involving data reduction, data display, and conclusion drawing/verification, enhanced with thematic analysis techniques. First, data reduction: selected documents were coded inductively using NVivo software. Initial open coding identified key concepts (e.g., *amr ma'ruf nahi munkar* in digital space, computational thinking, holistic reproductive health). Second, data display: codes were grouped into thematic categories through axial coding. A matrix table was created to display the

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[16] Alison Nightingale, "A guide to systematic literature reviews," *Surgery (Oxford)* 27, no. 9 (2009): 381–84.

[17] J. Mark Halstead, "Islamic values: a distinctive framework for moral education?," *Journal of Moral Education* 36, no. 3 (2007): 283–96, https://doi.org/10.1080/03057240701643056.

[18] Dito Anurogo dkk., "Digital Literacy 5.0 to Enhance Multicultural Education," *Multicultural Islamic Education Review* 1, no. 2 (2023): 109–79, https://doi.org/10.23917/mier.v1i2.3414.

[19] Jane M Ussher dkk., *Routledge international handbook of women's sexual and reproductive health* (Routledge New York, 2020).

[20] Matthew B Miles dan A Michael Huberman, *Qualitative data analysis: An expanded sourcebook* (sage, 1994).

relationships between the three pillars and their sub-components, curriculum approaches, and supporting references. This visual display facilitated cross-source comparison (see Table 1 for an example of the analytical structure). Third, conclusion drawing and verification: themes were synthesized to construct the core arguments and the proposed curriculum model. To enhance validity and mitigate interpretive bias, source triangulation was rigorously employed by contrasting findings from policy documents, empirical studies, and Islamic scholarly works. Furthermore, peer debriefing sessions were conducted with two colleagues specializing in curriculum studies and Islamic education to critique the emerging themes and model structure. The researchers acknowledge their position as scholars invested in Indonesian education and Islamic pedagogy. To maintain analytical objectivity, interpretations of Islamic texts were anchored in mainstream, authoritative scholarly consensus. A key limitation of this desk-based study is its reliance on textual data, which cannot capture the practical dynamics and challenges of classroom implementation. This study thus serves as a crucial conceptual foundation for subsequent empirical and developmental research.

RESULT AND DISCUSSION

Contextual Analysis: Demographic Bonus as a Critical Momentum

Indonesia is currently undergoing a decisive demographic phase known as the demographic bonus. Based on projections from the National Development Planning Agency,[21] the peak of this demographic bonus is estimated to occur during the 2030-2040 period, where the dependency rasio the ratio of the non-productive age population (0-14 years and 65+ years) to the productive age population (15-64 years) will reach its lowest point at 44.5. This means that for every 100 people of productive age, they support only approximately 45 non-productive individuals. This condition creates a substantial economic opportunity, as a low dependency burden should potentially spur economic growth through increased savings, investment, and productivity.[22] However, data from the Central Statistics Agency[23] reveals a concerning reality. As many as 23.5% of senior high school graduates or equivalents are unemployed a figure significantly higher than the national unemployment rate. Furthermore, only 18.7% possess adequate digital competence, based on measurements of digital literacy indicators such as the ability to use software, understand cybersecurity, and utilize technology for productivity. This low level of digital competence exacerbates the mismatch between labor supply and demand in the era of the digital economy.[24]

This situation confirms the warnings issued by Cuaresma et al. (2014):[25] the demographic bonus does not automatically translate into a blessing. Without sufficient investment in enhancing the quality of human resources, the demographic bonus risks turning into a demographic disaster. If the abundant young workforce is not equipped with adequate skills, the consequence will be increased unemployment, social inequality, and potential economic instability.[26] The education system is not yet fully capable of meeting the demands of the workforce. The curriculum is often too theoretical and lacks emphasis on practical skills such

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[21] Bappenas, "Penetapan Rencana Aksi Nasional Tujuan Pembangunan Berkelanjutan/Sustainable Development Goals (TPB/SDGs) Tahun 2021-2024," *Sustainable Development Goals*, 2021, 1–465.

[22] David Bloom dkk., *The demographic dividend: A new perspective on the economic consequences of population change* (Rand Corporation, 2003).

[23] BPS, *Keadaan Angkatan Kerja di Indonesia Agustus 2023*.

[24] World Bank, "The digital economy in Southeast Asia: Strengthening the foundations for future growth," preprint, World Bank Washington, DC, USA, 2019.

[25] Jesús Crespo Cuaresma dkk., "Is the Demographic Dividend an Education Dividend?," *Demography* 51, no. 1 (2014): 299–315, https://doi.org/10.1007/s13524-013-0245-x.

[26] Lee dan Mason, "Fertility, Human Capital, and Economic Growth over the Demographic Transition."

as critical thinking, creativity, and collaboration.[27] The rapid pace of digital transformation has not been matched with the preparation of an adaptive workforce. Many graduates are unprepared to face technology-based changes in work models.[28] Problems of stunting, malnutrition, and poor reproductive health among adolescents also affect the quality of the future productive generation. Data from the Basic Health Research shows that 23.6% of Indonesian adolescents suffer from anemia, which can decrease productivity and learning capacity.[29] Therefore, the demographic bonus must be viewed as a critical momentum requiring appropriate policy responses, particularly in the fields of education and health. If Indonesia fails to capitalize on this period, not only will a golden opportunity be lost, but it could also lead to more significant socio-economic problems in the future.

Table 1. Contextual Analysis of the Demographic Bonus as Indonesia's Critical Momentum

Analysis Aspect	Potential & Reality	Key Data & Facts	Implications & Risks
Demographic Opportunity	Golden Economic Momentum • Low dependency ratio opens up economic growth opportunities. • Increased savings, investment, and productivity.	• Peak Period: 2030-2040 • Dependency Ratio: 44.5 • Meaning: Every 100 productive-age people support 45 non-productive people.	• Demographic Dividend: Opportunity for accelerated economic growth and welfare if human resources are qualified.
Current HR Reality	Alarming Readiness • High unemployment among young graduates. • Low adequate digital competence.	• High School Graduate Unemployment: 23.5% • Adequate Digital Competence: 18.7%	• Demographic Disaster: Increased unemployment, social inequality, and economic turmoil if not addressed.
Aggravating Factors	Education Gap • Curriculum is too theoretical and not aligned with workforce needs.	• Practical skills like critical thinking, creativity, and collaboration are still lacking.	• Uncompetitive HR: Graduates do not meet industry qualifications.
	Technological Disruption	• Many graduates are unprepared for	• Competency Gap: Labor supply does

[27] OECD, *Skills Matter: Additional Results from the Survey of Adult Skills* (OECD Publishing, 2019).

[28] Klaus Schwab dan Richard Samans, "The future of jobs: Employment, skills and workforce strategy for the fourth industrial revolution," *World Economic Forum*, 2016, 1–32.

[29] Ni Ketut Aryastami dan Rofingatul Mubasyiroh, "Optimal utilization of maternal health service in Indonesia: a cross-sectional study of Riskesdas 2018," *BMJ Open* 13, no. 9 (2023): e067959, https://doi.org/10.1136/bmjopen-2022-067959.

• Digital transformation is not matched with adaptive HR preparation.	technology-based work models.	not meet demand in the digital economy era.
Adolescent Health & Nutrition • Health and nutrition problems affect the quality of the productive generation.	• Anemia in Adolescents: 23.6% • Can decrease productivity and learning capacity.	• Low Productivity: Poor health quality hinders potential economic contribution.

Indonesia's demographic bonus is a critical moment that presents two extreme scenarios: a golden opportunity for economic growth (demographic dividend) or a threat of unemployment and inequality (demographic disaster). On one hand, the peak period of 2030-2040 with a low dependency ratio has the potential to boost productivity and welfare. On the other hand, the reality of human resource readiness is alarming, marked by high youth unemployment, low digital competence, an educational curriculum misaligned with industry needs, and adolescent health issues such as anemia. Therefore, to turn this critical momentum into tangible advantage, urgent and strategic policy responses are required, primarily through educational reform and improving the health quality of the productive generation.

The Proposed Integrative Curriculum Model for Generation 2045

Based on the thematic synthesis of various theories and data outlined above where codes such as 'ethical foundation,' 'tool for competitiveness,' and 'well-being guarantee' emerged and converged the study proposes a curriculum model with the following structure:

Figure 1. 2045 Generation Integrative Curriculum Framework

Based on an in-depth synthesis of the various theoretical foundations outlined above, this research proposes an Integrative Curriculum Model for Generation 2045. This model is represented as a diagram depicting three concentric layers that merge organically, with the central theme of Golden Generation 2045 as its core and unifying axis. The innermost and most fundamental layer is Islamic Values as the Foundation Layer. This layer functions as the philosophical-ethical foundation that inspires the entire curriculum structure. Its core principle is Tawhid-based Education, which integrates divine values and unifies all disciplines under the

umbrella of the Oneness of Allah SWT. This foundation is reinforced by the framework of Maqasid al-Shari'ah, which guides education to protect five essential matters: faith (religion), life, intellect, progeny, and wealth. All of this is realized through the formation of *Akhlak al-Karimah* (noble character), which is not only taught cognitively but is built through role modeling and habit formation within a learning community.

Building upon this foundation of values, the second layer is Digital Competence, which functions as the Tools Layer. This layer is a strategic set of tools that enables the younger generation to act effectively and competitively in the digital era. It adapts the World Economic Forum (2020) framework with modifications that emphasize the ethical dimension. It includes Digital Literacy, encompassing the ability to manage data, understand technology, and become responsible digital citizens. It also includes Computational Thinking as a systematic thinking framework for problem-solving through decomposition, pattern recognition, and algorithm design. What distinguishes it is the inclusion of an Ethical Framework as a core component, which operationalizes the concept of *amr ma'ruf nahi munkar* (enjoining good and forbidding evil) in the digital space, thus ensuring that the mastery of technology is always guided by values of goodness and the prevention of wrongdoing.

The third layer, which envelops and protects the two previous layers, is Reproductive Health as the Well-being Layer. This layer ensures that the foundational values and competency tools possessed by the younger generation are supported by holistic physical, mental, and social well-being. Integration at this layer is carried out multidimensionally. The first dimension is accurate Medical Knowledge, including an understanding of anatomy, physiology, and disease prevention according to WHO standards. The second dimension is Psychosocial Skills, such as communication, negotiation, and decision-making, which equip adolescents to build healthy relationships and resist negative peer pressure. The binding element that provides meaning is the third dimension, namely Islamic Values, where the concepts of *iffah* (maintaining chastity) and *hifdz al-nasl* (protection of progeny) become the intrinsic motivation and moral framework for practicing healthy and responsible living behaviors.

These three layers do not stand alone but are interconnected and mutually reinforcing in a dynamic synergy under the shared goal of realizing the Golden Generation 2045. Islamic values provide the soul and ethical direction for utilizing digital competencies and managing reproductive health. Digital competence becomes a powerful tool for creatively actualizing Islamic values in the modern world and promoting a healthy lifestyle. Meanwhile, reproductive health guarantees the availability of healthy and quality human resources as a prerequisite for mastering technology and practicing values optimally. With this layered and integrated structure, this curriculum model aims to produce graduates who are not only digitally competent but also of noble character and sound in body and spirit a profile essential for succeeding in the face of the demographic bonus challenge.

Table 2. Generation 2045 Integrative Curriculum Model

Curriculum Layer	Function & Role	Main Components	Principles & Approach	Contribution to Graduate Profile
1. Islamic Values (Foundation Layer)	Philosophical-Ethical Foundation Provides the soul, direction, and moral	• Tawhid-based Education • Maqasid al-Shari'ah (Protecting: faith, life, intellect,	• Integration of divine values • Role modeling • Habit formation	Noble Character & Morality Possesses a strong moral compass, a solid

	framework for all learning.	progeny, wealth) • Akhlak al-Karimah (Noble Character)		Islamic identity, and a sense of responsibility.
2. Digital Competence (Tools Layer)	Strategic Tool Enables students to participate, innovate, and contribute effectively in the digital era.	• Digital Literacy (data, technology, digital citizenship) • Computational Thinking • Digital Ethical Framework (Amr Ma'ruf Nahi Munkar)	• Adaptation of WEF (2020) framework • Ethics-based approach • Creative and critical application	Digitally Competent & Competitive Skilled in utilizing technology to create and solve problems, and become producers of positive content.
3. Reproductive Health (Well-being Layer)	Well-being Guarantor Ensures the availability of physically, mentally, socially, and spiritually healthy human resources as a prerequisite for success.	• Medical Knowledge (Anatomy, Physiology, Prevention) • Psychosocial Skills (Communication, Decision-Making) • Islamic Values (Iffah, Hifdz al-Nasl)	• Holistic approach (WHO) • Value-based • Comprehensive prevention	Physically & Spiritually Healthy Possesses holistic well-being, able to make responsible health decisions, and maintains personal purity.
Unifying Theme	Golden Generation 2045 The grand vision that serves as the axis and context for integrating the three layers, ensuring relevance to national development goals.			Complete Profile of Generation 2045 Spiritually Intelligent, Digitally Competent, Physically-Mentally Healthy, ready to leverage the demographic bonus for a Golden Indonesia.

This model depicts the curriculum as three interconnected concentric layers. Islamic Values as the foundation (innermost layer), Digital Competence as the tool (middle layer), and Reproductive Health as the well-being guarantor (outermost layer). All three synergize under

the umbrella of the Golden Generation 2045 vision to produce holistic graduates ready to address the challenges of the times.

Integration Mechanism

To operationalize the Generation 2045 Curriculum Model from concept to living learning practice, concrete and applicable integration mechanisms are required. These mechanisms are realized through two main, complementary approaches: Thematic Integration and Pedagogical Integration. Thematic Integration is applied by designing learning units that unify the three curriculum pillars under one overarching theme relevant to students' lives. For example, in the theme Digital Citizenship, the three pillars are woven into one coherent unit. From the Islamic Values perspective, the concept of *mas'uliyyah* (responsibility) is emphasized as the ethical foundation for social media use, where every post and interaction is viewed as a form of accountability before Allah SWT and fellow human beings. In the realm of Digital Competence, students are not only taught the technical skills to critically analyze digital content to identify misinformation or hate speech but are also encouraged to become creative producers of positive content, thus giving these technical skills a noble purpose. Meanwhile, the Reproductive Health pillar is integrated through an in-depth discussion of the real-world impacts of behavior in digital spaces, such as how cyberbullying can not only hurt feelings but also cause mental trauma, anxiety, depression, and ultimately disrupt adolescent reproductive well-being.

Through this unifying theme, students directly see how their morals, skills, and health are closely interconnected. To realize this thematic integration into meaningful learning experiences, Pedagogical Integration is implemented using various appropriate learning approaches. Project-Based Learning (PBL) is employed, for instance, by assigning students to create a social media campaign about adolescent reproductive health. In this project, they must apply digital competencies to design content while ensuring the message aligns with Islamic values like *'iffah* (chastity) and is delivered in a healthy and educational manner. Value Clarification Technique (VCT) is used to guide students in critically reflecting on digital phenomena or content they encounter daily. Through structured discussions, they are invited to evaluate such content based on the principle of *amr ma'ruf nahi munkar* (enjoining good and forbidding wrong), thereby building a strong personal moral framework for interacting in the digital world. Furthermore, Scientific Inquiry encourages students to investigate data and research on the impact of technology on adolescent behavior and mental health. This process trains their critical thinking and computational thinking skills while providing a strong empirical basis for understanding why Islamic values and safeguarding reproductive health are crucial in the digital age.

The combination of comprehensive theme design and the application of active pedagogy ensures that the integration of Islamic values, digital competence, and reproductive health does not occur artificially. Instead, it merges into a learning process that is contextual, profound, and leaves a lasting impression on students' daily lives.

Table 3. Generation 2045 Curriculum Integration Mechanisms

Integration Mechanism	Description & Purpose	Example Application in Digital Citizenship Theme	Related Pedagogical Approach
Thematic Integration	Unifies the three pillars within theme-based learning units.	• Islamic Values: The concept of *mas'uliyyah* (responsibilit	• Problem-Based Learning

	Allows students to see the organic relationship between values, skills, and well-being in real-life contexts.	y) as an ethical foundation for social media interactions. • Digital Competence: Critical analysis of content and production of positive content to combat misinformation. • Reproductive Health: Understanding the impact of cyberbullying on mental health & reproductive well-being.	• Guided Class Discussion
Pedagogical Integration	Applies teaching methods that actively involve the three pillars. Transforms the integration concept into deep, reflective, and applicable learning experiences.		
Project-Based Learning (PBL) Learning through authentic projects that combine the application of skills, values, and knowledge.	Project: Creating a #SehatBeretika (#HealthyAndEthical) social media campaign. • Digital Aspect: Designing graphic content/reels. • Islamic Values Aspect: Incorporating messages about *'iffah* & *amr ma'ruf.* • Health Aspect: Conveying information about the impact of cyberbullying on mental health.	• Team Collaboration • Presentation & Reflection	
Value Clarification Technique (VCT) A reflection technique to help students internalize values through critical analysis of	Activity: Discussing a case of online hate speech. • Students analyze the case based on the principle of *amr ma'ruf nahi munkar.* • Reflecting on their responsibility as Muslim digital citizens.	• Class Discussion • Reflective Journaling	

everyday phenomena.		
Scientific Inquiry An inquiry-based approach to building understanding through data and evidence exploration.	Activity: Investigating data on the relationship between social media use and adolescent anxiety levels. • Students process data, draw conclusions, and link them to the importance of maintaining mental health as part of worship.	• Simple Research • Data Analysis

Thematic Integration creates a coherent conceptual framework, while Pedagogical Integration provides the learning engine that transforms this framework into an authentic and transformative learning experience. The combination of both ensures integration that is not artificial but is seamlessly woven into a contextual and memorable learning process.

Implementation within the National Education System

The implementation of the Generation 2045 Integrative Curriculum Model within the national education system requires a systematic and multi-level approach that reaches the entire educational ecosystem. Based on policy analysis and comparative studies, this research identifies three main, mutually reinforcing implementation strategies. The first strategy is integration through the School Operational Curriculum, which serves as the backbone for implementing this model. This approach is carried out through structural adaptation and pedagogical innovation. At the structural level, schools develop integrative learning modules that weave the three pillars together thematically, such as a Digital Citizenship Based on Islamic Values module that combines digital ethics based on Q.S. Al-Hujurat:12 with adolescent mental health according to WHO standards. This process is supported by competency mapping that aligns Learning Outcomes with Generation 2045 competencies using a curriculum mapping model, and the application of backward design, which places the Generation 2045 profile as the ultimate goal before designing learning activities. t the pedagogical level, learning is realized through project-based learning like the #RemajaSehatGenerasi2045 (#HealthyTeensGeneration2045) social media campaign, differentiated instruction that respects the diversity of students' digital abilities and religious backgrounds, and integrated assessment that holistically measures academic achievement, character development, and mastery of digital skills.

The second strategy is reinforcement through specially designed extracurricular activities that practice the curriculum values in a more flexible and participatory setting. A Digital Creativity Club becomes a venue for competency development through a *Content Creation Lab* for producing educational content on digital platforms, *Coding with Values* that integrates programming with the teaching of Islamic ethics, and a *Digital Ethics Forum* as a space for discussion and simulation of resolving digital ethical dilemmas based on the principles of *maqasid al-shari'ah*. Meanwhile, a Health Advocacy Program features *Peer Educator Training* to train students as reproductive health ambassadors using an Islamic approach, an *Islamic Wellness Campaign* that promotes mental health through the concept of *tazkiyatun nafs* (purification of the soul), and *Reproductive Health Research* that invites students to research reproductive health issues in the school community with value-based analysis rooted in Islam.

The third strategy is expansion through community engagement that creates a supportive ecosystem beyond the school. Collaboration with parents is realized through a Parenting in the

Digital Era workshop series that integrates Islamic perspectives on adolescent upbringing, the development of a *Family Digital Agreement* based on the values of *muhasabah* (self-reflection) and *mas'uliyyah* (responsibility), and *home-based projects* that combine digital activities with discussions on Islamic values and reproductive health education. Partnerships with religious communities include the digitization of *kitab kuning* (classical Islamic texts) with Islamic boarding schools (*pesantren*) to develop contemporary materials on the concepts of *'iffah* and *hifdz al-nasl*, the integration of adolescent reproductive health and digital ethics themes into Friday sermons through coordination with mosque boards (*takmir*), and the establishment of a network with *pesantren* for the development of integrated teaching materials and teacher training. Through these three interconnected strategies, the Generation 2045 Curriculum Model can be implemented comprehensively, creating a holistic and sustainable educational transformation.

CONCLUSION

Based on the comprehensive analysis and research findings, it can be concluded that the Integrative Curriculum Model for the Golden Generation 2045, which integrates Islamic values, digital competence, and reproductive health, is a comprehensive and contextual approach to addressing the challenges of Indonesia's demographic bonus. This model overcomes the limitations of conventional curriculum approaches, which tend to be fragmentary, through deep integration at the philosophical, operational, and practical levels based on a tawhidic framework. The uniqueness of the model lies in its ability to align Islamic values with the demands of 21st-century competencies while providing a strong ethical-religious foundation for mastering technology and reproductive health. This research proves that integrating these three pillars is not only feasible but actually creates a mutually reinforcing synergy. Islamic values function as an ethical foundation framing the utilization of digital competence and the management of reproductive health. Digital competence serves as a strategic tool for creatively actualizing Islamic values in the modern era and as an effective medium for promoting reproductive health. Meanwhile, reproductive health guarantees physical and mental well-being as a prerequisite for forming a productive and character-rich generation.

Implementing this model requires systemic support through the adaptation of school operational curricula, the strengthening of extracurricular activities, and the expansion of community involvement. Successful implementation depends on teacher capacity, policy support, and sustainable multi-stakeholder collaboration. Although facing challenges such as cultural resistance and disparities in teacher capability, this model offers feasible mitigation strategies through gradual approaches and adaptive leadership. Finally, this research contributes not only to the development of integrative curriculum theory but also to educational practices that are more relevant to the Indonesian context. The Generation 2045 Curriculum Model deserves consideration as a primary strategy in preparing Indonesia's golden generation one that is spiritually, digitally, socially, and physically intelligent a long-term investment for realizing the vision of a sovereign, advanced, and sustainable Golden Indonesia 2045.

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