

Merdeka curriculum: use of information and communication technology media in early childhood education

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Abstract

This research aims to determine the use of ICT media in the independent curriculum in early childhood education. To find out this goal, a qualitative descriptive research method was used on the action plans of three professional teacher education students involving an independent curriculum and information and communication technology media based on the observation process and analyzed using grounded theory analysis. Based on the results of the research analysis, the results obtained show that an independent curriculum involves information and communication technology as a learning medium. This is based on the use of ICT in online learning. However, its use is not given directly to children but is regulated by the teacher in planning, implementing, and assessing learning, giving rise to a new approach that can be applied to early childhood education, namely the TPACK learning approach. The TPACK learning approach is a learning approach that involves teacher competence, technology, and learning materials.

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INTRODUCTION

Curriculum development is evidence of education's journey in improving and adapting to the times and technological developments (Jannah & Harun, 2023), likewise with the education curriculum in Indonesia. One level of education that is experiencing curriculum changes is the Early Childhood Education (PAUD) level. The PAUD curriculum started in the 1964 curriculum/education plan. 2) The more refined kindergarten curriculum is the 1968 curriculum, which is the official guideline for implementing kindergarten (TK) education in Indonesia. 3) 1976 Curriculum. 4) 1984 Curriculum (76 refined) 5) 1994 Curriculum (Kindergarten Learning Activity Program (PKB-TK)) 6) Kindergarten Curriculum Era of Educator Unit Level Curriculum (KTSP) 7) 2013 Education Curriculum for Early Childhood (PAUD) 8) The emergency curriculum is a simplified 2013 curriculum. 9) The Independent Curriculum, which was previously known as the Prototype Curriculum (*Kurikulum Merdeka Dengan Berbagai Keunggulan*, n.d.; Pusat Kurikulum dan Pembelajaran, n.d.; Herlina & Indrati, 2010).

Currently, the curriculum that can be applied in PAUD is the 2013 curriculum, and the independent curriculum is the preferred curriculum provided by the government. However, indirectly the 2013 curriculum has begun to be replaced by the independent curriculum. The independent curriculum is a curriculum that has been perfected from the emergency curriculum, while the emergency curriculum was born because Indonesia was in special conditions, namely the outbreak of the COVID-19 disease in 2019, so the government made a policy to implement the emergency curriculum in educational units by simplifying the 2013 curriculum so that it focuses on essential competencies and prerequisite competencies (Pusat Kurikulum dan Pembelajaran, n.d.; Munajim et al., 2020; Sanjaya & Rastini, 2020).

As time went by, from the development of the curriculum from the emergency curriculum during the COVID-19 pandemic to the use of the independent curriculum after the COVID-19 pandemic, the government decided to continue implementing the independent curriculum as a new curriculum that could be adapted by PAUD units. However, the government does not directly implement the independent curriculum in PAUD units, but schools can apply the 2013 curriculum. (Retnaningsih & Khairiyah, 2022). The independent curriculum is part of the independent learning program initiated by the Minister of Education, Culture, Research, and Technology, Mr. Nadiem Makarim, who wants to create fun learning for those involved in teaching and learning activities, namely children and educators.

With the concept of independent learning, it is hoped that students will have the communication, creativity, collaboration, and critical thinking (4C) competencies to create and innovate in various fields in the 21st century (Battelle for Kids, 2019; Retnaningsih & Khairiyah, 2022). Apart from that, independent learning aims to increase the competence of school principals and teachers and accelerate school digitalization (Retnaningsih & Khairiyah, 2022).

In early childhood education, the independent curriculum is also known as independent play. This concept is one of the principles of early childhood learning, namely learning through play, where children are allowed to choose learning activities according to the child's interests and talents so that teachers teach according to the child's learning development. (Retnaningsih & Khairiyah, 2022)

In its application, the independent curriculum is flexible because this curriculum can adapt to the previous curriculum by adapting or implementing one of the learning reinforcements from the independent curriculum, including 1) meaningful play activities as a learning process; 2) strengthening the relevance of PAUD as a phase foundation; 3) strengthening the love of literacy and numeracy from an early age; 4) a project to strengthen the profile of Pancasila students; 5) more flexible learning and assessment processes, 6) Assessment results are used as a basis for teachers to design play activities and support parents in inviting children to play at home; 7) strengthening the role of parents as unit partners (Direktorat PAUD, Dikdas dan Dikmen, Direktorat PAUD, Dikdas dan Dikmen, 2021; Retnaningsih & Khairiyah, 2022). Of the seven learning reinforcements in the independent curriculum, the focus of this research is on the relevance of early childhood education as a foundation phase. In this foundation phase, an independent curriculum structure for early childhood education has been set, namely intracurricular learning activities and a project to strengthen the profile of Pancasila students. Extracurricular activities are structured to achieve learning objectives, also known as learning outcomes, through a meaningful learning atmosphere in the form of freedom to learn and freedom to play with real learning sources, so real media is needed. (Retnaningsih & Khairiyah, 2022; Lestari et al., 2023). However, with the outbreak of COVID-19, ICT media has become an alternative solution in its use, where educators can present real learning concepts in the form of learning videos that can be accessed via software and hardware.

The presence of ICT media in early childhood learning is an issue that needs to be considered in terms of the use and utilization of ICT media in teaching and learning activities for early childhood. Before the outbreak of the COVID-19 disease, ICT media had been designed for early childhood education. This can be seen from Attachment 2 of the Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 137 of 2014 concerning National PAUD Standards (replacing the Regulation of the Minister of Education and Culture Number 58 of 2009) of 2014 concerning pedagogical competency. Point E paragraphs 1 and 2 explain that the teacher can utilize information and communication technology by selecting

and using information and communication technology to improve the quality of learning as teaching materials that can be applied by early childhood education.

Therefore, information and communication technology has a role in teaching and learning activities for early childhood through the learning components of teaching materials and learning media. Apart from that, information and communication technology is part of current developments, especially in the era of Industrial Revolution 4.0 and the impact of the COVID-19 outbreak, which has given rise to policies to study and work from home as a form of implementation of large-scale social restriction policies and a framework for learning in the 21st century.

Not only that, based on the Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 137 of 2014 concerning National PAUD Standards (replacing the Regulation of the Minister of Education and Culture Number 58 of 2009, 2014), attachment II concerning the competencies that PAUD educators must have. The competency of PAUD educators consists of four competencies, one of which is pedagogical competency point E, that teachers can utilize technology, information, and communication for the benefit of carrying out educational development activities through the selection of media and teaching materials to improve the quality of learning. From this statement, it can be inferred that technology, information, and communication (ICT) media can be used at the PAUD level by paying attention to the type of media, learning materials, and children's learning activities.

With the presence of ICT media, teachers are able to develop professional competence in learning practices because the effective use of ICT media is determined by the type of ICT media chosen by the teacher. (Peraturan Menteri Pendidikan Dan Kebudayaan Republik Indonesia Nomor 137 Tahun 2014 Tentang Standar Nasional PAUD (Menggantikan Peraturan Menteri Pendidikan Dan Kebudayaan Nomor 58 Tahun 2009, 2014; Jannah & Harun, 2023). Therefore, it can be concluded that the use of ICT media in learning is controlled by the teacher.

Based on this explanation, it can be concluded that the use of ICT media in the PAUD curriculum started with the emergency curriculum, which was a simplified form of the 2013 curriculum during the COVID-10 outbreak, and the independent curriculum. This is what differentiated the implementation of the 2013 curriculum before the COVID-19 outbreak so that the use of ICT media did not develop as quickly as in the independent curriculum. Therefore, this research aims to determine the use of ICT media in the independent curriculum at the PAUD level.

METHOD

To explain the purpose of this research, the research method used is descriptive-qualitative, with the aim of describing a summary of the research through the process of observing the learning activities of early childhood education teacher education professional students regarding the independent curriculum and information and communication technology media (Lambert & Lambert, 2012). The observations carried out were aimed at three students out of 10 students in the Early Childhood Education teacher professional education study program at one of the universities in the Greater Bandung area that has implemented an independent curriculum. The research was carried out over two periods: the first period was carried out on November 23–30, 2023, and the second period was carried out on January 9–15, 2024. During the two periods, researchers used observation data collection techniques for three students regarding the independent curriculum and ICT media as research variables. which is carried out online via the Google Meet application or web. During the observation, the researcher determines coding based on two periods of observation and determines the theme as a result of the research through verification or coding conclusions. Based on the data analysis stages above, this research uses grounded theory data analysis. Use of grounded theory data analysis to produce conclusions from the results of abundant research data continuously until the data is saturated (Lehmann, 2010). During the coding process, researchers used open coding, axial coding, and selective coding to systematically compose sentences, which will be discussed in detail in the results and discussion section.

(Charmaz, 2012). To check the validity of the data, researchers used triangulation of sources obtained from observations with other documents, such as action plan assignments, in creating learning implementation plans.

RESULTS AND DISCUSSION

Result

Based on the results of observations in the first and second periods, selective coding was obtained as follows: ICT media is the choice of learning media in learning procedures based on learning outcomes. The details of the research results using grounded theory through the coding stages are presented in Table 1 as follows:

Table 1. Stages of determining coding by theme

Period	Open Coding	Axial Coding	Selective Coding
1. 23-30 November 2023	YouTube Active speakers Laptops Smart phones Projector Internet Initial activity Core activities Thematic learning Tutorial video Cognitive abilities	Hardware Software Learning procedures Learning outcomes	ICT media as a choice of learning media in learning procedures based on learning outcomes
2. 09-15 January 2024	YouTube Active speakers Laptops Smart phones Projector Internet Initial activity Core activities Thematic learning Tutorial video Cognitive abilities Gross motor skills	Hardware Software Learning procedures Learning outcomes	

Discussion

Based on the results of Table 1, a theme was obtained, namely, ICT media as a choice of learning media in learning procedures based on learning outcomes. In choosing ICT media, a planner is needed to determine ICT media for learning procedures and children's learning outcomes. The planner in question is an educator. Educators have a role as creators and compilers of learning plans by determining learning tools, which consist of determining themes, implementation times, learning objectives, models, methods, media, and learning assessments. Therefore, one of the learning tools that teachers must plan is to involve ICT media in the process of teaching and learning activities that are based on children's learning needs and interests and become challenges for teachers in the era of revolution 4.0 to foster teacher creativity in innovating to answer these challenges (Yundayani, 2019; Anggraini et al., 2022). This can be seen from the results of observations on device development

activities, namely the action plan for the first period on November 26–30, 2023, and the second period on January 12–15, 2024, which was carried out online via Google Meet at 1.00–5.30 PM.

In the first and second periods, all students in the Early Childhood Education professional education study program were asked to prepare an action plan in the form of a daily learning implementation plan based on the curriculum used in schools in device development activities. Because the daily learning implementation plan was adjusted to the independent curriculum, only three students were observed in this activity. Of the three students, students chose to use a projector, laptops, and active speakers as ICT media with the type of hardware that will be used during learning, while YouTube was chosen to present learning material inserted in core activities to explain the concepts of the chosen theme. Technology-based learning media is part of the learning framework in the 21st century to develop information literacy, media literacy, and ICT literacy. (Battelle for Kids, 2019). With the emergence of various types of literacy that need to be introduced to students in the 21st century, the independent curriculum is one solution for developing various types of literacy, especially literacy about information and communication technology, and overcoming the post-COVID-19 pandemic learning crisis prepared by the government during 2022–2024 (Nugraha, 2022).

Apart from that, the use of ICT media in the independent curriculum can attract children's attention to learning and focus on learning so that learning goals can be achieved. (Nuridayanti et al., 2023). With the presence of ICT media in the learning process, children can develop their ability to think at a higher level by understanding abstract concepts (Nuridayanti et al., 2023). This is shown from the results of observations in period one, where students were asked to determine indicators that represent high-level thinking abilities and are linked to the TPACK learning approach, which involves the teacher's ability to plan indicators, the ICT media that will be used, and the learning materials that will be used. Of the three students observed, the children's STEAM learning outcomes were selected to be involved with ICT media. STEAM is an abbreviation for Science, Technology, Engineering, Art, and Mathematics. By developing STEAM learning outcomes in early childhood, it is hoped that children will have the ability to explore their environment to become independent researchers and learners, thereby creating an inclusive learning environment where every child has the opportunity to be involved and contribute to teaching and learning activities by the basis of the independent curriculum. (Maharani & Zulminiati, 2021; Motimona & Maryatun, 2023). In the independent curriculum, STEAM is one of the learning outcomes for developing critical thinking skills. This is in accordance with research Motimona & Maryatun, (2023) Familiarizing children with STEAM learning outcomes in the thinking process will help them understand the environment in which they work, such as involving science learning outcomes with technology, which is part of STEAM. Based on the explanation above, it can be concluded that the involvement of ICT media in the process of early childhood learning activities requires teachers to be involved in planning learning using ICT media as a learning innovation because teachers are strong mediators in influencing the impact of ICT media, which is one of the positive impacts that can be influenced by the media. ICT is to develop various kinds of children's abilities, such as critical thinking abilities and gross motor skills (Edwards, 2013; Blackwell et al., 2014; Nugraha, 2022).

The ICT media chosen is the ICT media recommended by National Assosiation Education for Young Children (NAEYC) (2012) Infocus, laptops, and active speakers are hardware that can be used in early childhood learning. Apart from that, the use of ICT media in the independent curriculum can be said to be a continuation of learning carried out online during the outbreak of the COVID-19 disease. Not only that, developments over time have made ICT media one of the learning media used to meet the limitations of schools in providing learning materials, one of which is in early childhood education, where learning in early childhood education has the principle of learning through experience, which means that children need to be shown and introduced to real learning concepts. With the existence of ICT media, teachers and schools can introduce more

complex learning concepts by displaying audio-visual videos in class, such as explaining environmental issues on the theme I love the earth, namely the process of flooding (Chtouki et al., 2012)

Video is a type of audiovisual medium that can be used in the teaching and learning process. By using and utilizing audio-visual learning media, the learning material that will be delivered can be seen and heard simultaneously, which helps teachers overcome certain limitations so that they can replace the teacher's role in the learning process (Yus & Saragih, 2023; Fitria, 2014). In getting learning videos that suit their thematic learning needs, students use and utilize the YouTube application and website display because YouTube has the advantage of accessing videos for free and video content covering various kinds of videos ranging from entertainment to education (Chtouki et al., 2012).

To make it easier for children to understand learning concepts, teachers can choose to use learning videos that can be searched on the YouTube page because during the COVID-19 outbreak, video content related to education was not large in number compared to video content related to recreation (Lozano-Blasco et al., 2021). YouTube is a platform that provides various kinds of videos with various learning themes. Apart from that, YouTube is easily accessed by anyone, including teachers and children. With multimodal features, namely audio, text, effects, animated characters, and others, it can attract children's attention and provide access to YouTube can be done on any digital device connected to the internet; apart from that, YouTube's simple display makes it possible to obtain information quickly. to the desired content by searching for keywords (Neumann & Herodotou, 2020). This is in accordance with the learning media chosen by three students in designing daily learning implementation plans, namely choosing to display videos related to the learning themes chosen in periods one and two. The videos chosen by the three students used learning videos uploaded by various YouTube channels, which were adapted to the learning theme. Not only the learning videos, but the three students used laptops, smart phones, infocus, and active speakers as media to help display the learning videos. Therefore, when determining learning videos, you must pay attention to learning needs so that the video can be displayed on a laptop and in focus, accompanied by connecting active speakers. (Amada & Hakim, 2022). Apart from making it easier for teachers to deliver learning, the use of ICT in early childhood learning can improve cognitive and social abilities (Blackwell et al., 2016).

The use of ICT media in the learning process is part of the Technological Pedagogical and Content Knowledge (TPACK) approach. TPACK is a learning approach that was developed with the times, especially in learning media in the era of revolution. 4.0 (Yundayani, 2019). The TPACK learning approach framework consists of: 1) technological knowledge (TK), which consists of devices, software, and hardware. 2) Pedagogy Knowledge (PK) provides understanding related to how to organize, provide instructions, direct students, and 3) Content (CK) explains disciplinary knowledge (Rosenberg & Koehler, 2015). This can be seen from the results of observations in period one learning activities, where three professional teacher education students chose active speakers, InFocus, laptops, and YouTube as technology knowledge. By selecting the hardware and software, students begin to determine the learning videos that will be used with the learning theme. This activity illustrates that students are connecting pedagogy knowledge and content knowledge with technology knowledge. This activity was repeated in the second period. What differentiated TPACK period one from period two was pedagogical competence in mastering technology. In period one, students still seemed to lack confidence in using technology because they were used to not using technology, but in period two, students' self-confidence increased due to the evaluation from period one. Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 137 of 2014 concerning National PAUD Standards (replacing Regulation of the Minister of Education and Culture Number 58 of 2009, 2014) attachment two states that from 2014 on, the government asked educators to choose and use technology as teaching materials to improve the quality of learning.

P The use and utilization of ICT media in the learning process are increasing due to the COVID-19 pandemic in 2019. This is changing the education system in Indonesia. According to Lindawati & Rahman (2020) The use of ICT media in planning, implementing, and assessing learning is the impact of

COVID-19, which changes and improves the structure of the education system with technology and pedagogies. This approach explains the relationship between technology, pedagogy, and the concept of teacher knowledge so that the selection, use, and utilization of curriculum and teaching with technology (Blackwell et al., 2016; Sakti & Eliza, 2022). Therefore, one of the competencies that needs to be improved is pedagogical competency, which clearly explains the use of ICT media in early childhood learning. This is supported by research results Sakti & Eliza (2022) that TPACK has a significant direct influence on teacher readiness for online learning. With the outbreak of COVID-19, the availability of hardware in schools has become a concern because of the three students studied. The students planned to use active speakers, laptops, and in focus as technology in planning learning devices. This supports the improvement of education in terms of quality so that technology becomes part of the learning media in the independent curriculum.

CONCLUSION

From the results of the observations that have been analyzed, it is concluded that information and communication technology in the field of education is used as a learning medium at the early childhood education level, especially during the COVID-19 outbreak. Therefore, learning is carried out online, so the government makes policies to change the curriculum to adapt to the use and utilization of ICT media so that an independent curriculum that involves ICT media emerges. However, its use is not given directly to children but is regulated by the teacher in planning, implementing, and assessing learning, giving rise to a new approach that can be applied to early childhood education, namely the TPACK learning approach. The TPACK learning approach is a learning approach that involves teacher competence, technology, and learning materials.

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