

Adaptive Curriculum and Digital Transformation: Analysis of Tarbawi Principles in the Qur'an

Miftah Ulya^{1*}, Subur Wijaya², Fahmi A. Jawwas³, Pangadilan Rambe,⁴ Faisal Musa⁵

¹Institut Agama Islam Diniyyah Pekanbaru, Indonesia

²Sekolah Tinggi Kuliyatul Qur'an Al-Hikam Depok, Indonesia

³Universitas Islam Negeri Datokaramah Palu, Indonesia

⁴Universitas Islam Negeri Sulthan Syarif Kasim Pekanbaru, Indonesia

⁵Sekolah Tinggi Agama Islam Negeri Mandailing Natal, Indonesia

*miftah@diniyah.ac.id

Abstract. Digital transformation in education encourages the development of adaptive curricula that emphasize flexibility, personalized learning, and the use of digital technologies such as online platforms and data-driven learning systems. Adaptive curricula are seen as a strategic response to changes in student characteristics and 21st-century competency requirements. However, in practice, this approach is often technically oriented and has the potential to neglect the dimensions of values, ethics, and the humanization of education. Therefore, a conceptual framework is needed that can balance technological innovation with fundamental educational values. This article aims to analyze the tarbawi principles in the Qur'an as a conceptual basis for the development of adaptive curricula in the era of digital transformation. This study uses a qualitative method with a library research approach, through thematic analysis of verses in the Qur'an related to education, human development, and the learning process, as well as dialogue with contemporary curriculum discourse and instructional design. The results of the study show that the Qur'an contains tarbawi principles that are relevant to the development of adaptive curricula, including the principle of tadarruj or gradual learning as reflected in QS. Al-Isrā': 106, recognition of the nature and diversity of students' potential (QS. Ar-Rūm: 30), and the principle of balance between intellectual, moral, and spiritual dimensions in education (QS. Al-Qaṣaṣ: 77). These principles provide an ethical and humanistic framework for digital instructional design, particularly in the formulation of learning outcomes, adaptive learning strategies, and fair and process-oriented assessments. This article concludes that the integration of Qur'anic tarbawi principles in adaptive curricula can strengthen the direction of digital transformation in education so that it is not only technologically innovative, but also oriented towards the formation of well-rounded and sustainable human beings.

Keywords : Adaptive Curriculum, Al-Qur'an, Digital Transformation, Tarbawi Principles

1. Introduction

Digital transformation has become a global phenomenon that is fundamentally reshaping the face of education across the globe. Advances in information technology, artificial intelligence, and digital learning platforms have driven the emergence of new learning models that are more flexible, personalized, and data driven. In this context, the curriculum is no longer viewed as a static set of documents, but rather as a dynamic system that must be able to adapt to the changing needs of learners, technological advancements, and the demands of the global community. The concept of an adaptive curriculum has thus emerged as a response to this reality, emphasizing the adjustment of learning content, methods, and assessments to align with students' characteristics and developmental progress. Research indicates that an adaptive curriculum has become a strategic necessity in navigating the 21st-century educational landscape, which is shaped by technologies such as artificial intelligence, data analytics, and digital platform-based learning systems [1].

However, digital transformation in education not only presents opportunities but also raises various fundamental challenges. An educational approach that places too much emphasis on technological aspects risks shifting the true purpose of education away from the process of human development. Learning based on algorithms, data analytics, and artificial intelligence, if not accompanied by a solid foundation of values, can lead to mechanistic and reductionist educational practices. Therefore, the development of adaptive curricula requires an ethical and philosophical framework capable of maintaining a balance between technological innovation and human values. Previous studies have emphasized that the integration of values and religious contexts into digital curricula can strengthen the relevance of learning to students' lives in the digital age [2].

One of the key principles in Qur'anic education is the principle of gradualism, or *tadarruj*, which emphasizes that the process of learning and human development proceeds gradually in accordance with the students' abilities and readiness. This principle aligns with the adaptive curriculum approach, which tailors learning materials and strategies based on individual levels of understanding and development. Furthermore, the Qur'an acknowledges the diversity of human potential and character as a natural disposition that must be valued and nurtured. This recognition of individual differences serves as a crucial foundation for personalized learning, which is currently being widely developed through digital technology.

However, integrating technology into the curriculum is not without its challenges. A shift in educational focus that places too much emphasis on technical aspects risks neglecting the values and humanistic dimensions of education. In the Islamic tradition, the Qur'an views the educational process (*tarbiyah*) as holistic, gradual, and oriented toward character development and the holistic well-being of the individual. This is reflected in QS. Al-Isrā' (17): 106, which emphasizes a gradual learning process tailored to students' abilities, and the principle of life balance outlined in QS. Al-Qaṣaṣ (28): 77. Thus, the integration of *tarbawi* principles from the Qur'an can serve as an ethical foundation and set of values in formulating an adaptive curriculum in the digital age, balancing technological innovation with human values [3].

In the context of instructional design, digital transformation demands that educators play a role not merely as conveyors of information, but as facilitators, mentors, and role models of values. The Qur'an portrays the educator as a *murabbi* who bears an ethical responsibility to guide learners toward the full realization of their human potential. This principle of exemplary leadership is particularly relevant in technology-based learning, where the human connection between educators and learners' risks being diminished.

Given this background, studies on adaptive curricula and digital transformation need to be examined more deeply from the perspective of the Qur'an, particularly by analyzing the educational principles contained therein. This approach is expected to provide a conceptual contribution to the formulation of curricula and instructional designs that are not only adaptive to technological developments but also rooted in ethical and humanistic values. Thus, education in the digital age can be directed toward producing individuals who are intellectually competent, morally mature, and socially responsible.

This article aims to analyze the educational principles in the Qur'an and their relevance to the development of adaptive curricula in the era of digital transformation. The primary focus of the discussion is on how Qur'anic values can serve as a foundation for formulating learning objectives, instructional strategies, and technology-based educational assessments. This study is expected to enrich the academic discourse on digital education and provide an alternative perspective that is integrative and sustainable, particularly in the context of Islamic education at the global level.

2. METHODOLOGY

This study employs a qualitative approach using library research, aiming to analyze the concept of *tarbawi* principles in the Qur'an and their relevance to the development of adaptive curricula in the context of digital transformation in education. A qualitative approach was chosen because this study focuses on the analysis of texts and normative concepts found in the Qur'an as well as academic literature related to curriculum theory, Islamic pedagogy, and educational technology. The primary method used in this study is thematic exegesis (*tafsir maudhu'i*), which is an approach to interpreting the Qur'an that gathers verses sharing a specific theme, then analyzes them comprehensively to gain a conceptual understanding of that theme. This approach is widely used in contemporary exegetical studies because it enables the examination of current issues by referring to the entirety of the Qur'an's messages relevant to the research theme [4].

In the thematic exegesis method, the researcher first identifies the theme to be studied, then collects the relevant verses of the Qur'an, organizes them according to the context of their revelation, and analyzes them by considering various aspects such as the reasons for revelation (*asbāb al-nuzūl*), the relationships between verses (*munāsabah*), and the explanations of the exegetes [5]. Some of the verses that are the focus of this study include those related to the principle of gradual education (*tadarruj*), recognition of human nature, balance between the worldly and the hereafter, and exemplary conduct in education. These verses are then analyzed through various classical and contemporary exegetical works to identify educational principles that can serve as a conceptual foundation for the development of an adaptive curriculum.

The research process was conducted through several methodological stages. First, data identification and collection, which involved compiling Qur'anic verses related to educational concepts as well as literature discussing adaptive curriculum theory and digital transformation in education. Second, thematic exegetical analysis, which involved interpreting the compiled verses by referring to exegetical works and literature on the sciences of the Qur'an. Third, conceptual analysis, which involves engaging the Qur'anic educational principles in dialogue with the theory of adaptive curriculum and digital learning as developed in contemporary educational literature.

Next, the data obtained were analyzed using thematic and conceptual analysis, specifically by grouping the main concepts emerging from the verses of the Qur'an and educational literature into several categories of pedagogical principles. This method enabled the researcher to identify the relationship between Qur'anic educational values and the concepts of adaptive curriculum and digital learning design. To strengthen the analytical framework, this study also employs an interdisciplinary approach, integrating perspectives from Qur'anic exegesis, curriculum theory, and educational technology studies. This approach is crucial because the transformation of digital education is not merely about technological aspects but also involves ethical values, spirituality, and the humanization of education [6].

Through these methodological steps, this study aims to formulate a conceptual model known as the Qur'anic Adaptive Digital Curriculum Framework (QADCF), an integrative framework that links the educational principles of the Qur'an with adaptive curriculum approaches and digital educational technology. This model is expected to provide a conceptual contribution to the development of an Islamic education curriculum relevant to the educational challenges of the digital transformation era. For greater clarity in this paper, the research flowchart is included below.

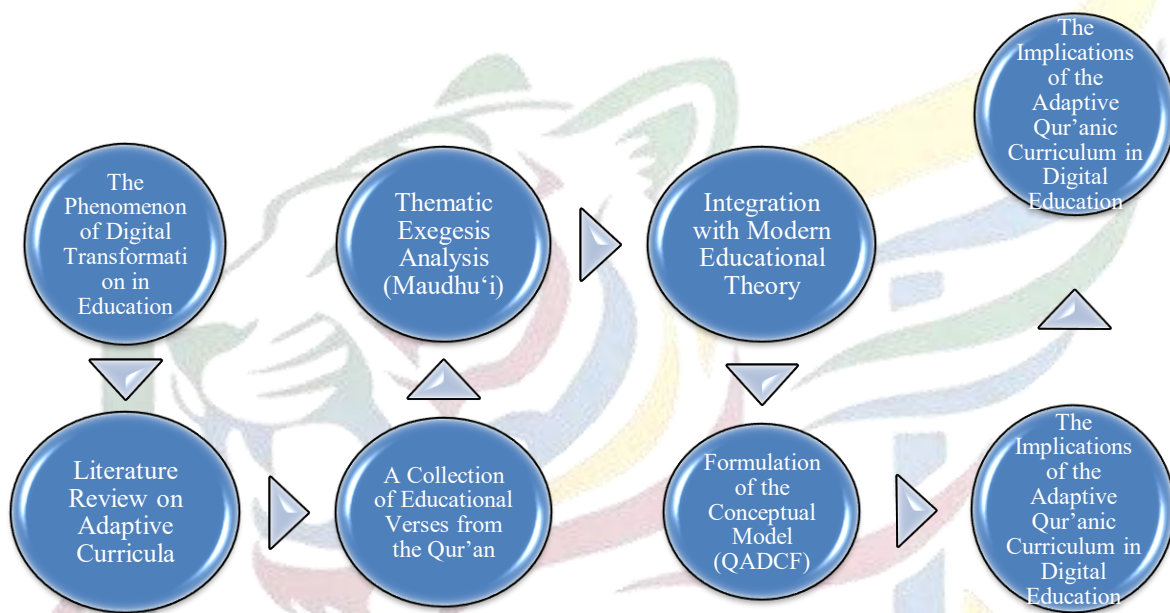


Fig. 1. Research Methodology Flowchart

The diagram above indicates that this study begins with an examination of the phenomenon of digital transformation in education, which demands a more adaptive and technology-based learning system. Subsequently, a literature review on adaptive curricula was conducted to establish a conceptual framework relevant to the needs of contemporary education. Based on this framework, the researcher collected verses from the Qur'an related to educational principles (tarbawi), which were then analyzed using a thematic exegesis (maudhu'i) approach to identify comprehensive pedagogical values. The results of this analysis were subsequently integrated with modern educational theory, particularly in the fields of adaptive curriculum and digital transformation, through a systematic conceptual dialogue. Based on this process, this study formulated a conceptual model called the Qur'anic Adaptive Digital Curriculum Framework (QADCF) as a synthesis of Qur'anic values, adaptive curriculum, and educational technology. In the final stage, this study examines the implications of this model for the development of instructional design, adaptive digital strategies, and an assessment system grounded in Qur'anic ethics, with the aim of contributing to the development of Islamic education that is adaptive, humanistic, and relevant to the digital age.

3. Findings and Discussion

3.1. Digital Transformation in Contemporary Education

Educational developments in the 21st century demand a paradigm shift in curriculum development. The curriculum is no longer viewed as a static document, but rather as a dynamic system capable of adapting to the changing needs of students, advancements in knowledge, and social and technological dynamics. In this context, the concept of an adaptive curriculum has emerged as an approach that emphasizes flexibility, differentiated instruction, and the adaptation of educational strategies based on the individual characteristics of students [7].

The adaptive curriculum is based on the student-centered learning paradigm, which places students at the center of the learning process. This model allows teachers and educational institutions to adapt learning content, teaching methods, and evaluation systems based on students' abilities, interests, and learning styles. Thus, the curriculum serves not only as an administrative guideline, but also as a pedagogical instrument that supports the optimal development of individual potential.

In recent developments, adaptive curricula have also been significantly influenced by advancements in educational technology. Digital learning systems, learning management systems, and the use of artificial intelligence in education enable a learning process that is more personalized and responsive to students' learning needs. These technologies can help track learning progress, provide rapid feedback, and tailor instructional materials based on students' achievements. Therefore, adaptive curricula have become a key approach to addressing educational challenges in the digital and globalized era.

Digital transformation in education is the process of changing the education system through the integration of digital technology into various aspects of learning, including the curriculum, teaching methods, assessment systems, and educational management. Advances in information technology, artificial intelligence, and the internet have transformed the way people access, produce, and distribute knowledge. In the context of education, this transformation opens up opportunities for the creation of more flexible, collaborative, and network-based learning models. One of the key implications of digital transformation is the emergence of various innovations in learning design, such as online learning, digital platform-based learning, and the use of data analytics to monitor student progress. Digital technology enables the learning process to take place without the constraints of time and space, thereby providing broader access to education for the public. Additionally, the use of technology also fosters the creation of more interactive and participatory learning approaches [8].

However, digital transformation also presents a number of challenges. One of the main challenges is the tendency for education to be overly focused on technical aspects and efficiency, which risks neglecting the dimensions of values, ethics, and character development. Education that relies entirely on technology can reduce human interaction between teachers and students if not balanced with the right pedagogical approach. Therefore, the integration of technology in education must be accompanied by a strong foundation of values so that digital transformation does not undermine the essence of education as a process of holistic human development.

3.2. Educational Principles in the Qur'an

From an Islamic perspective, education is grounded in values derived from divine revelation, namely the Qur'an and the Sunnah. The Qur'an serves not only as a spiritual guide but also contains universal educational principles relevant to human development. The concept of *tarbiyah* in the Qur'an describes an educational process aimed at nurturing and developing human potential step by step toward moral and intellectual perfection.

One of the key principles in Qur'anic education is the principle of *tadarruj*, which refers to a learning process that proceeds gradually in accordance with the students' abilities and readiness. This principle is reflected in Allah's words in Surah Al-Isra': 106, which explains that the Qur'an was revealed gradually so that it could be easily understood and put into practice by humanity. This gradual approach indicates that education must take into account the psychological and intellectual conditions of the students, so that the learning process can proceed effectively and sustainably [6]. Furthermore, the Qur'an also emphasizes the recognition of human nature and the diversity of human potential. Every individual possesses different abilities, inclinations, and characteristics; therefore, the educational process must take this diversity into account. This principle is reflected in Quranic Surah Ar-Rum: 30, which affirms that humans are created in accordance with their *fitrah*. In the context of education, recognition of human *fitrah* demands a learning approach that respects individual differences and provides space for the optimal development of potential.

Furthermore, the Qur'an also emphasizes the principle of balance in human life. Education is not only oriented toward the mastery of knowledge but also toward the development of character, morality, and social responsibility. This principle of balance is reflected in Surah Al-Qaṣaṣ: 77, which teaches the importance of balancing the interests of this world and the hereafter. In the context of modern education, this principle can

serve as a foundation for curriculum development that not only emphasizes cognitive aspects and technical skills but also addresses ethical and spiritual dimensions. Therefore, the educational principles in the Qur'an provide an important conceptual framework for the development of humanistic and values-oriented education. Integrating these principles into an adaptive curriculum in the era of digital transformation can serve as an effort to maintain a balance between technological innovation and the holistic development of human character.

3.3. Qur'anic Educational Principles as the Foundation of an Adaptive Curriculum

The Principle of Tadarruj (Gradual and Adaptive)

The principle of tadarruj is one of the key characteristics of the educational process as reflected in the teachings of the Qur'an. Conceptually, tadarruj refers to a gradual process that unfolds systematically in accordance with human readiness and capacity. This principle emphasizes that the development of knowledge, attitudes, and behavior cannot occur instantly but requires a continuous educational process. From a pedagogical perspective, this gradual approach provides space for learners to deeply understand the material and gradually internalize the values being taught [9]. The concept of tadarruj can be seen in the process of the revelation of the Qur'an, which took place gradually over more than two decades. This is explained in Allah's words in Surah Al-Isrā' (17: 106), which emphasizes that the Qur'an was revealed in stages so that people could read it slowly and understand its contents well. This pattern of revelation contains educational wisdom that highlights the importance of a learning process that considers human psychological and intellectual readiness.

In the context of education, the principle of tadarruj emphasizes that the learning process must be structured progressively, starting from basic concepts and moving toward more complex understanding. This process allows students to build their knowledge structures gradually, making learning more meaningful. This approach also helps reduce excessive cognitive load during the learning process. The relevance of the tadarruj principle is increasingly evident in the concept of adaptive curricula that is emerging in contemporary education. An adaptive curriculum emphasizes the importance of differentiated instruction and tailoring content to students' ability levels. Consequently, learning is no longer uniform but is tailored to individual needs and development. In the era of digital transformation, the principle of tadarruj can be implemented through technology-based learning systems that allow for the creation of tiered materials. Digital learning platforms, for example, enable the use of progressively structured learning modules and provide feedback that helps students understand the material step by step.

The Principle of Innate Nature and Individuality of Students

From the perspective of the Qur'an, human beings are created with an innate potential known as fitrah. This concept asserts that every individual possesses natural inclinations that form the foundation for their intellectual, moral, and spiritual development. The principle of fitrah indicates that education must function as a process that nurtures and develops human potential optimally. The Qur'an emphasizes the importance of human fitrah as mentioned in Surah Ar-Rūm (30): 30, which states that humans were created according to the fitrah established by Allah. This verse implies that every human being possesses innate potential that must be nurtured and developed through an appropriate educational process. Recognition of human fitrah carries significant implications for the world of education. Every learner possesses different abilities, interests, and learning styles [10]. Therefore, a one-size-fits-all educational approach is not always capable of accommodating the learning needs of all students. Effective education must be able to recognize these differences and adapt the learning strategies employed.

In the context of an adaptive curriculum, the principle of fitrah provides the philosophical foundation for the concept of personalized learning. An adaptive curriculum enables students to gain learning experiences tailored to their individual potential and characteristics. This approach positions students as active participants in the learning process. Advances in digital technology provide greater opportunities to implement a learning approach centered on student individuality. Technology-based learning systems enable the analysis of learning data, allowing teachers to understand students' learning progress more accurately.

The Principle of Balance (Tawāzun)

The principle of balance, or tawāzun, is one of the fundamental values in Islamic teachings that has significant implications for education. This concept emphasizes the importance of maintaining a balance between various aspects of human life, including intellectual, moral, spiritual, and social dimensions. An ideal education not only emphasizes the mastery of knowledge but also character development and social responsibility. The Qur'an affirms the importance of the principle of balance in human life, as mentioned in Surah Al-Qaṣaṣ (28): 77, which

teaches that humans should seek happiness in the hereafter without neglecting the worldly life. This verse indicates that human life must be lived in a balanced manner between material and spiritual interests [11]. In the context of modern education, the principle of *tawāzun* offers an important perspective for designing a holistic curriculum. A curriculum that focuses solely on academic achievement and technical skills risks neglecting moral and character development. Therefore, education must be designed comprehensively to foster individuals who are both knowledgeable and of high integrity.

Digital transformation in education often emphasizes efficiency, access to information, and technological proficiency. While these offer many benefits, an overly technology-focused approach risks diminishing attention to the ethical dimensions and character development of students. Therefore, the principle of *tawāzun* serves as a crucial foundation for the development of adaptive curricula in the digital age. The curriculum must not only be responsive to technological developments but also capable of maintaining a balance between the development of academic competencies and character building. The integration of the value of balance into digital learning design can be achieved through the strengthening of character education, digital ethics, and the integration of spiritual values into the learning process. Thus, digital transformation in education remains within the framework of holistic human development.

The Principles of Leading by Example and Humanizing Education

Exemplary conduct is a key principle in Islamic education that emphasizes that the educational process does not occur solely through the transmission of information, but also through the concrete examples set by educators. In the Qur'an, the Prophet Muhammad (peace be upon him) is described as the best example for humanity, as stated in Surah Al-Ahḏāb (33): 21. The concept of exemplary leadership indicates that the success of education depends not only on the learning material but also on the moral character and personality of the educator. Teachers do not merely act as conveyors of knowledge, but also as mentors who set examples of life values for students [12].

In the context of modern education, the principle of leading by example plays a crucial role in building pedagogical relationships between teachers and students. These relationships serve as the foundation for creating meaningful and inspiring learning experiences. Digital transformation in education has brought significant changes to learning patterns. Technology-based learning often reduces the intensity of direct interaction between teachers and students. This has the potential to diminish the humanistic dimension of education if not balanced with the appropriate pedagogical approach.

Therefore, the principle of exemplary leadership remains relevant in the digital education system. Teachers must be able to serve as role models in the ethical and responsible use of technology, while simultaneously guiding students to utilize technology for constructive purposes. In other words, integrating the principle of exemplary leadership into an adaptive curriculum can help preserve the essence of education as a process of humanization. Education aims not only to enhance intellectual competencies but also to shape students' character and moral awareness as they navigate the dynamics of modern life.

3.4 Conceptual Model: Qur'anic Adaptive Digital Curriculum Framework (QADCF)

This model demonstrates that the educational principles in the Qur'an serve as an ethical and philosophical foundation, which is then integrated with an adaptive curriculum approach and digital technology to foster humanistic, adaptive, and values-oriented learning.

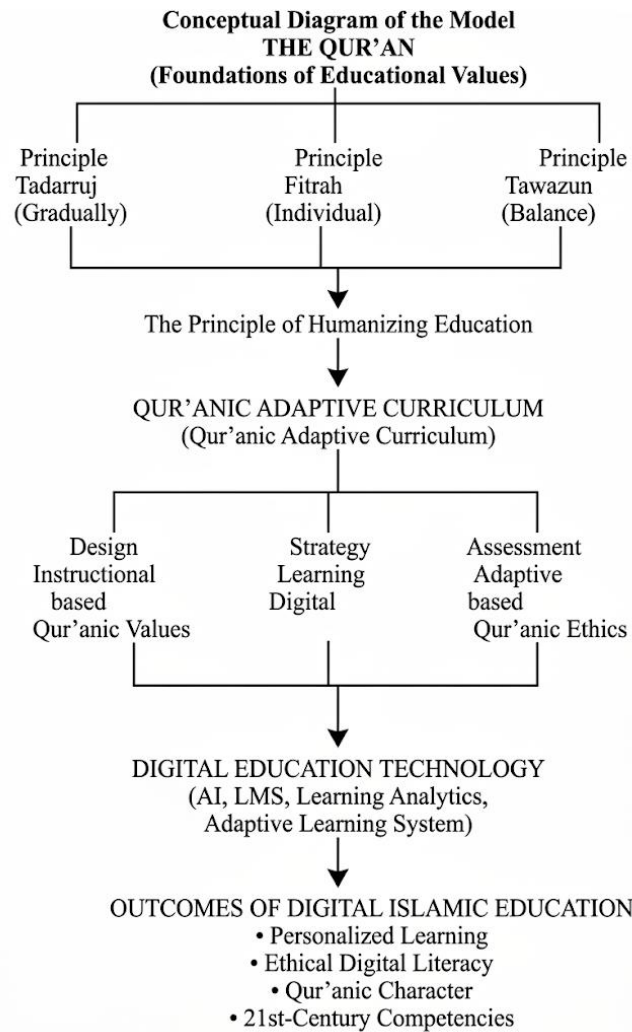


Fig. 2. Conceptual Diagram of the Model

Normative Foundation: Educational Principles in the Quran

This model is based on the assumption that the Qur'an contains educational principles that are universal and relevant across all eras. Some of the key principles that form the foundation of the adaptive curriculum are:

Tadaruj (gradual): Education proceeds gradually in accordance with the students' readiness (Quran 17:106).

Educational principles in the Qur'an—such as gradualism, fitrah and individuality, balance, as well as exemplary leadership and the humanization of education—form an interconnected and relevant normative framework for the development of the Qur'anic Adaptive Digital Curriculum Framework (QADCF). These four principles do not stand alone but complement one another in building an adaptive, humanistic, and values-based educational paradigm. The principle of tadaruj emphasizes the importance of gradual and contextual learning, which in the QADCF is realized through an adaptive curriculum design capable of adjusting the difficulty level of the material to the students' abilities. This approach aligns with the concept of adaptive learning in digital education, which emphasizes the personalization and differentiation of learning [13].

Human nature and individuality: Education must take into account the potential and character of students (Quran 30:30).

Furthermore, the principles of human nature and individuality provide a philosophical foundation for the development of personalized learning. In the QADCF model, this principle is implemented through the use of technologies such as learning analytics and artificial intelligence, which enables the learning system to recognize the potential, learning styles, and needs of each student. Thus, the curriculum is no longer uniform but flexible

and responsive to individual diversity. This approach is supported by studies that emphasize the importance of education based on human potential from a Qur'anic perspective [14].

Balance (tawāzun): The integration of intellectual, spiritual, and social dimensions (Quran 28:77).

The principle of tawāzun, or balance, reinforces the direction of curriculum development within the QADCF to ensure it does not become overly focused on cognitive aspects alone. The integration of intellectual, spiritual, and social dimensions is a crucial element in the design of holistic digital learning. In practice, this is achieved through the development of learning materials that are not only oriented toward the mastery of knowledge but also toward the development of students' character and ethical awareness. Studies on Islamic education based on this balance of values indicate that the integration of spiritual and social dimensions is key to building sustainable education [15].

Exemplary conduct and humanization: Education must build character through setting a good example (Quran 33:21).

Meanwhile, the principles of setting a good example and humanizing education reinforce the ethical dimension of QADCF implementation. In the context of digital education, the role of educators is not replaced by technology but rather transformed into that of facilitators who provide moral guidance and set a good example. The QADCF model positions human interaction as a crucial element in digital learning, ensuring that technology functions as a tool rather than a substitute for human values. This aligns with research emphasizing the importance of humanizing education in addressing the challenges of digitalization [16].

Therefore, the integration of these four educational principles into the QADCF model demonstrates that the development of adaptive curricula in the digital age cannot rely solely on technological innovation but also requires a strong foundation of values. The novelty of this approach lies in the systematic effort to connect Qur'anic values with adaptive curriculum theory and modern educational technology, thereby producing an educational model that is not only effective and innovative but also rooted in spiritual and humanistic values..

Adaptive Qur'anic Curriculum

Based on this foundation, the Qur'anic Adaptive Curriculum is designed to: tailor learning to students' varying abilities and provide flexible learning pathways, while integrating spiritual and ethical values into digital learning. The Qur'anic Adaptive Curriculum, within the framework of the Qur'anic Adaptive Digital Curriculum Framework (QADCF), can be understood as a learning system that stems from the phenomenon of digital transformation in education, then enriched through a review of the literature on adaptive curricula, and further deepened by exploring tarbawi values in the Qur'an through a thematic (maudhu'i) exegetical approach. Within this conceptual framework, Qur'anic principles such as tadarruj, fitrah, tawāzun, and exemplary conduct serve as the normative foundation, which is then integrated with modern technology-based educational theory. This integration yields the QADCF model, which is not only technologically adaptive but also rooted in Islamic spiritual and ethical values [17].

In practice, the QADCF model embodies the principle of adaptability through its ability to tailor learning to students' varying abilities. This aligns with the principle of tadarruj and the recognition of the diversity of human nature. Adaptive learning technology enables the system to analyze student performance and automatically adjust the content, pace, and difficulty level of the material. Consequently, learning becomes more personalized and inclusive and is able to optimally accommodate the individual needs of students. This approach has been extensively studied in digital education literature as a solution to enhance the effectiveness of technology-based learning.

Furthermore, the flexibility of learning pathways within the Qur'ania adaptive curriculum reflects the non-linear nature of the learning process. In the QADCF conceptual diagram, this flexibility emerges as a response to students' needs to learn according to their own pace and context. This model provides space for self-paced learning, project-based exploration, and the use of digital platforms that enable learning access without the constraints of time and space. This flexibility not only enhances learning autonomy but also expands the educational ecosystem to be more open and contextual [18].

Furthermore, the integration of spiritual and ethical values into digital learning is a key hallmark of the Qur'anic adaptive curriculum within the QADCF. In the final stage of the conceptual diagram—namely, curriculum implications—Qur'anic values serve not only as a theoretical foundation but are also internalized in learning practices. Technology is used as a means to instill the values of honesty, responsibility, and ethical awareness in digital interactions. Thus, learning not only produces students who are technologically competent but also possess strong moral integrity. This approach strengthens the position of Islamic education as a system capable of addressing the challenges of modernity without losing its core values [19].

Overall, the relationship between the principles of the Qur'ania adaptive curriculum and the QADCF conceptual diagram reveals a systematic and integrative process, ranging from the identification of phenomena to the formulation of models and their implications. What is novel about this model lies in its success in combining the thematic interpretation approach to the Qur'an with adaptive curriculum theory and modern educational technology within a single, cohesive conceptual framework. Thus, QADCF not only offers innovation in digital curriculum design but also presents a new educational paradigm oriented toward a balance between intellectual, spiritual, and social intelligence..

Integration of Digital Educational Technology

Digital technology serves as a tool for implementing adaptive curricula through various platforms, such as: Learning Management Systems (LMS), Artificial Intelligence in Education (AIED), learning analytics, and adaptive learning platforms. The integration of technology into digital education is essential for responding to the dynamics of 21st-century learning transformation. Within the framework of the Qur'ania adaptive curriculum, the use of technology is not merely viewed as a technical tool but as an ecosystem that supports the creation of personalized, flexible, and values-based learning. One of the key components of this integration is the use of a Learning Management System (LMS), which functions as a platform for structured learning management. An LMS enables educators to systematically design, distribute, and evaluate learning materials, while also providing students with broad access to learn anytime and anywhere. Thus, the LMS serves as a vital foundation for creating an organized and efficient digital learning environment [20].

Furthermore, advancements in Artificial Intelligence in Education (AIED) have brought about significant transformations in personalized learning. Artificial intelligence technology enables systems to understand students' learning patterns, provide appropriate content recommendations, and automatically adjust the difficulty level of learning materials. Within the context of the Qur'ania adaptive curriculum, AIED serves as a tool to realize the principle of *tadarruj* and recognition of the diverse human nature. Through this approach, learning is no longer uniform but is able to accommodate individual needs with greater precision.

Consequently, learning analytics has become a crucial element in supporting data-driven decision-making in the learning process. By analyzing data on students' learning activities, educators can gain comprehensive insights into students' progress, challenges, and potential. This data is then used to design more targeted learning interventions. From a Qur'anic educational perspective, this approach aligns with the principles of justice and balance (*tawāzun*), where each student is treated in a manner appropriate to their needs [18].

The integration of LMS, AI-enhanced education (AIED), and learning analytics ultimately leads to the development of an adaptive learning platform as a concrete manifestation of responsive and dynamic digital learning. This platform combines various technologies to create a personalized, flexible, and continuous learning experience. Learners can follow different learning paths according to their abilities and interests, while the system automatically adjusts the content and learning strategies. In the context of the Qur'ania adaptive curriculum, this platform is not only focused on improving academic achievement but also on integrating spiritual values and ethics into every digital learning process [21].

3.5 Implementation of the Adaptive Qur'anic Curriculum in the Digital Transformation of Education

Challenges in Implementing the Adaptive Qur'anic Curriculum

The implementation of an adaptive curriculum based on Qur'anic values within the modern education system faces various structural and cultural challenges. The shift in the educational paradigm toward a more adaptive and digital system requires adequate preparedness on the part of educational institutions, educators, and technological infrastructure. Without such preparedness, the integration of Qur'anic values and technological innovation risks encountering obstacles in its practical implementation. One of the main challenges is the limited digital competence of educators. The digital transformation of education requires teachers not only to understand the subject matter but also to be able to integrate technology into the learning process. However, various studies indicate that many educators still face difficulties in adapting technology-based learning methods, particularly within the context of Islamic education, which has traditionally relied more on conventional methods [22].

In addition, limitations in technological infrastructure also pose a challenge to the implementation of a digital adaptive curriculum. Not all educational institutions have adequate access to technological devices, internet networks, or digital learning platforms. This disparity in technological access has the potential to widen the gap in educational quality between regions with adequate digital facilities and those with limited infrastructure. Another challenge relates to the readiness of the curriculum itself. Many Islamic education curricula are still oriented toward traditional learning models and are therefore not yet fully responsive to developments in digital technology. In fact, technological advancements such as artificial intelligence, learning

analytics, and adaptive learning systems can help create a more personalized and effective learning experience for students [1].

In addition, the integration of Qur'anic values into digital learning systems also requires a clear ethical framework. Digital technology offers various opportunities, but it also presents risks such as the spread of unverified information, unethical use of technology, and the potential for dehumanization in the educational process. Therefore, an adaptive Qur'anic curriculum must ensure that the use of technology remains within the framework of moral and spiritual values. Implementation challenges also arise in the area of human resource development. An adaptive curriculum requires teachers who can serve as creative and innovative learning facilitators. However, research indicates that a lack of professional training for teachers often poses a barrier to the implementation of adaptive curricula in various Islamic educational institutions [16].

In addition to internal factors within educational institutions, implementation challenges are also linked to the rapid dynamics of social change in the digital age. Today's students live in an environment heavily influenced by technology and digital media. Therefore, an adaptive Qur'anic curriculum must be able to respond to these changes by developing educational approaches that are relevant to the realities of life for the digital generation.

Opportunities for Integration with Digital Education Policies

Amid the various challenges faced, the implementation of the adaptive Qur'anic curriculum also opens up strategic opportunities for the development of digital education systems. The educational transformation taking place in the era of the Fourth Industrial Revolution has prompted many countries to integrate digital technology into their national education policies. These changes create opportunities for the development of curriculum models that are more flexible, adaptive, and technology-based.

One of the key opportunities is the emergence of the concept of personalized learning, which leverages digital technology. Artificial intelligence-based learning systems enable the creation of learning pathways tailored to the characteristics and abilities of each student. This approach is fully aligned with the principles of Islamic education, which emphasize the importance of recognizing and nurturing the individual potential of each student [1]. In addition, the ongoing curriculum transformation policies in various countries are also creating opportunities for the integration of religious values and educational technology. Modern curricula increasingly emphasize the importance of 21st-century competencies such as digital literacy, creativity, collaboration, and critical thinking. Integrating Qur'anic values within this competency framework can help shape a generation of Muslims who are not only intellectually intelligent but also possess strong moral integrity.

In Indonesia, various education policies have begun to focus on developing a more adaptive and context-based curriculum. Curriculum reforms that emphasize flexibility and project-based learning are opening up opportunities for the integration of digital technology into the education system. This approach enables educational institutions to develop more innovative learning models that are responsive to students' needs [15]. Technological advancements such as artificial intelligence, learning analytics, and digital learning management systems also present opportunities for the development of more accurate educational assessment systems. Learning data collected through digital platforms can help teachers gain a more comprehensive understanding of students' learning progress. As a result, the learning process can be tailored more effectively to the individual needs of students.

On the other hand, the integration of an adaptive Qur'anic curriculum into digital education policies can also contribute to strengthening the identity of Islamic education amid globalization. Islamic education serves not only as a system for transmitting religious knowledge but also as a means of character building and fostering social ethics. By utilizing digital technology wisely, Qur'anic values can be disseminated more widely through various digital education platforms. Another opportunity that can be leveraged is the development of a collaborative digital education ecosystem. Educational institutions, the government, the private sector, and the academic community can collaborate in developing technology-based educational innovations. This collaboration can accelerate the process of educational transformation while ensuring that the innovations developed remain relevant to the needs of society.

3.6 Implications of Qur'anic Educational Principles for Digital Instructional Design

Qur'anic Values-Based Instructional Design

Instructional design is one of the key aspects in developing an effective educational system. In the context of modern education, instructional design is not only concerned with the development of instructional materials or teaching methods, but also encompasses the formulation of learning objectives, strategies for delivering content, and the evaluation systems employed. From an Islamic educational perspective, an ideal

instructional design must be grounded in Qur'anic values that emphasize a balance between the intellectual, moral, and spiritual development of students.

The Qur'an provides a number of educational principles that can serve as a foundation for designing the learning process. One such principle is the approach of wisdom and good exhortation, as mentioned in Surah An-Nahl: 125. This verse indicates that the educational process must be conducted with wisdom, a persuasive approach, and effective communication. In the context of instructional design, this principle underscores the importance of a humanistic and dialogic pedagogical approach in the learning process. In Qur'anic-values-based instructional design, the goals of education are not only directed toward the attainment of academic competencies but also toward the development of students' character and ethical awareness. Therefore, the learning process must be designed in such a way that it instills values such as honesty, responsibility, and social concern. This approach aligns with the concept of character education, which is currently one of the primary focuses in the global education system.

In the context of digital education, Qur'anic-values-based instructional design can be integrated through the development of learning materials that are not only informative but also reflective. Learning materials can be designed using a contextual approach that links academic knowledge with the moral values found in the Qur'an. This can help students understand that knowledge is inseparable from ethical considerations and social responsibility. In addition, Qur'anic-value-based instructional design also emphasizes the importance of the teacher's role as a facilitator who guides the students' learning process. Teachers do not merely convey information but also help students internalize the values contained in the instructional materials. In a digital learning environment, this role can be realized through constructive interaction between teachers and students across various online learning platforms.

Research on Qur'anic education indicates that the tafsir tarbawi approach provides a robust conceptual framework for developing educational methods grounded in revelatory values. Studies on the educational interpretation of the Qur'an reveal that Qur'anic educational methods encompass the approaches of wisdom, sound counsel, and constructive dialogue within the learning process [23].

Adaptive Digital Learning Strategies

Advances in digital technology have brought significant changes to learning strategies. Previously one-way learning models are now shifting toward more interactive and adaptive approaches. Adaptive digital learning strategies are approaches that utilize technology to tailor content, methods, and the pace of learning based on students' needs and abilities. Adaptive learning enables the education system to provide a more personalized learning experience. Technologies such as learning analytics, artificial intelligence, and learning management systems can help map students' learning progress more accurately. Through the analysis of learning data, the system can adjust learning materials and activities so that the learning process becomes more effective.

Several studies have shown that the use of technology in adaptive learning can boost students' motivation and engagement. Digital learning systems can provide content tailored to students' ability levels, making the learning process more relevant and challenging. This approach also helps students develop critical thinking skills and problem-solving abilities [24]. In the context of curriculum development, adaptive digital learning strategies enable the integration of technology with flexible instructional design. The curriculum can be structured in a modular way so that students can follow learning paths tailored to their needs. This approach also allows for both independent and collaborative learning.

The development of adaptive learning strategies is also supported by the use of learning analytics technology capable of identifying students' learning patterns. This data analysis can help teachers understand students' strengths and weaknesses so that learning strategies can be tailored more effectively. The integration of analytics technology into adaptive curricula can even help educational institutions design more effective learning policies [25]. In addition, digital transformation in education is also driving the use of various interactive learning tools, such as digital simulations, educational videos, and collaborative platforms. These tools make the learning process more engaging and accessible to students in various locations. Therefore, adaptive digital learning strategies are a key approach to addressing educational challenges in the era of digital transformation. Integrating these strategies into the education system can help create a learning process that is more flexible, personalized, and effective.

Adaptive Assessment Based on Qur'anic Ethics

Assessment is a crucial component of the educational process that serves to measure students' learning achievements. In modern education systems, assessment functions not only as an evaluation tool but also as a means of improving the quality of learning. Therefore, assessment systems must be designed to be fair, transparent, and capable of providing a comprehensive picture of students' learning progress.

From an Islamic educational perspective, the concept of assessment is closely linked to the principles of justice and moral responsibility. The Qur'an emphasizes that every human action will be held accountable in a just manner. This principle can serve as an ethical foundation for designing educational assessment systems that uphold honesty and integrity. An adaptive assessment system is an evaluation approach that adjusts the difficulty level of questions and the form of evaluation based on students' abilities. Digital technology enables the development of evaluation systems that are more flexible and responsive to students' learning progress. Thus, assessment serves not only as a tool for measuring learning outcomes but also as a means to help students understand their learning process [26].

In digital learning systems, adaptive assessment can be conducted through various methods, such as computer-based quizzes, analysis of learning activities, and automated feedback provided by the learning system. This approach allows students to receive evaluations that are more personalized and focused on the learning process. In addition, assessment based on Qur'anic ethics also emphasizes the importance of academic integrity and moral responsibility in the evaluation process. Teachers need to ensure that the evaluation process is conducted transparently and does not result in unfairness toward students. Values such as trustworthiness, honesty, and justice must serve as the foundation for the implementation of educational assessments.

The development of adaptive assessment systems is also in line with the evolution of adaptive curricula, which emphasize the importance of differentiated instruction. By leveraging digital technology, educational institutions can develop more comprehensive evaluation systems capable of providing a more accurate picture of students' learning progress. Therefore, integrating Qur'anic ethical principles into adaptive assessment systems can help create evaluation systems that are not only academically accurate but also grounded in strong moral values. This approach is essential to ensure that digital education remains within the framework of fostering students' character and integrity.

4. Conclusion

Digital transformation in education demands the development of a curriculum that is more adaptive, flexible, and responsive to the needs of students. However, technology-based curriculum approaches often focus solely on technical aspects and digital innovation, thereby potentially neglecting the dimensions of values, ethics, and character development. Based on a thematic analysis of Qur'anic verses, this study demonstrates that the Qur'an contains educational principles relevant to the development of adaptive curricula in contemporary education.

The findings identify several Qur'anic educational principles that can serve as a foundation for adaptive curriculum design, namely the principle of *tadarruj* (gradual and contextual learning), the principle of *fitrah* and student individuality, the principle of balance (*tawāzun*) between intellectual, spiritual, and moral dimensions, and the principle of exemplary leadership and the humanization of education. These principles provide a normative and ethical framework for the development of digital learning designs that not only emphasize the effectiveness of technology but also focus on character and value formation.

Based on these principles, this article proposes a conceptual model called the Qur'anic Adaptive Digital Curriculum Framework (QADCF). This model integrates three main elements—Qur'anic educational principles, adaptive curriculum, and digital educational technology—to create a personalized, flexible, and values-based learning system. This integration enables the utilization of technologies such as learning management systems, artificial intelligence in education, and learning analytics to support a more effective and humanistic learning process.

The focus of this research lies in the conceptual effort to integrate Qur'anic educational principles with the adaptive curriculum paradigm and digital transformation in education. This approach offers a new perspective in the study of Islamic education, particularly in formulating a curriculum model capable of bridging the gap between revelatory values and the development of modern educational technology. Therefore, the integration of Qur'anic values and digital innovation is a crucial strategy in building an educational system that is not only adaptive to technological changes but also oriented toward the development of individuals of character and ethics.

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