

Merdeka Curriculum and Education 4.0 to Prepare for Demographic Bonus in Elementary School

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Abstract

Demographic bonus is a phenomenon that occurs when the number of productive age population (15-64 years) is greater than the number of non-productive age population (0-14 years and 65 years and over). Indonesia is predicted to experience a demographic bonus in 2030-2040. This demographic bonus is a golden opportunity for Indonesia to improve its economy. However, to take advantage of this opportunity, Indonesia needs to prepare superior human resources (HR). The Merdeka Curriculum is a curriculum designed to prepare superior human resources in the era of the industrial revolution 4.0. This curriculum provides flexibility for schools and teachers to develop curricula according to the needs and potential of their regions. Education 4.0 is an educational concept that utilizes information and communication technology (ICT) to improve the quality of learning. Education 4.0 can support the implementation of an independent curriculum by providing various learning resources and ICT-based learning facilities. With the revitalization of education towards digital-based Education 4.0, it is expected to add variety in learning and can achieve the desired learning goals. This study aims to examine the role of education 4.0 in the implementation of the independent curriculum as an effort to prepare for the demographic bonus in elementary schools. This research uses qualitative methods with a field research approach, where research objects and studies are carried out in the field. Data are obtained by observation, interviews and documentation. The results showed that education 4.0 can play a role in the implementation of the independent curriculum in several ways, namely increasing access and quality of learning, developing 21st century skills, supporting more personalized learning, creating a more interesting and fun learning environment. This study concludes that education 4.0 is one of the important factors that can support the implementation of an independent curriculum. To optimally utilize the role of education 4.0, support from various parties is needed, including the government, schools, teachers, and parents.

Introduction

In 2030-2040 Indonesia is predicted to face a demographic bonus. Demographic bonus is a condition of a country whose average population is at a productive age (Sutikno, 2020). This must be prepared carefully, so that Indonesia can take advantage of the demographic bonus as an effort to create quality human resources in Indonesia. The education sector is one of the sectors that plays a very important role in facing the demographic bonus, because through quality education it will produce quality human resources and is expected to be able to face the demographic bonus (Rahmat, 2019), the Education Sector which has the role of producing quality human resources must be designed to be able to create students who are competent and able to keep up with the times, in order to have global competitiveness.

One of the efforts made by the government in preparation for the demographic bonus is to design a simple curriculum that focuses on increasing student competence (Vhalery et al., 2022). The government through the ministry of education culture research and technology came up with the idea of an independent curriculum, where the independent curriculum emphasizes students on project-based learning and adds co-curricular learning. This is expected to help students understand and explore a topic in depth by directly creating a project directed by the teacher (Marisa, 2021). In addition, the independent curriculum also contains rules that are sought to be simpler than the previous curriculum, making it easier for educators to understand.

Learning in the era of education 4.0 applies a lot of digital-based learning. This is because the rapid development of the times has also spread and is felt in the education sector (Andriyani et al., 2021). Conventional learning or teacher-focused learning has gradually been abandoned and has begun to enter an era of digital-based learning which is expected to increase students' digital literacy, so that it can provoke students to think creatively, and can make students keep up with the times (Saenah, 2022). Things that can be done by educators to implement era 4.0 education in the classroom are using digital-based learning media, digital-based learning evaluations, and many others.

Digital-based learning can add variety to learning so that it is expected to be able to make students enthusiastic in participating in learning and make students not bored in participating in learning. The role of teachers is very important in the world of education, (Noptario et al., 2023) teachers as the front guard in educating students should have the competencies that must be possessed by teachers so that learning in the classroom can run according to applicable standardization. Teachers who have good digital literacy will have no difficulty in implementing Education 4.0 (Sumiati & Wijonarko, 2020). digital literacy among educators must be cultivated so that it can be an example for students in the classroom.

Education 4.0 has challenges regarding digitalization, where when all existing sectors have focused on the digitalization era, the education sector must also keep up with the times (Astuti et al., 2022), so that the education sector remains updated with the development of civilization. This of course must be dealt with strategic steps, so that these challenges can be converted into opportunities that can be utilized in the world of education. Many aspects of education can be developed towards digitalization, ranging from administration, learning media, learning evaluation and others. Revitalizing the field of education from manual to digital will certainly not run smoothly, there are many challenges and obstacles that will be faced, this is because digital literacy among educators is still lacking and needs to be improved.

The relationship between Education 4.0 and the demographic bonus that Indonesia will face is very related and hand in hand. As with the previous industrial era transition, it is hoped



that Education 4.0 can improve the quality of education and the quality of human life (Setiawan, 2018). The transformation of conventional education towards digital-based education is expected to help education in preparation for the demographic bonus, this is because conventional education that only focuses on teachers will be changed with digital-based education where students are expected to be able to master technology in learning as an effort to increase digital literacy in the student environment. Education that focuses on efforts to improve student competence, and education that directs students to think critically and creatively is expected to create better quality human resources, so that Indonesian human resources have global competitiveness and can take advantage of the demographic bonus.

Demographic bonus is basically not a challenge that must be avoided and shunned. If the demographic bonus is utilized properly, the challenge of the lack of jobs will be converted into an opportunity to create a prosperous and prosperous society (Prasarti & Prakoso, 2020). Demographic bonus is an opportunity for a country to become a rich country and be recognized by other countries. The average population in productive age will certainly have implications for increasing the quality of human resources due to competitiveness (Satiti, 2019), increasing the number of workers who are expected to be able to fill various employment sectors which are expected to increase state income. In addition to increased economic growth, the demographic bonus also promises increased development. This of course implies an increase in gross domestic product (GDP) per capita due to a decrease in the dependency ratio (Subandowo, 2017). These things can happen if every sector that affects the readiness to face the demographic bonus can work together to prepare for the demographic bonus.

Similar research has also been conducted by (Kahar, 2021) which examines character education in the independent curriculum as an effort to face the demographic bonus era, in this case the research conducted by Kahar has similarities with this research, namely the school's efforts through the independent curriculum to face the demographic bonus. However, this research has significant differences in the discussion, where in the research conducted by Kahar, examines how multidimensional character education in the independent curriculum is to answer the challenges of demographic bonuses, while this study explains how the independent curriculum is integrated with Education 4.0 as a solution and effort in dealing with demographic bonuses. Similar research was also conducted by (Muharramah, 2018) which discusses the moderation of national education in an effort to face the demographic bonus, this research has a similar problem, namely how to prepare the education sector in an effort to face the demographic bonus, but this research also has a striking difference, namely located in the first variable, where Muharramah describes national education based on the sorogan method while this study explains the independent curriculum and education 4.0 in an effort to face the demographic bonus.

The purpose of this research is to reveal how the independent curriculum and Education in the 4.0 era to prepare for the demographic bonus that Indonesia will face in 2030-2040. Elementary schools are formal educational institutions that are expected to be able to create competent human resources so that they can compete in the era of demographic bonuses. Through digital-based education in the era of Education 4.0, it is hoped that it can support the independent curriculum in achieving the desired goals so that quality human resources can be created and have global competitiveness.

Methods

This research uses a qualitative approach with a field research method. Field research was chosen to be able to examine a policy or problem in depth and be able to see and directly feel the



conditions in the field, so that it is hoped that this research can reveal the role of education 4.0 in implementing the independent curriculum in elementary schools as an effort to face the demographic bonus. The location of this research was one of the elementary schools in Yogyakarta. The research time was carried out in the odd semester of the 2023/2024 school year. The sources of this research are teachers and principals.

Table 1. Informan

No	Nama Informan	Status	Jenis Kelamin
1.	R1	Kepala sekolah	Perempuan
2.	R2	Guru kelas	Perempuan

Data were obtained by conducting observations and interviews. Observations were made to see school activities while carrying out teaching and learning activities and school administration patterns using the Merdeka curriculum. Interviews were conducted with teachers and principals to examine more deeply about education 4.0 in implementing the independent curriculum in elementary schools.

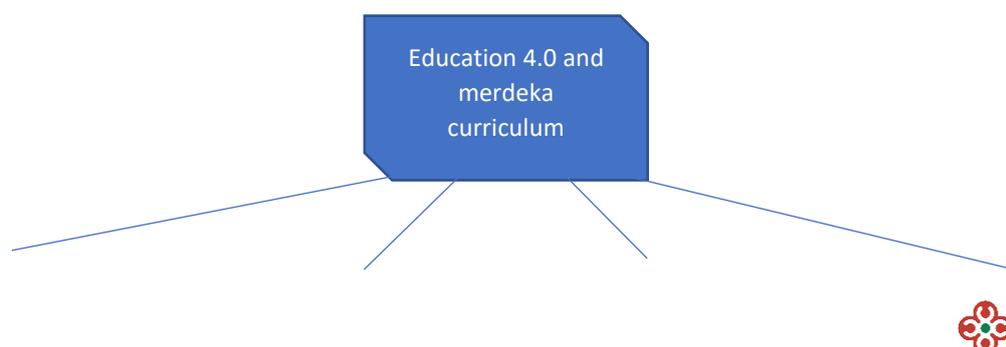
Data analysis in this study uses the theory of Miles and Huberman with data condensation, data presentation, conclusion drawing and verification. In data condensation, researchers summarize, record, and record the results of research in the field both from observations and interviews then from the results of the data are selected in certain concepts and themes, then the data is presented in descriptive form by researchers. Furthermore, the conclusion and verification stage, at this stage the researcher draws conclusions in the form of new findings that have not existed before, then verified to ensure the correctness of the data used so that the research uses a valid and reliable data reference.

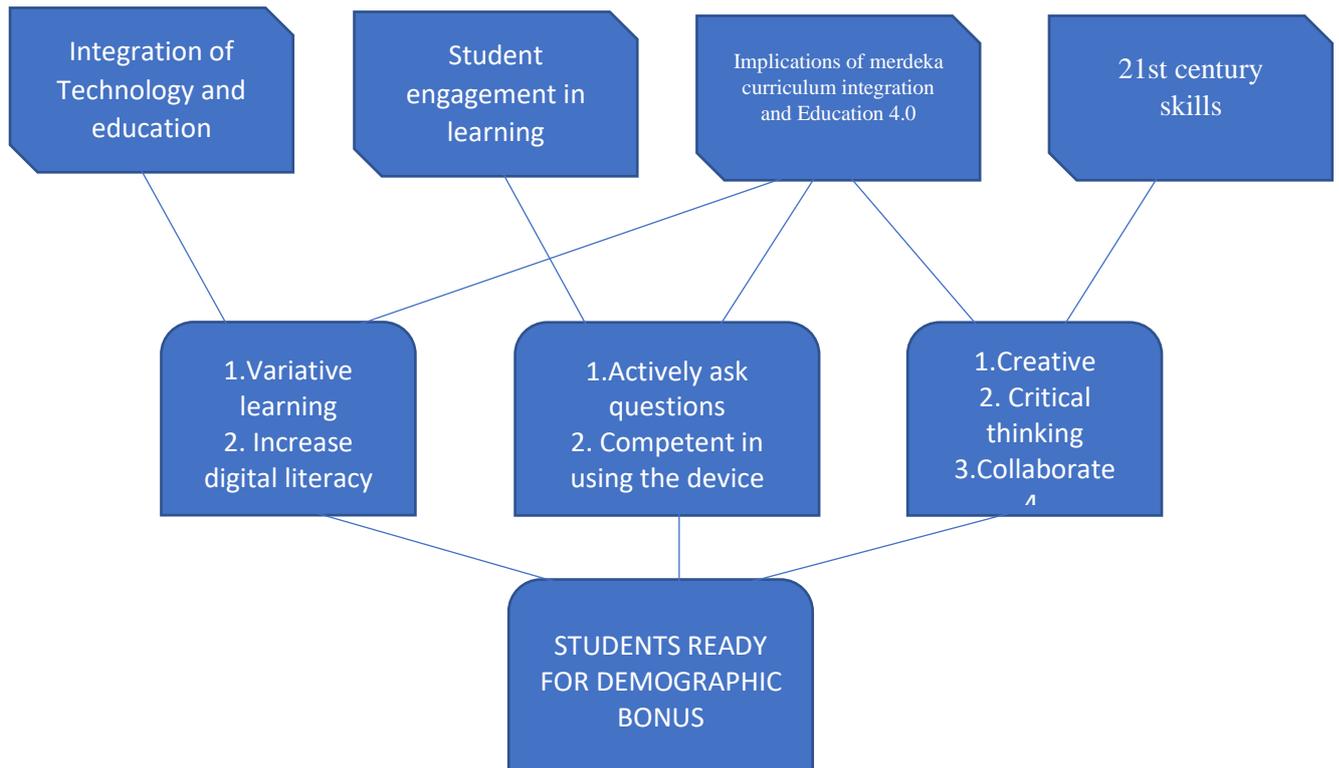
Result

The independent curriculum is one of the new curricula and is a new breakthrough from the government. The independent curriculum aims to give teachers greater flexibility in teaching and support a more student-oriented approach to learning. Education 4.0 is a new breakthrough in the world of education so that it can help educators to achieve learning objectives. According to Mrs. R1 as the school principal explained that.

"Our school is currently studying the pattern of education in the 4.0 era. Of course, we study this very seriously, because we follow the times, and we see that in the future digitalization will be widespread and will enter schools. We are very aware of this, so we do a lot, one of which is to hold training and socialization about digitalization in the world of education."

Figure 1. Concept of Integration of Education 4.0 and Independent Curriculum





3.1 Integration of Technology and Education 4.0:

Education and technology are certainly the main things in the integration between education and the industrial era 4.0. This is in accordance with the explanation given by Mrs. R2 who explained that the success of educators in implementing education in the 4.0 era basically lies in how educators can improve digital literacy. According to Mrs. R2, digital literacy in the 4.0 era is the key to teacher success in efforts to implement education 4.0. The same thing was also conveyed by Mrs. R1, Mrs. R1 explained that Education 4.0 is oriented towards learning that is integrated with technology, how teachers who are proficient in technology can develop their creativity so that they can make learning more effective and enjoyable for students.

According to Mrs. R2 as the class teacher explained that.

"One of the efforts made in the effort to implement Education 4.0 is to use digital-based learning media. I often use learning videos to make students seem to see and directly hear the learning topics discussed, so we hope that students can better understand the learning provided. In addition, I also often use the quiziz application as an application to answer the questions given, with a variety of learning done through digitalization, it is hoped that it can increase student enthusiasm in learning in class".

3.2 Student Involvement in learning

The implementation of Merdeka Curriculum and the use of educational technology 4.0 have had a positive impact on student engagement in learning. Students are more active in the learning process, participate in class discussions, and take initiative in task completion. This is in accordance with the explanation from Mrs. R2, where Mrs. R2 saw that students asked more questions when she explained the learning through the learning video shown in class. Students' curiosity becomes higher when shown a real spectacle that shows visualization and audio like in the real world.

In addition to digital-based learning media, digital-based learning evaluations such as the use of quiz applications are also very effective in making students more active and involved in learning. This was conveyed by Mrs. R2 after she used the quiz application in evaluating learning in her class, she saw that students' digital literacy indirectly increased and improved by operating devices such as cell phones or computers. This is a positive impact of the use of digitalization in the world of education, so that students can better understand technology and use it as a means of learning. In addition, this data is also supported by the results of observations, where during the observation it was found that students were very enthusiastic in following the learning provided by the teacher, besides that during the observation it was also found that students' curiosity was very high when the material was explained through learning videos.

3.3 Implications Of Integrating the Independent Curriculum and Education 4.0

The demographic bonus that Indonesia will face in 2030 has certainly been well planned and considered by the government. Elementary schools, which in this case are educational units under the auspices of the government, are tasked with implementing the policies enacted by the government. The independent curriculum, which is flexible and has co-curricular learning, has positive implications for schools, teachers, and students. According to Mrs. R1, after her school conducted training and socialization about digitalization in the world of education, it had a very positive impact on the continuity of the teaching and learning process. In addition, teachers who only use books as a means of teaching have gradually begun to use devices such as computers or laptops at school. This certainly has a positive impact on the school environment, where more and more educators who are aware of the importance of technology will have implications for the quality of teachers who are always updated on information obtained through the internet.

In addition to having positive implications for the educator environment, the integration of the independent curriculum and Education 4.0 also has positive implications for the student environment. This can be seen in the activeness of students in the learning process, according to Mrs. R2, the very high enthusiasm of students in the learning process is an indicator of success in learning, she thinks that students who are enthusiastic about learning are a response that comes out because of the positive stimulus provided by the teacher.

3.4 21st Century Skills

In the era of rapid development, according to Mrs. R2 there are several skills that must be possessed by students, including critical thinking in solving problems, collaborating to achieve common goals, creativity to develop something that has not been thought of before and communication skills as one of the conditions for establishing closeness with others. These skills must be possessed by students to face demographic bonuses, this is because such skills are very supportive of work and life in the era of demographic bonuses.

The same thing was also explained by Mrs. R1, she explained that her school is very oriented towards skills and competencies that will support students' lives in the future, the school also makes the Pancasila student profile as one of the ways to support student skills, project-based learning taught in the Pancasila profile enhancement project program is expected to increase student creativity, and can foster cooperation between students in an effort to strengthen 21st century skills in students.

Discussion

The integration between the independent curriculum implemented with Education 4.0 can improve the quality of education, this shows that the Independent Curriculum and education 4.0 can improve the quality of basic education (Zhao, 2018). By giving teachers more freedom to design learning that is more suited to student needs, this approach can help improve student



understanding of subject matter. The same thing was also conveyed by (Lukum, 2019) who explained that Generation Z tends not to like monotone learning and only focuses on lectures delivered by teachers in front of the class, this must be dealt with and given a concrete solution so that students can be happy and open in participating in learning. This data is also supported by the results of observations that show very high student enthusiasm when taught through digital-based learning.

To prepare for the Demographic Bonus, basic education must prepare the younger generation for the demographic bonus (Hidayat & Bayudhigantara, 2023). By adopting a flexible Merdeka Curriculum and relevant education technology 4.0, primary schools can better cope with the increasing number of students and ensure that they have the necessary skills in an increasingly digitized world. This is like the explanation from (Noptario & Prastowo, 2022) which explains that conventional education that only focuses on teachers will eventually indirectly make students bored and lack enthusiasm in participating in learning, therefore teachers must wisely keep up with the times, so that they can adopt digital era transformations into the learning process. A similar opinion was also conveyed by (Ulfah, 2022), who explained that digital literacy is very important to face Indonesia's challenges in the future, preparations for facing demographic bonuses in the world of education must be planned strategically, the application of digitalization is one of the efforts that can be done, so that it is expected to increase students' abilities in facing demographic bonuses.

With the implementation of Education 4.0 to face the demographic bonus, it is expected to increase student skills (Unesco, 2018). However, the implementation of Education 4.0 which is integrated with the independent curriculum also has its own challenges. Despite the positive progress, there will certainly be challenges that must be faced in the implementation efforts. These challenges include the training needed for teachers to properly integrate technology into learning (Johnson et al., 2013), as well as the resources needed to ensure equitable access to technology across schools. This must be addressed and taken seriously by the government so that Education 4.0 can be truly felt by all schools across the country.

In this problem, after exploring and examining the problem in depth, the researcher recommends policies that the government deems necessary to enforce in terms of teacher training, access to technology, and monitoring the implementation of Merdeka Curriculum and education 4.0 at the primary school level. Policies that support educational innovation and technological readiness must be implemented to maximize the benefits of this approach. In addition, material support is also highly expected by schools so that the learning process can be well facilitated.

Thus, this study shows that the incorporation of Merdeka Curriculum and education 4.0 in basic education can be a positive step in preparing the younger generation to face the demographic bonus and changes in the digital era. However, further efforts need to be made to overcome the challenges that arise in its implementation.

The implementation of Merdeka curriculum and Education 4.0 in primary schools requires support from various parties, such as the government, schools, teachers, and parents. The government needs to provide policies that support the implementation of the Merdeka curriculum and Education 4.0. Schools need to provide adequate facilities and infrastructure to support learning. Teachers need to be equipped with training on Merdeka curriculum and Education 4.0. Parents need to support their children's learning at home. With the implementation of the Merdeka and Education 4.0 curriculum, it is hoped that elementary schools can produce quality graduates who are ready to face the challenges of the 21st century.



Conclusion

Merdeka curriculum and education 4.0 play an important role in preparing for the demographic bonus in primary schools. By integrating 21st century skills and using technology in learning, students can develop relevant skills and become independent individuals ready to face future challenges. Education must continue to adapt to technological developments and teach students the skills and understanding needed to succeed in an increasingly connected and complex world. To face the demographic bonus, solid cooperation between the government, educators, students, and parents is needed so that Education 4.0 can be truly implemented in schools so that it can have implications for the skills and competencies that can be prepared in students to face the demographic bonus.

Suggestion

In further research, further evaluation can be carried out on the long-term impact of implementing Merdeka Curriculum and education 4.0 in facing the demographic bonus, as well as how to implement it more effectively in all elementary schools in Indonesia.

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