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CURRICULUM DEVELOPMENT MODEL AS A SOLUTION FOR ADAPTIVE EDUCATION IN THE ERA OF DISRUPTION

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ABSTRACT
This study aims to analyze the adaptive curriculum development model as an educational solution in the era of disruption, which is characterized by rapid changes due to technological advances and globalization. The method used is qualitative research with a literature study approach. Data are collected from primary and secondary literature relevant to curriculum development and modern educational challenges. The results show that adaptive curricula should strategically integrate technology while maintaining local cultural values, as well as focus on developing 21st-century skills, such as critical thinking, creativity, and collaboration. The research also highlights the importance of a data-driven approach in curriculum design to ensure local relevance and global readiness. The implications of this study include practical guidance for educational institutions in designing responsive and flexible curricula. However, the limitations of literature review indicate the need for field research to evaluate the effectiveness of adaptive curricula in various contexts. The conclusion of this study reinforces the importance of balancing technological innovation and cultural preservation in education to form a generation that is ready to face global challenges.

Keywords: Adaptive curriculum, education in the era of disruption, technology, cultural values, 21st century skills.

ABSTRAK
Penelitian ini bertujuan untuk menganalisis model pengembangan kurikulum adaptif sebagai solusi pendidikan di era disrupsi, yang ditandai oleh perubahan cepat akibat kemajuan teknologi dan globalisasi. Metode yang digunakan adalah penelitian kualitatif dengan pendekatan studi pustaka. Data dikumpulkan dari literatur utama dan sekunder yang relevan dengan pengembangan kurikulum dan tantangan pendidikan modern. Hasil penelitian menunjukkan bahwa kurikulum adaptif harus mengintegrasikan teknologi secara strategis sambil mempertahankan nilai-nilai budaya lokal, serta berfokus pada pengembangan keterampilan abad ke-21, seperti berpikir kritis, kreativitas, dan kolaborasi. Penelitian juga menyoroti pentingnya pendekatan berbasis data dalam desain kurikulum untuk memastikan relevansi lokal dan kesiapan global. Implikasi dari penelitian ini mencakup panduan praktis bagi institusi pendidikan dalam merancang kurikulum yang responsif dan fleksibel. Namun, keterbatasan kajian pustaka mengindikasikan perlunya penelitian lapangan untuk mengevaluasi efektivitas kurikulum adaptif di berbagai konteks. Kesimpulan dari penelitian ini memperkuat pentingnya keseimbangan antara inovasi teknologi dan pelestarian budaya dalam pendidikan untuk membentuk generasi yang siap menghadapi tantangan global.

Kata Kunci: *Kurikulum adaptif, pendidikan era disrupsi, teknologi, nilai budaya, keterampilan abad ke-21.*

INTRODUCTION

The era of disruption is an era of very rapid and fundamental change (Sa'diyah, 2023). These rapid and fundamental and unexpected changes are triggered by technological advances and globalization that have changed almost every aspect of life, including education (Maghfiroh & Sholeh, 2022). With this technological advancement and globalization, the world is increasingly interconnected and interconnected, so that people from various countries can share information and work together.nThis very rapid change makes many things in human life

different, including the way students learn at school (Alhamuddin et al., 2022). In the past, students only studied in class with teachers, but now students can learn anywhere with the help of teknologi. Selain semakin Close to a person's distance due to technology, this era of disruption also brings severe challenges. We must learn to adapt to technology and still maintain good values, such as manners and responsibility (Majumder & Tripathi, 2023). That way, we can use technology for useful things. So, the era of disruption is a time where we must study harder and be ready to face various changes for a better future (Sunny et al., 2019).

Disruption is also able to create the need for innovation to deal with changes that replace old practices that are irrelevant (Martianto, 2024). Disruption can be said to be a major change that makes the old way less suitable or no longer used (Christensen et al., 2018). Therefore, we need to find new ways or innovations to adapt to these changes. Another example is, in the past, people sent letters by mail, now we can send messages through applications on mobile phones quickly. In the world of education, innovation is also very important. In the past, we only learned in the classroom, but now we can learn through videos, educational games, or applications. Old irrelevant practices, such as just memorizing without understanding, are beginning to be replaced by more interesting and useful ways of learning (Means et al., 2009). Innovation helps us face challenges and take advantage of opportunities in the modern era. We must dare to try new things, such as learning to code or how to create creative works with technology. With innovation, we can not only keep up with change, but also create great things for the future (Kawabata & Camargo Junior, 2020). So, innovation is like the key to opening the door to a better world.

Education, which is one of the main pillars of human development, must be able to adapt to these challenges (Jones et al., 2008). Education is an important thing that helps us become smart, kind, and useful people. Education is like a foundation or foundation to build our future. However, as the world continues to change rapidly, education must also be able to keep up with these changes. For example, many jobs now require skills using computers or the internet. So, schools must teach how to use technology so that we are ready for the future. In addition, education must also teach creative thinking and problem-solving, not just memorizing lessons (Fathonah et al., 2024). The challenges in today's world, which we are experiencing now, make us have to study harder. A good education will help us overcome those challenges and become successful people. So, education must continue to develop so that we can all become a great generation and help build a better world.

In this context, an adaptive curriculum development model is a strategic solution to ensure the relevance and sustainability of the learning system. Adaptive education not only demands the integration of technology, but also the ability to equip students with critical, creative, and collaborative thinking skills (Rosnaeni et al., 2021). It is important for educational institutions to prepare students for future uncertainties with skills that support success in a dynamic world of work. Adaptive curricula must be able to respond to local and global needs, creating a balance between technology and cultural values.

Therefore, the analysis of the curriculum development model is an important step to create an education that is responsive to the needs of the times (Hemilia, n.d.). Curriculum designed with an innovative approach is able to support the development of relevant 21st century competencies and enable learners to adapt to social, economic, and technological

changes effectively.

Educational institutions need to take a technology-based approach to create a flexible and relevant education system (Çelik & Baturay, 2024). An effective curriculum must be able to encourage learner-centered learning, which allows for a personalized and inclusive learning experience. Digital transformation in education must be balanced with a pedagogical strategy that prioritizes the development of 21st century skills. His research shows that the integration of technology in the curriculum must be accompanied by a focus on strengthening critical thinking, communication, and collaboration skills. This view supports the idea that curriculum development models should be designed to enhance essential adaptive skills.

The purpose of this research is to provide practical solutions in the development of culturally and contextually relevant curriculums, so as to be able to answer the needs of education in regions with limited access to technology or cultural differences. The contribution resulting from this study is to provide strategic guidance for the implementation of adaptive curricula relevant to local and global contexts. By examining the curriculum development model in depth, this research is expected to provide innovative solutions to create a sustainable education and be able to produce graduates who are ready to face challenges in the era of disruption.

METHOD

The research method used in this study is a qualitative method with a library research approach. This research focuses on an in-depth analysis of relevant curriculum development models to support adaptive education in the era of disruption. The data collected came from two main sources, namely primary data and secondary data (Kranthi, 2017). Primary data includes primary literature such as books, scientific journal articles, and official documents that discuss curriculum development models, adaptive education, and the challenges of the disruption era. Meanwhile, secondary data consists of research reports, conference results, and other digital sources that support the validity of research findings (OSADA, 2024).

Data collection is carried out by the documentation method, namely by searching, selecting, and organizing relevant literature (Gallagher, 2009). This process involves a rigorous selection of sources that are valid, reliable, and in accordance with the focus of the research. After the data is collected, the analysis is carried out in a descriptive-qualitative manner through several stages. First, the data is reduced to filter important information relevant to the research objectives, such as the principles and application of the adaptive curriculum model. Second, the selected data is compiled in the form of a systematic narrative to facilitate understanding and provide a comprehensive overview of the model being studied. Finally, conclusions are drawn based on data interpretation supported by theoretical triangulation to ensure the accuracy and relevance of the research results.

RESULTS AND DISCUSSION

The Era of Disruption and Its Implications on Education

The era of disruption is marked by rapid and fundamental changes in various aspects of life, including education (Ainun et al., 2022). This change is mainly triggered by technological advances and globalization that continues to grow rapidly. Technology has revolutionized the

way humans communicate, work, and learn. In the context of education, the impact is very significant because the way students acquire knowledge and interact with their learning environment has changed drastically. This transformation requires the education system to continue to adapt to remain relevant to the needs of the times.

Technological advances allow learning to no longer be limited to traditional classrooms. Students can now learn anytime and anywhere by utilizing various digital platforms, such as learning applications, online videos, or interactive modules. Technology also opens up learning opportunities across geographical boundaries, allowing students in different parts of the world to share information and collaborate on global projects (M. Lee & Sharma, 2024). This provides opportunities for students to get a broader and more diverse learning experience.

However, the challenges that arise from this era of disruption cannot be ignored. Sophisticated technology is not enough if it is not accompanied by innovation in the education system (Kumari & Nigam, 2023). The curriculum, learning methods, and teaching strategies need to be redesigned in order to adapt to the times. Education must be able to train students to think critically, creatively, and adaptively in dealing with dynamic situations. In addition, the integration of technology in learning must be accompanied by the development of 21st century skills, such as communication, collaboration, and digital literacy.

Thus, the era of disruption is an important momentum for education to transform. Technology is not only a supporting tool, but also the core of an innovative learning process. An education system that successfully adapts to these changes will be able to produce a generation that is ready to face global challenges, while still maintaining local values that are relevant to their culture and identity.

Adaptive Curriculum Needs

The adaptive curriculum is a strategic solution to answer the challenges of the era of disruption which is characterized by rapid and dynamic changes. In this context, the adaptive curriculum not only serves as a learning guide, but also as an important instrument to ensure that learners are able to adapt to global changes (Hutahaean et al., 2024a). The curriculum is designed to be flexible, dynamic, and relevant, so that it can accommodate the needs of an ever-evolving world without putting aside cultural identities and local values.

One of the advantages of an adaptive curriculum is its ability to respond to global changes while maintaining local cultural roots. Globalization and technology have opened up access to a wide range of information and opportunities for international collaboration. However, it is important for the education system to maintain a balance between the absorption of global values and the preservation of local values that are the identity of students (Sarnita & Titi Andaryani, 2023). Thus, the adaptive curriculum plays a role not only as an educational tool but also as a guardian of cultural sustainability in the midst of globalization.

The main focus of the adaptive curriculum is to equip learners with essential 21st century skills, such as critical thinking, creativity, collaboration, and the ability to utilize technology (RESouRCE & GuidE, 2008). Critical thinking allows learners to analyze information in depth, while creativity encourages them to create innovative solutions. On the other hand, collaboration skills teach the importance of working together in diverse teams, while mastering technology ensures they are able to compete in an increasingly digital world.

More than that, the adaptive curriculum also provides space for a student-centered learning approach. By placing students' needs and potentials at the center of learning, this curriculum allows for a more personalized and inclusive learning experience. The end result is graduates who not only possess academic competence, but also social and emotional skills that support their success in a dynamic and uncertain world of work (Hutahaean et al., 2024b). Adaptive curriculum is the key to producing future generations who are ready to face global challenges without forgetting their identity.

Digital Transformation in Education

The integration of technology in education is a key element in supporting the development of adaptive curricula that are relevant to the challenges of the disruption era. Technology has opened up new opportunities for the world of education, such as seamless access to learning resources, cross-border collaboration, and more interactive learning experiences (Shofiyyah et al., 2023). With technology, students can take advantage of digital platforms to get information, practice skills, and establish professional relationships from an early age. However, the application of this technology requires careful planning so that the benefits can be felt optimally by all parties.

Digital transformation in education is not enough just by providing technological devices. This must be balanced with the right pedagogical strategy, which is able to direct students to develop 21st century skills (Kereluik et al., 2013). One of the main focuses is strengthening critical thinking skills, where students are trained to analyze, evaluate, and make decisions based on valid information. In addition, communication and collaboration skills also need to be strengthened to prepare them for the world of work that increasingly demands the ability to work in diverse teams.

In addition to the skills aspect, digital transformation must also ensure that learning becomes more personalized and inclusive. Personalization of learning means giving each learner the opportunity to learn according to their needs, interests, and potential. Technology allows teachers to monitor student progress individually and provide specific feedback (Zhang et al., 2020). Meanwhile, inclusivity guarantees that all students, regardless of their social, economic, or special needs, can access and experience the benefits of technology-based learning.

Thus, effective technology integration is not only about adopting advanced devices, but also creating a learning environment that supports diversity, creativity, and individual growth. Technology-based education designed with a strategic approach can be the foundation for producing a generation that is ready to face future challenges, while ensuring that no student is left behind in the learning process. This makes technology an empowering tool, not just a complement to the education system.

Education for Regions with Limited Access to Technology

One of the main challenges in the development of adaptive curricula is ensuring cultural relevance while still considering the limitations of access to technology in different regions (Zeichner & Tabachnick, 1981). In many regions, especially in remote areas or with limited infrastructure, access to modern technology is often a major obstacle. This condition makes it difficult to apply technology-based learning methods that are widely relied on in the era of

disruption. Therefore, creating culturally relevant and implementable curricula in these regions is an urgent challenge to overcome.

To overcome this challenge, a creative and innovative approach is needed in curriculum design. The curriculum must be able to adapt to local needs, both in terms of content and teaching methods (C.-S. Lee & Kolodner, 2011). For example, the curriculum can integrate simple technologies such as the use of mobile devices that are already available in most communities. In addition, approaches that prioritize strengthening traditional skills, such as handicrafts or local knowledge, can also be an effective way to maintain cultural relevance. This not only increases students' sense of belonging to the subject matter but also helps to preserve the local cultural heritage.

In addition, learning strategies must be designed to remain inclusive and quality despite technological limitations (Meng et al., 2024). Teachers and educators can be trained to use innovative learning methods, such as project-based learning or group discussions, that do not rely entirely on advanced technological devices. Learning media such as printed materials or simple teaching aids can also be used optimally to ensure that the teaching and learning process remains effective. Thus, students in areas that are underserved by technology still have access to education that is meaningful and on par with other regions.

Furthermore, collaboration between governments, educational institutions, and local communities is essential in addressing these challenges. Support from various parties, including funding for the development of basic infrastructure and training programs for teachers, can help create a better educational environment. With the synergy between the various elements, a culturally relevant curriculum can be realized without sacrificing the quality of education, ensuring that all students, regardless of their location, have equal opportunities to learn and thrive.

Balance of Technology and Cultural Values

Adaptive education not only focuses on mastering technology, but also emphasizes the importance of maintaining a balance with cultural values. Technology does provide great benefits in increasing learning effectiveness, such as faster access to information and more interactive teaching methods. However, technology alone is not enough to produce individuals with integrity. It is important for adaptive education to integrate cultural values that serve as the moral and character foundation for students.

The balance between technology and cultural values allows learners not only to become technically competent individuals, but also to have high ethics and social responsibility. Values such as courtesy, cooperation, and respect for cultural diversity should be explicitly taught in the curriculum. Thus, education not only produces graduates who are capable of facing global challenges, but also able to contribute positively to their local communities.

The application of cultural values in adaptive education can be done through various approaches. One of them is by using folklore, local traditions, or cultural arts as a learning medium. Additionally, project-based collaborative activities that involve exploring local cultures can help students understand the importance of preserving cultural heritage. This approach not only teaches moral values, but also strengthens their sense of belonging to their cultural identity.

By instilling cultural values in education, students will have a strong moral foundation to

face challenges in the era of globalization and disruption. They will not only be technically ready to compete in the world of work, but will also be able to live a life with integrity, empathy, and a high sense of responsibility. Balanced adaptive education like this is the key to creating a generation that is not only successful individually, but also beneficial to society and the nation.

The Importance of a Data-Driven Approach

In the development of adaptive curriculum, the use of a data-driven approach is a crucial step to ensure the effectiveness and relevance of the designed curriculum. Data provides an empirical foundation that allows curriculum developers to make informed decisions based on real needs in the field. By utilizing data, the curriculum can be optimally adjusted to answer the needs of students, schools, and communities, both in local and global contexts.

One important source of data is research on local needs. Each region has unique characteristics, including culture, language, and socio-economic challenges. This data on local needs helps ensure that the curriculum is designed according to the specific context of the area. For example, in regions where the majority of the population works in the fisheries sector, the curriculum can include relevant learning, such as marine resource management or fisheries technology. This not only increases student engagement but also provides practical benefits to the community.

In addition to local needs, data on technological capabilities is also very important. Not all regions have the same access to advanced technology. By understanding the extent to which technology can be applied, curriculum developers can determine appropriate learning approaches. In areas with limited technology, learning methods that use simple media or printed materials can be more effective than digital approaches that require high infrastructure. On the other hand, in areas that have adequate access to technology, the curriculum can integrate digital tools to increase learning efficiency and creativity.

Furthermore, data on global challenges such as climate change, globalization, and technological advances are also considered in the development of adaptive curricula. This challenge requires the curriculum to equip students with critical thinking skills, adaptability, and global awareness. By leveraging comprehensive data, curriculum developers can create learning programs that are not only relevant at the local level but also prepare students to face global dynamics. This data-driven approach is a strong foundation to ensure that adaptive curricula are truly effective and have a positive impact.

ANALYSIS

The results of this study emphasize the importance of developing an adaptive curriculum in response to the challenges of the disruption era. The era of disruption, which is characterized by rapid and significant changes in various aspects of life due to technological advances and globalization, requires the education system to continue to adapt. Adaptive curriculum is present as a solution to create education that is not only locally relevant but also able to prepare students to face increasingly complex global dynamics.

The adaptive curriculum is not only oriented towards the integration of technology, but also emphasizes the preservation of local cultural values. In the face of global change, it is important to maintain a balance between innovation and tradition. The preservation of local

cultural values allows students to maintain a strong identity, which is an important foundation in building character and morality.

These findings confirm that adaptive curriculum is able to create a contextual and flexible education system. Education that is relevant to the local context will be more effective in motivating learners, while a flexible approach allows for rapid responses to changing labor market needs and technological developments.

In an adaptive curriculum, strengthening 21st-century skills is a key element. Skills such as critical thinking, creativity, collaboration, and technological literacy are important prerequisites to ensure learners' future success. This curriculum is designed to enable students to solve complex problems, innovate, and work together in diverse teams.

Critical thinking skills help learners to analyze information in depth, evaluate facts, and make informed decisions. In an information age full of data, this ability is crucial to distinguish between valid and misleading information. Creativity in the adaptive curriculum allows learners to find innovative solutions to new challenges. The ability to think outside the box is not only beneficial in the world of work but also in everyday life full of uncertainty.

Collaboration, which is also an important part of 21st-century skills, prepares learners to work closely with people from different backgrounds. This capability is crucial in an increasingly connected world, where teamwork and cross-cultural collaboration are often paramount needs. Technology literacy is another important element in the adaptive curriculum. Students are not only taught how to use technology, but also how to use it effectively for learning and self-development. This literacy includes an understanding of digital ethics and cybersecurity.

When compared to previous research, these results are in line with studies that highlight the importance of innovation in curriculum development in an era of disruption. Studies by Means et al. (2009) and Çelik & Baturay (2024) show that technology integration can improve learning effectiveness. However, this research expands the scope by adding the relevance of local culture as an important component. This study supports the findings of Rosnaeni et al. (2021) which emphasizes the need for personalized and inclusive learning. In the adaptive curriculum, the individual needs of students become the center of attention, so that the learning process becomes more meaningful and effective.

Theoretically, this study strengthens the concept of adaptive education as a strategy that is responsive to social, economic, and technological changes. By balancing the use of technology and the preservation of cultural values, this research provides a new, more holistic perspective in curriculum development theory. In practical terms, this study provides guidance for educational institutions in designing flexible and contextual curricula. For example, the use of simple technology in areas with limited infrastructure is a solution that allows for more equitable access to education.

The integration of local cultural values in the curriculum is also an important strategy to increase the relevance of education. Students who understand and appreciate their culture will have a strong identity and are able to face global challenges with confidence. However, this study has limitations. The literature study approach used does not allow direct observation of the implementation of the adaptive curriculum in the field. Therefore, more empirical follow-up research is needed to evaluate its effectiveness. Further research can explore specific challenges in the implementation of adaptive curricula in areas with limited educational

infrastructure. In addition, it is important to examine the long-term impact of this curriculum on students' ability to adapt in the world of work.

This research provides a solid foundation for the development of adaptive curriculum in the future. With continuous innovation, a locally relevant and globally challenged education system can be realized. Finally, the development of an adaptive curriculum that balances technology and culture is a strategic step towards a more inclusive, relevant, and sustainable education. This curriculum can be the foundation for future generations who are ready to contribute positively to society and the world.

CONCLUSION

This research emphasizes the importance of developing an adaptive curriculum as a response to educational challenges in the era of disruption. This era is marked by rapid changes triggered by technological advances and globalization, which fundamentally change the way students learn and interact. The adaptive curriculum is a strategic solution that not only integrates technology but also maintains a balance with local cultural values. This research shows that adaptive curricula should be flexible, relevant, and designed to develop 21st-century skills, such as critical thinking, creativity, collaboration, and mastery of technology. With this approach, students can be prepared to face global challenges while maintaining their cultural identity.

Digital transformation is one of the main focuses in the development of adaptive curricula. Technology opens up learning opportunities across geographical boundaries, provides seamless access to learning resources, and creates a more interactive learning experience. However, the success of this technology integration requires the right pedagogical strategy so that students can develop critical thinking, communication, and cooperation skills. On the other hand, areas with limited access to technology require an innovative approach by utilizing simple technology and strengthening local values as part of the curriculum. This is important to ensure educational inclusivity and provide equal access for all learners.

This research makes a significant contribution to the development of Islamic education science and praxis. Theoretically, this study expands the concept of adaptive education by adding cultural relevance as a key component. In practical terms, this study provides a strategic guide for educational institutions to design flexible and contextual curricula. By placing the balance between technology and cultural values at the core of curriculum development, this research reinforces the theory that education should be responsive to changing times without forgetting its cultural roots.

For future research, empirical studies are needed to evaluate the effectiveness of adaptive curriculum implementation in various educational contexts. In addition, further research can examine the long-term impact of adaptive curricula on students' readiness to face the challenges of the world of work. Further innovations in educational technology also need to be explored to create more inclusive and personalized learning strategies. This research provides a solid foundation for the development of adaptive curricula that are not only relevant to the needs of the times but also support the sustainability of local culture and identity.

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