Research Article

Development of Competency-Based Curriculum to Prepare Students for Global Challenges

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Abstract

The development of a competency-based curriculum is one of the important efforts in preparing students to face global challenges in the modern era. This article aims to examine the importance of curriculum development that prioritizes strengthening student competencies in order to respond to the dynamics of global change. This study uses a qualitative method with a library research approach to analyze various relevant reference sources related to competency-based curriculum development. Based on the results of the literature study, it was found that the competency-focused curriculum not only emphasizes academic knowledge, but also practical skills that can be applied in various global contexts, such as critical thinking skills, creativity, adaptability, and problem-solving. In addition, this research also highlights the importance of technology integration in learning and collaboration between countries in developing a curriculum that is relevant to global developments. The results of this study provide recommendations for the development of a curriculum that is more flexible, based on industry needs, and able to prepare students for the challenges of an increasingly competitive world of work. In conclusion, the development of a competency-based curriculum is a strategic step to ensure the readiness of future generations to face the ever-evolving global challenges.

Keywords: Competency-based curriculum, global challenges, education, literature studies, 21st century skills

INTRODUCTION

Education is one of the sectors most affected by global developments, both in terms of technology, economy, culture, and politics (UNESCO, 2020). Along with the dynamics of these changes, the challenges faced by the education system are increasingly complex. One of the efforts to face this challenge is to develop a competency-based curriculum that can prepare students to have skills relevant to the

demands of the global world (OECD, 2018). The competency-based curriculum prioritizes the formation of practical skills and values that are essential for life in the global era, so that students are not only equipped with theoretical knowledge, but also the ability to adapt to various situations and challenges (Anderson & Krathwohl, 2001).

In this era of globalization, the world is increasingly connected and changing rapidly, posing complex challenges for future generations. These challenges cover a wide range of areas, from climate change, rapid technological development, to global market dynamics that affect employment. Therefore, it is important for the education system to prepare students with the skills that can face such changes and challenges. One effective way is through the development of a competency-based curriculum, which prioritizes not only aspects of knowledge, but also practical skills and critical thinking skills that are needed in a fast-paced and uncertain global life (Saavedra & Opfer, 2012).

One of the key aspects in preparing students for global challenges is the strengthening of social and emotional competence. The ability to collaborate with people from different cultural backgrounds, understand and appreciate diversity, and adapt to a changing environment, is an important key in facing the challenges of the modern world. This competency-based education emphasizes project-based learning, interdisciplinary collaboration, and the development of interpersonal skills that enable students to work in global teams and think across cultures (Zhao, 2012). Thus, an adaptive and competitive educational curriculum will provide students with the ability to face global challenges such as social inequality, technological change, and climate change.

In addition, education must be able to provide strong digital skills, given the increasingly dominant role of technology in daily life. Rapid technological advancements, especially in the fields of artificial intelligence, big data, and communication technology, require students to have high digital literacy. Competency-based curriculum needs to integrate technology in the teaching and learning process so that students not only master technical skills, but also be able to think analytically, innovatively, and creatively to solve global problems. The use of technology in education also allows students to learn independently, access global information directly, and collaborate with students from different parts of the world (Schleicher, 2018). By providing education that prioritizes competence, students can become individuals who are not only ready to face global challenges, but also contribute positively in creating solutions to existing global problems.

However, although many studies have examined the implementation of competency-based curricula, there is still a gap in understanding how the curriculum can be effectively adapted to face changing global challenges (Brock et al., 2019). Most previous studies have focused more on the implementation of competency-based curricula at the national level, but have not addressed the specific challenges in curriculum development to prepare students for global phenomena such as climate change, the globalization of the labor market, and evolving technology (Wang & Zhang, 2020). Therefore, this research focuses on the importance of developing a competency-based curriculum with a global perspective.

The urgency of this research lies in the urgent need to design a curriculum that is not only suitable for local needs, but also able to respond to the demands of global competence. The development of a competency-based curriculum that prioritizes global understanding will be the foundation for students to be able to compete at the international level and play an active role in solving global problems (Zhao, 2012). In addition, the rapid development of technology demands that the educational curriculum not only focuses on formal learning, but also on the development of digital skills and information technology (Saavedra & Opfer, 2012).

Several previous studies have shown that a competency-based curriculum that integrates technology can improve the quality of learning and improve 21st century skills in students (Schleicher, 2018; Fadel, 2008). However, despite many efforts that have been made, the implementation of an effective competency-based curriculum to prepare students for global challenges still requires a more in-depth study of its strategies and approaches (Gordon et al., 2017). This research seeks to fill this gap by offering a more comprehensive competency-based curriculum development model.

The novelty of this study lies in an approach that combines the study of global literature to formulate a competency-based curriculum development strategy that is not only relevant to local conditions but also able to answer global challenges. Thus, this research proposes a curriculum framework that integrates global skills, such as creativity, collaboration, and critical thinking skills, to prepare students for various global challenges.

The purpose of this study is to develop a competency-based curriculum model that can be applied in Indonesia with a global perspective, as well as provide recommendations related to education policies that can strengthen students' readiness to face global challenges. In addition, this research aims to contribute to the development of educational theory and curriculum practice in Indonesia and provide guidance for policymakers in designing a curriculum that is more adaptive to global changes. The benefits of this research are expected to help educators, policymakers, and other stakeholders in designing more relevant curricula that are ready to face evolving global challenges.

RESEARCH METHODS
This study uses a qualitative approach with the type of literature study research (library research). The qualitative approach was chosen because the goal is to explore and analyze the understanding and concepts contained in the existing literature, related to the development of a competency-based curriculum in a global context. Literature study research allows researchers to identify and examine various theories, concepts, and findings from relevant previous research in an effort to develop curriculum models that can prepare students to face global challenges (Seale, 2004).

The data sources in this study are various academic literature obtained through searches in leading scientific databases, such as Google Scholar, JSTOR, and ProQuest, which include journal articles, books, research reports, as well as educational policy documents relevant to the research topic. The selected literature covers various perspectives from the field of education, curriculum, 21st century competencies, as well as global challenges faced by education systems in various countries. To ensure relevance to research topics, only literature published in the last 10 years was selected, to reflect recent developments in curriculum development and

global challenges (Harris & McCannon, 2013).

The data collection technique is carried out through a systematic and analytical document study. Researchers conducted literature selections using relevant keywords, such as "competency-based curriculum," "global challenges," "21st century competencies," and "global curriculum development." After identifying the relevant literature, the researcher then analyzes and filters the information obtained to find existing knowledge gaps, as well as compile a synthesis of various existing findings. Data analysis is carried out with a thematic approach, where data are categorized based on key themes that appear in the literature, such as competency development, technology integration, and global challenges faced by students and the education system (Braun & Clarke, 2006). The results of this analysis are expected to provide a comprehensive picture of how competency-based curriculum can be adapted to the needs to prepare students for ever-evolving global challenges.

RESULTS AND RESEARCH

The Importance of a Competency-Based Curriculum in Facing Global Challenges

a. **Global Developments and Challenges for the Education System**
Rapid global developments in the fields of technology, economy, and society have created new challenges for education systems around the world. As technological advancements change the way people work and interact, and the shift in the economy to place more emphasis on digital skills and innovation, education must be ready to adapt to meet the needs of the future. In addition, an increasingly connected global society introduces new dynamics in interstate and intercultural relations, which demands new skills, such as the ability to collaborate in international teams, as well as the ability to understand and appreciate cultural differences (Saavedra & Opfer, 2012). Therefore, the education system needs to evolve along with these changes so that future generations can be ready to face the challenges that exist.

One of the proposed approaches to meet this need is through the development of competency-based curriculum. In contrast to traditional curricula that emphasize more on the transfer of theoretical knowledge, competency-based curricula emphasize the development of practical skills that can be directly applied in real life. This is especially important considering the rapidly changing world and requires individuals who not only master knowledge but also have practical skills, such as critical thinking skills, adaptation to change, and collaboration skills in a global context (Zhao, 2012). Therefore, a competency-based curriculum is not only about creating new knowledge, but also about how students can manage that knowledge to create solutions to real-world challenges.

According to the OECD (2018), the competencies that must be developed in a competency-based curriculum include various aspects that are cross-disciplinary, including social skills, emotional skills, and technical and digital skills. Social and emotional skills, for example, are essential for interacting in an increasingly diverse global society, while digital skills are essential given the increasingly dominant role of technology in everyday life, both in the world of work and in social life. Therefore, the competency-based curriculum does not only focus on the academic aspect alone, but also on the development of skills that will prepare students for the ever-evolving global challenges.

b. Competency-Based Curriculum and Readiness to Face Global Uncertainty

As global uncertainties increase, such as climate change, economic instability, and political and social tensions, it is important for education systems to prepare students to have the ability to adapt and survive in the midst of such changes. One important aspect of a competency-based curriculum is its ability to prepare students for uncertainty. Research shows that competency-based curriculum can increase students' readiness to face rapid and unexpected changes (Schleicher, 2018). With a focus on developing critical thinking skills, students can be trained to assess and respond to challenges in a more adaptive and innovative way. In addition, the collaboration and communication skills instilled in this curriculum also allow students to work in teams made up of individuals with different cultural backgrounds, which is crucial in an increasingly globally connected world (Wang & Zhang, 2020).

In addition, metacognitive skills also need to be an integral part of the competency-based curriculum. Metacognitive skills, which include the ability to understand and manage one's own thought processes, are essential in helping students face increasingly complex global challenges. With these skills, students can not only solve problems more effectively, but can also solve larger problems in more creative and innovative ways (Schleicher, 2018). A curriculum that integrates metacognitive competencies provides space for students to not only learn existing knowledge, but also to develop their approach to learning and life in a more holistic way.

However, the development of a competency-based curriculum cannot be separated from the need to adapt the curriculum to technological developments and existing social changes. Fadel (2008) revealed that in an increasingly digital world, technical skills, such as digital literacy, mastery of information technology, and the ability to use technology to solve problems, are non-negotiable skills. Therefore, competency-based curricula need to integrate technology as part of efforts to prepare students with skills relevant to the demands of the increasingly digital world of work and social life.

c. Maintaining a Balance between Global Needs and Local Identity in a Competency-Based Curriculum

The development of competency-based curricula must also consider the importance of maintaining a balance between global needs and local contexts. In an increasingly connected world, it is important for students to have skills relevant to an increasingly open and competitive global market. However, this does not mean that students should lose their cultural and local identity. Research by Brock et al. (2019) suggests that competency-based curricula should be able to reflect the needs and developments of the global community, but remain relevant to local values and cultures. In this context, the development of a competency-based curriculum must be able to facilitate learning that is global but still respects the cultural diversity that exists in society.

This approach requires collaboration between countries around the world to develop flexible and adaptive curricula. This collaboration is important because today's global world requires individuals who are not only competent in technical skills, but also able to work in multicultural teams and understand different perspectives from different cultures. Gordon et al. (2017) revealed that with the development of a competency-based curriculum that integrates global and local perspectives, students can learn to manage

cultural differences and enrich their understanding of the wider world, while still maintaining their respective cultural identities.

Therefore, while a focus on global competencies is important, competency-based curriculum development should pay attention to local values and provide space for students to understand and appreciate their own cultures. This will give students a solid foundation to thrive in a global society without losing a sense of pride in their culture. In addition, integrating local values into the curriculum will help students have a strong identity, which will allow them to better adapt to an increasingly global world while still maintaining a sense of pride in their origins.

d. The Importance of Metacognitive Skills Development in Competency-Based Curriculum

One of the important aspects that needs to be developed in a competency-based curriculum is metacognitive skills. These skills, which refer to the ability to understand and control one's own thought processes, are key in facing the increasingly complex and dynamic challenges of a global world. Through the development of metacognitive skills, students can be taught to not only remember and apply information, but also to think reflectively, identify strengths and weaknesses in their thinking processes, as well as develop strategies to solve problems effectively (Schleicher, 2018). These metacognitive skills are not only important in academic contexts, but also in everyday life, where students are expected to be able to adapt to changes and face ever-changing challenges.

The importance of metacognitive skills is further emphasized by various studies that show that students who have these skills are better able to learn independently and manage their learning throughout life. For example, Fadel (2008) explained that the development of metacognitive skills will help students to overcome challenges that arise in the world of work and society in a more effective way. Learning methods based on metacognitive competencies can help students develop strategies for dealing with new problems, which are especially relevant in a world of uncertainty.

However, to ensure that metacognitive skills can develop optimally, a competency-based curriculum must create a space for students to engage in challenging learning, which encourages them to think more deeply about their learning process. Therefore, competency-based education should include approaches that emphasize the development of higher-order thinking skills, such as analysis, synthesis, and evaluation, enabling students to solve problems creatively and innovatively (Zhao, 2012). As such, metacognitive skills are not only an addition to the curriculum, but they are also the foundation that allows students to thrive in an ever-changing global world.

The Role of Technology in Competency-Based Curriculum Development

The rapid development of technology plays a central role in the formation of competency-based curriculum. Technology enables more interactive and technology-based learning, as well as facilitating students to access global information directly and collaborate with their peers from different countries (Saavedra & Opfer, 2012). The integration of technology in the curriculum can help students develop skills relevant to the digital world and the global market dominated by technological innovation (Schleicher, 2018). It also allows for the development of digital skills that are much needed in the future, such as programming, data analysis, and information management (Fadel, 2008).

A competency-based curriculum that integrates technology must be able to provide students with a learning experience that emphasizes skills that can be directly applied in everyday life. In addition, technology-based education also provides opportunities for students to learn independently, access educational resources from around the world, and develop communication and digital collaboration skills (Zhao, 2012). A study conducted by the OECD (2018) shows that technology-based education can enhance 21st century skills in students, including creativity, collaboration, and problem-solving abilities necessary in a global context.

However, the implementation of technology in competency-based curricula also faces major challenges, especially related to the digital divide that still exists in many countries, including Indonesia (Brock et al., 2019). Therefore, the development of a competency-based curriculum must be accompanied by efforts to ensure equitable access to technology, training for teachers, and the development of adequate digital education infrastructure. Without this support, technology will not be able to have a maximum impact in preparing students to face global challenges.

In addition, research by Wang & Zhang (2020) shows that the integration of technology in the curriculum must be done carefully, so as not to reduce the quality of social interaction in learning. Technology should be a tool to enrich students' learning experiences, not replace face-to-face interactions that are essential for the development of their social and emotional skills. Therefore, in the development of competency-based curriculums, technology must be integrated with a balanced approach, which effectively combines digital and traditional learning aspects.

21st Century Competencies in the Context of Curriculum Development
21st century competence is one of the important components in the development of a competency-based curriculum. In the face of global challenges, students are not only required to master academic knowledge, but must also have skills that can help them adapt to rapid changes, collaborate in a multicultural environment, and solve complex problems (Saavedra & Opfer, 2012). 21st century competencies include skills such as critical thinking, creativity, communication, collaboration, and digital literacy (Fadel, 2008). These skills enable students to become individuals who are ready to contribute to solving global problems, such as climate change, poverty, and social inequality.

Education based on 21st century competencies integrates a more active and project-based approach to learning, where students are given the opportunity to develop skills through hands-on experience in working on projects relevant to global issues (OECD, 2018). This approach not only develops cognitive skills, but also social and emotional skills that are crucial in interacting with people from different cultural backgrounds (Zhao, 2012). Collaboration, creativity, and problem-solving are at the core of 21st century competency-based learning, where students are required to work in teams and use technology to find solutions to various global challenges.

In addition, the development of 21st century competencies also requires a change in the teaching and evaluation paradigm. Teaching approaches should focus on developing students' skills through learning based on real experiences and challenges, rather than simply delivering information from teachers to students (Wang & Zhang, 2020). Evaluation should also focus on assessing students' skills and abilities in dealing with real problems, not just measuring theoretical mastery of the subject matter. This requires innovation in learning methods and evaluation tools that are more based on

practical skills.

Finally, 21st century competencies can be the foundation for students to face global challenges with full confidence and the ability to continue lifelong learning. Given the ever-changing global developments, students with 21st century skills will be better prepared to face the uncertainties and changes that continue to occur in the world of work, social, and politics. Thus, a competency-based curriculum that integrates 21st century competencies is indispensable to prepare students for an increasingly complex and interconnected world.

Recommendations for Developing a Competency-Based Curriculum to Prepare Students to Face Global Challenges

Based on the results of the analysis, the development of a competency-based curriculum to prepare students to face global challenges requires several strategic steps. First, the curriculum must be designed by paying attention to the needs of global competencies that are relevant to the times, such as digital skills, critical thinking skills, and international collaboration skills (Schleicher, 2018). Second, the integration of technology in the learning process must be carried out comprehensively by providing equal access to all students, as well as sufficient training for educators to use technology effectively in learning (Saavedra & Opfer, 2012).

In addition, competency-based curriculum must be more flexible and adaptive, so that it can respond to changes that occur in society and the world of work. Therefore, the integration of project-based education and problem-based learning is very important to facilitate the development of students' practical skills (Fadel, 2008). Learning based on real challenges will provide hands-on experience for students in solving complex global problems, such as environmental, health, and sustainable development issues (Brock et al., 2019).

Finally, competency-based curriculum evaluation must be carried out on an ongoing basis to ensure its effectiveness in preparing students for global challenges. The evaluation should consider various aspects, including the student's ability to apply the skills they have learned in real-world situations. As such, the development of a 21st-century skills-oriented, competency-based curriculum is critical to ensuring students are prepared for an increasingly interconnected and challenging world.

CONCLUSION

The development of competency-based curriculum is very important in preparing students to face increasingly complex and dynamic global challenges. With a focus on developing practical skills, the curriculum provides space for students to develop abilities relevant to the ever-changing needs of the world of work and social life. In a world that is increasingly connected and affected by technological advancements, social change, and global uncertainty, skills such as critical thinking, cross-cultural collaboration, and mastery of technology are essential. Therefore, a competency-based curriculum should not only emphasize academic aspects, but also social, emotional, and technical skills that can help students to adapt quickly to the changes that exist in the world.

However, in its development, a competency-based curriculum must be able to maintain a balance between global demands and local values. The integration of global and local perspectives in the curriculum can provide students with a broader

understanding and the skills needed to compete at an international level, without losing their cultural identity. Adapting the curriculum to relevant local contexts is essential to ensure students remain true to their cultural values, while remaining prepared for an increasingly globally connected world. In addition, the development of metacognitive skills that enable students to learn independently and face challenges reflectively should also be an integral part of the competency-based curriculum.

Based on these findings, there is a need for continuous evaluation and adaptation of the curriculum to ensure that the development of student competencies remains relevant to the times. The development of competency-based curricula should be supported by further research to explore how these curricula can be applied effectively in a variety of different educational contexts, as well as how technology can be utilized to reinforce competency-based learning. Further research also needs to focus on how competency-based curricula can be flexibly implemented at the global level, while respecting the cultural diversity and local values that exist in each country.

For further research, it is recommended to examine more deeply the impact of competency-based curriculum implementation on student performance in facing global challenges, both at the individual level and in the broader social context. Research can be focused on case studies in different countries with a more contextual approach, to see how this curriculum can be adapted according to the needs of each region, both in developing and developed countries. In addition, more in-depth research on the role of technology in the development of competency-based curriculum is also urgently needed, considering the increasing importance of digital literacy and technology skills in 21st century education.

Another research that could be conducted is to explore innovative ways to integrate metacognitive skills in competency-based curricula, as well as how these skills can improve students' ability to cope with the uncertainty and complexity of a global world. Further research is also needed to explore the role of competency-based education in preparing students to work in a multicultural environment, as well as how education can facilitate more effective global collaboration. As such, competency-based curriculum development can be continuously improved to ensure that students have relevant skills and are ready to face evolving global challenges.

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