

KICCE POLICY BRIEF

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ECEC Digital Policy in Korea: Opportunities and Challenges

I. Background

The History of the Korean Government's Educational Informatization Plan(교육정보화계획)

- Starting with the first basic plan for educational information services in 1996, a plan has been established and implemented every five years. In 2000, related ministries jointly announced a comprehensive plan to strengthen digital media communication capabilities.
- In 2020¹, the Ministry of Education proposed a related government plan, namely, the Top 10 policy tasks for future transformation of education after COVID-19. Ten policy tasks² for transitioning into the future education system have been presented, and related ministries, committees, and TFs are prepared to establish strategies to achieve this. In the field of early childhood education, pilot projects and futuristic kindergartens(미래형유치원) are being implemented.

The Current Government's Digital Policy Framework for ECEC

- In August 2022, the present government proposed a comprehensive plan³ for fostering digital talent. The ECEC sector emphasizes improving accessibility of digital experiences to young children (Jointly Related Ministries, 2022).
- The intention was to continue supporting the use of digital-based play and conducive environments, when engaging in the Nuri curriculum of play, child-oriented kindergartens, and childcare centers. It was also stated that the plan would distribute, apply, and spread field support data to young children and ECEC teachers through artificial intelligence (AI) education.

Korean Early Childhood Teacher's Dilemma on ECEC Digital Policy

- Early childhood teachers did not welcome to the government's digital talent development policy, as it was a situation whereby they have to accept a digital reality due to COVID-19. The teachers had a dual perspective of exposing young children to digital skills.
 - In a survey of 1,047 ECEC teachers(Park et al., 2021)⁴, more than 70% of teachers who conducted remote classes during the COVID-19 outbreak responded that these classes were not necessary for young children. They were critical of remote classes because they believed that hands-on education using the five senses is more important for young children, and they argued that it was developmentally appropriate to create a screen-free environment.

1. Jointly related ministries (2020). Comprehensive plan to strengthen digital media communication capabilities (draft).

2. Ministry of Education (2020). Top 10 policy tasks for future education transformation after COVID-19 (proposal).

3. Jointly related ministries (2022). A Comprehensive Plan for the Development of Digital Talent

4. This paper is based on a survey of 1047 ECEC teachers and an opinion survey of 100 ECEC experts in the 2021 KICCE study (Park, C. H., Cho, S. I., Jung, Y. S., & Yoon, J.Y. 2021. Measures to enhance the expertise of ECEC teachers through the use of EduTech. KICCE.)

- However, the teachers responded to the most expected educational goals by establishing a foundation for Edutech and digital education in the following order: first, 22.4% responded with 'reducing educational gaps and realizing educational equality'; second, 22.1% responded with 'realizing an open educational system through sharing educational resources'; third, 19.3% responded with 'creative education'; and finally, 13.2% responded with 'strengthening personalized education with digital support'. In other words, it can be seen that they are clearly aware of the importance of digital education for young children.
- Therefore, it is necessary to form a consensus among early childhood teachers regarding the use of remote classes and Edutechs.

II. Opportunities of ECEC Digital Policy

Will the introduction of Edutech and technology into the field of early childhood education have negative consequences from teachers' perspectives? What approach do we need to implement new technologies, and how do we apply them to young children? In the Korean early childhood education community, educational play activities using the metaverse, AI, and educational robots are actively conducted in the field. Additionally, early childhood education is experiencing new changes owing to the introduction of Edutech.

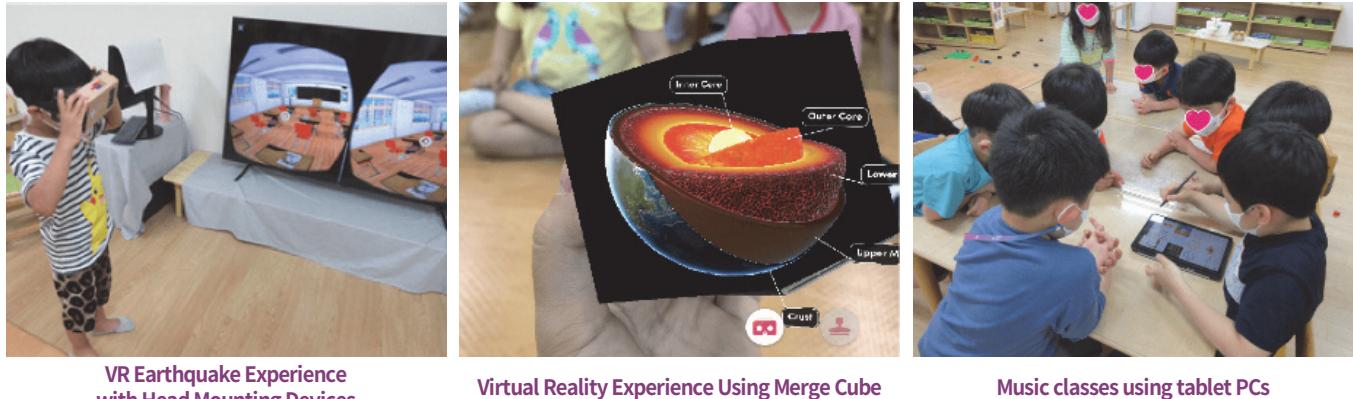
Edutech that can be applied to the ECEC field: Metaverse, AI, & Educational Robots

- ECEC teachers (who participated in the survey) reported that the metaverse, AI, and educational robots could be positively applied in early childhood education. When asked about the Edutech that could be applied to ECEC, the teachers' responses were as follows: 25.4% responded with 'realistic content/metaverse' (e.g., safety experience learning); 22.1% responded with 'AI' (for unified teaching and learning evaluation, personalized education, learning psychological analysis, etc.); 18.9% responded with 'educational robots' (learning assistance, such as coding and support for infants with disabilities); and finally, 11.5% responded with 'platform'.

Metaverse

- With the addition of virtual reality(VR) and AI to the existing e-learning base, it is possible to strengthen content that motivates and interests young children, creates a structured classroom for them to actively work, based on maker activities, and promotes young children's health and aesthetic stability with an Internet of Things (IoT)-based classroom control design.
 - Interesting play expansion for young children is possible through virtual spaces, such as augmented reality (AR) and digital educational environments, where various play experiences can be achieved.
 - Using the Metaverse makes it possible to experience things that are difficult to touch and those that are not easily encountered, through realistic content. For example, it is possible to experience metaverse specific objects (animal and plant cards), the natural environment, travel (pyramid tours), culture, space science, micro-science, experiential learning (fishing), and safety education (for example: fire training or traffic lights).
 - The metaverse could be meaningful in the context of early childhood education institutions or teacher training. For example, through the establishment of a multi-purpose public education platform, kindergartens and daycare centers can use metaverse information to monitor financial transactions and the selection status of children. Non-face-to-face interactions, entrance ceremonies, graduation events, and training can be challenging because of infectious diseases
- However, a majority of the 100 experts who participated in the Delphi survey(Park et al. 2021) viewed the safety issue of technology in relation to the metaverse as most important for young children. Regarding realistic content/metaverse, VR and AR should take into consideration side effects, such as cognitive dissonance of infants and gaps between senses and reality.
- The use of the metaverse in early childhood education appears to be more reasonable for children over the age of five years, emphasizing AR-centered safety, strengthening teacher expertise, and focusing on communication with parents and local communities.

[Figure 1] Digital-based activities of public kindergartens in Seoul, Korea

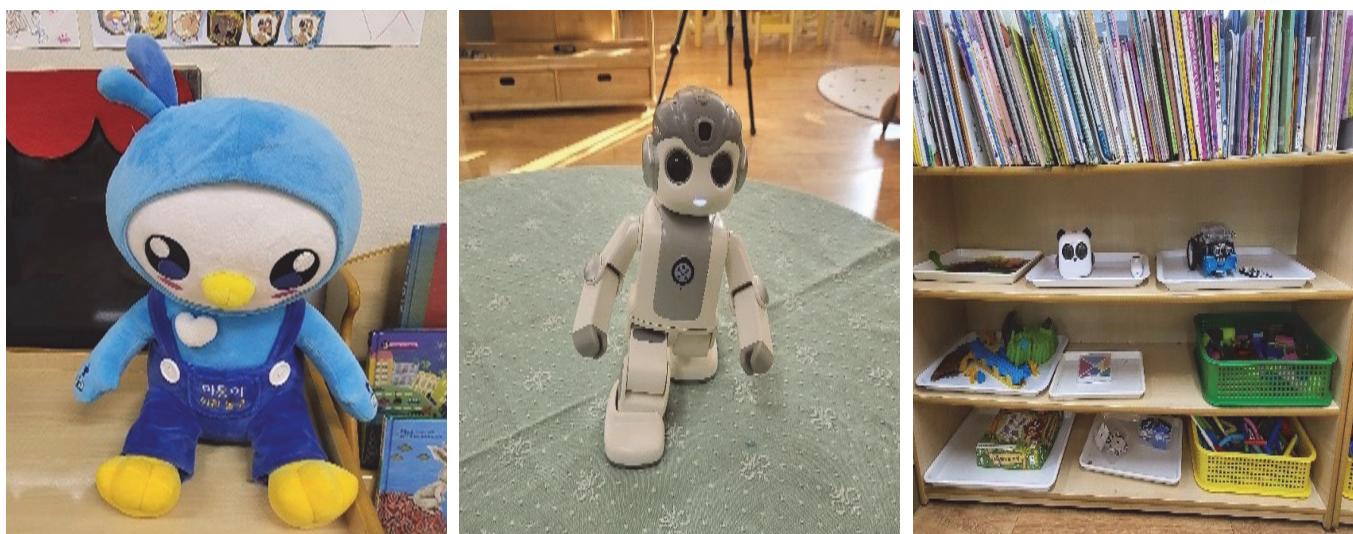


Source: Seoul Metropolitan Office of Education (2021). Seoul M Kindergarten Future Education, Kindergarten, Let's join! Seoul Education, Winter Issues. (245).

AI & Educational Robots

- Considering its application in early childhood education, AI is sufficient to store, record, and build data, such as biological changes (medical-related) and play patterns of infants. Through this, it is possible to customize education by level, and help synthesize objective data on interest, aptitude, and talent and design educational programs.
- Educational robots are the most commonly used Edutech in early childhood education. The issues of educational robots' function and cost are widely debated; for example, if the robot is simplistic or the material is too expensive and of poor quality, it is unsuitable for children's play. It is necessary to develop extensive suitable content for infants. Therefore, collaboration between technicians and infant teacher training experts is essential when developing content.
- Educational robots have the advantage of improving special educational engineering and auxiliary tools and facilities, and can also be used for safety checks in the physical environment.
 - For example, young Korean children recognize AI robots as toys, and use them in different ways in various areas of play. Children also think of it as part of a toy and freely use AI (See Figure 2).

[Figure 2] Digital Space Characteristics of J Private Kindergarten affiliated with University in Incheon, Korea



III. Challenges of ECEC Digital Policy

The Importance of Play, Safety, and Individualized Education

- Early childhood teachers in Korea emphasize the importance of play, safety, and individualized education for children above all else when applying digital to the field.
 - Of the teachers surveyed, 42.5% responded with 'integration with young children and play-oriented education', 17.6% answered 'development and dissemination of educationally suitable content for young children', 13.1% answered 'safety verification of digital device utilization (media addiction, Edutech tools, etc.)', and 11.5% answered 'strengthening personalized education'.

Safety

- The 100 experts made suggestions to be considered for the future use of Edutech among young children. For example, safety verification of the use of digital devices, strengthening educational activities with familial involvement, and developing new competencies such as digital literacy, and personal information protection.

Above all, the most important aspect of infant digital policy is to introduce technologies that are suitable and safe for young children. Concerns about safety, ethics, and risk were considered important to strengthen digital capabilities for the future use of Edutech, followed by the development and distribution of educational content for young children.

Play and Teachers' Expertise

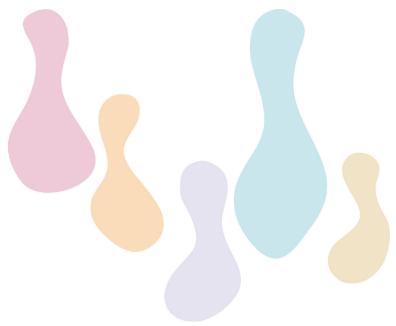
- The most important aspect of ECEC digital policy is the strengthening of teachers' expertise. In the post-COVID-19 era, new educational methods that employ the online learning environment (beyond the constraints of time and space) have attracted attention, to enhance the expertise of early childhood teachers.
- In the field of early childhood education and childcare, where face-to-face interaction with young children is important, the competencies, skills, and digital environment required for early childhood teachers are significantly different from the professional performance of higher level school teachers; therefore, ECEC teacher policies need to be updated.
 - Of the teachers who responded to the survey, 34.0% acknowledged the importance of 'digital literacy competency', 21.5% stated 'educational competency (developmental psychology, subject, curriculum understanding)', and 21.2% stated 'instructional design ability (content development and application ability)'.

IV. Policy Suggestions

- The policy priorities proposed by the 100 experts are as follows: providing a research team to develop Edutech in early childhood education, supporting policy in early childhood education development, and providing guidelines for applying Edutech to early childhood education.
 - Additionally, continuous budget preparation for the integrated platform and support for Edutech are considered important. Overall, it is important to prepare the foundation of systems, such as preparing mid- to long-term government plans and guidelines and establish infrastructure, such as platforms.

The 10 proposals for ECEC digital policy

- The ten policy proposals for ECEC digital policy for future generations are as follows:
 1. Preparing guidelines and standards for safety verification in using digital devices for infants.
 2. Including infant and young children safety provisions in the Enforcement Decree, Basic Act on the Promotion of Digital-Based Remote Education (디지털 기반의 원격교육 활성화 기본법).
 3. Expanding digital literacy ordinances and developing digital citizenship education programs.
 4. Development and distribution of digital competency enhancement programs for early childhood teachers.
 5. Providing a platform for early childhood education, and guidelines for content production.
 6. Preparing a basic plan for early childhood education and mid- to long-term measures to achieve this.
 7. Establishing R&D teams in multiple sectors, and expanding R&D.
 8. Supporting the information infrastructure environment for remote class operation.
 9. Providing curriculum reconstruction criteria, evaluation criteria, and class operation guidelines for remote classes.
 10. Establishing a data management system for early childhood education: establishing an educational data environment based on consent from teachers and parents.



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