



Using new media technology to impart information in preschool education

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KEYWORDS	ABSTRACT
New Media Technology, Informatization Teaching, Preschool Education.	Preschool education informatization is an essential component of the unavoidable trend toward educational growth that is the digital technology integration into education. In current years, both Local and national governments have prioritized this area by introducing a range of policies designed to guide and accelerate its development. Many regions have also engaged in active exploration, gaining valuable practical experience along the way. As a result, Information on Preschool Education has emerged as a key topic of interest within the education field. This study focuses on the role of new media technologies in promoting preschool education informatization. Using questionnaire surveys and statistical analysis, a random sample of kindergarten teachers from City S was examined to identify the characteristics and advantages of new media in early childhood education and to develop strategies for improving its implementation. Findings indicate that most teachers in City S recognize the positive impact of digital technology across the educational process and show a strong willingness to apply it in their teaching practices. Nonetheless, challenges remain particularly teachers' limited understanding of educational information technologies and the ongoing need to strengthen the integration between pedagogy and technology.

1.Introduction

The continuous advancement of emerging media technologies is reshaping multidimensional domains including politics, economics, military affairs, science and technology, education, and society, demonstrating disruptive power^[1-2]. Against the backdrop of global education digital technology globalization, countries worldwide have established “educational informatization and modernization” as the core direction and primary focus of their educational reform processes. Countries also place high importance on building

strategic frameworks for educational informatization, explicitly proposing strategic pathways to advance educational modernization through informatization specifically, “promoting educational modernization through informatization and formulating strategic routes for the rapid development of basic education”^[3-4]. Against this macro backdrop, preschool education as the cornerstone of the school education system and the starting point of lifelong learning inevitably integrates into the torrent of the informatization wave. The digital technology integration into preschool (nursery) education has become an

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DOI: <https://doi.org/10.53724/inspiration/v10n4.03>

Received 05th July 2025; Accepted 18th August 2025

Available online 30th Sep. 2025

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inevitable direction in the ongoing reform of early childhood education.^[5-6]

Technologies for new media are far more than a mere instructional aid; its true significance lies in its deep integration with both the curriculum content and the teaching process. From the perspective of the expansion legal/law of educational technology, the innovative application of digital technology should focus on the layout of early education, give full play to its advantages such as digitalization and interactivity, and build a high-quality educational ecological environment that is conducive to the development of young people and children.^[7-8] At present, the digital technology application construction project promoted in the field of basic education in my country has received widespread attention and high recognition from the education community and all sectors of society. Preschool education, as an important cornerstone of the basic education system, has become a key shortcoming in the process of educational informatization due to its weak foundation for informatization development, and it is urgently needed to be strengthened through systematic strategies^[9-10].

This study looks at the characteristics of new media, investigates the advantages of using new media in preschool instruction, and suggests methods to improve the efficiency of integrating technology into early childhood education. Using questionnaire surveys and statistical analysis, the study randomly selected kindergarten teachers in City S as subjects for the empirical study. Survey data revealed that kindergarten teachers in the city generally acknowledge the multifaceted positive

impact of digital technology in their teaching practices and are enthusiastic about using it to assist with children's learning. However, current digital technology teaching in preschool education still requires improvement, particularly as teachers lack a deep understanding of digital technology teaching. Promoting the thorough digital technology integration into instructional activities is crucial.

2. A Study on the Integration of New Media Technologies in the Informatization of Early Childhood Education

2.1 Research Tools & Methods

(1) Survey method: Questionnaire

This study chooses a kindergarten in S City as a typical research object and employs a combination of questionnaire surveys and in-depth interviews in order to get full data on the implementation of teaching informatization in the kindergarten. During the research process, questionnaire surveys and systematic interviews were conducted on kindergarten teachers and managers, quantitative data were collected through standardized questionnaires, and qualitative information was mined through open interviews, so as to obtain first-hand and exhaustive information on the current status of teaching informatization. The study focuses on collecting teachers' cognition, attitudes and practical feedback on the application of digital technology, and widely solicits their constructive opinions and optimization suggestions for the development of teaching informatization, laying a solid data foundation for subsequent research.

(2) Analysis of statistics

Following the screening and classification of the gathered data using data processing software, a thorough analysis was conducted. Through visual presentation and precise induction, the problems found in the interviews were presented intuitively and clearly, and the various aspects of preschool teaching informatization application were systematically sorted out, the current situation was summarized, and the deficiencies were analyzed.

2.2 New Media Features

(1) Multimedia

Multimedia "means multimedia that represents digital media information, and multiple media collaboratively represent content information, which can be represented by media such as text and audio, or can be represented by media such as images, graphics, videos, and animations." Publicly used digital multimedia programs include Word, Power Point, Flash, and others.^[11-12]

(2) Integration

Digital media is the comprehensive expression of multiple media in different forms to jointly convey specific content, and can centrally regulate the media forms that recipients are exposed to base on communication needs, thereby more effectively improving communication effectiveness.

2.3 Benefits of Using New Media in Early Childhood Education

(1) Interactivity and fun

The improvement of teaching interactivity and fun brought by new media technology is mainly due to its deep activation of children's visual and auditory perception. At the visual level, this technology uses concrete visual stimulation to pique children's interest in learning content by presenting visually

appealing images, videos, and animations on the display screen. At the auditory level, it has the functions of atmosphere creation, emotional cultivation and emotional regulation, forming a synergistic effect with visual images to further enhance the teaching effect. Take the "tadpole into frog" language activity as an example: first, with the help of new media, pictures and animations of the tadpole metamorphosis process are played to guide children to recognize the morphological characteristics of tadpoles and frogs through vision; then the audio of frog calls is played to strengthen children's auditory memory of frog sounds; at the same time, the nursery rhyme "Tadpole, Little Black Slippery, Swinging Tail, Stretching Thin Legs, Swimming Around Non-stop" is integrated to deepen children's understanding of teaching content through audio-visual combination. After the nursery rhyme ends, children can complete the interactive link by imitating frog jumping movements and making frog calls, realizing immersive learning with multi-sensory participation.

(2) Operability and convenience

From the perspective of an educator, new media technology has notable benefits in terms of usability and ease. The traditional lesson preparation process involves data collection, resource integration, and classroom organization. The material preparation stage typically consumes a considerable amount of a teacher's time, and insufficient preparation can negatively impact teaching effectiveness. However, by integrating multimedia technology, new media provides features such as audio enhancement, vivid

storytelling, optimized content combinations, and convenient storage of teaching resources. These tools markedly improve teaching efficiency and operability, enabling educators to deliver high-quality instruction more easily.

(3) Circulation and learning

More operability and convenience are highlighted by new media technologies from the viewpoint of educators. The preparation work of traditional subject teaching covers material collection, matching design and environment creation. The preparation of materials often takes up a lot of teachers' time. The efficiency of instruction will be directly hampered by inadequate preparation. The multimedia application in new media technology has significantly optimized the teaching preparation process through functions such as sound and picture fusion, storytelling, modular combination and cloud storage of courseware. Teachers can rely on digital resource libraries to quickly retrieve adaptive materials, and realize dynamic integration and flexible presentation of teaching content through multimedia courseware. Courseware's cross-platform communication and reusability features increase the effectiveness of using instructional materials, increasing the flexibility and convenience of teaching implementation.

2.4 Techniques to Increase the Effectiveness of the Implementation of Preschool Education Information

(1) Continue to improve and refine conventional teaching strategies while expanding knowledge and real-world implementation of information-based learning.

The industrial culture that gave rise to traditional teaching procedures has influenced instructors' inertial path dependency throughout time. However, in the information society, early childhood education models urgently need to adapt to the demands of modern development. Faced with the impact of the widespread use of digital technology on traditional teaching approaches, teachers need to continue to enhance their teaching processes and methodologies while remaining rooted in the core concepts of traditional classroom teaching. The key lies in adhering to the principle of "integration and innovation" neither unseeingly denying or rejecting the value of traditional teaching media nor relying solely and excessively on digital technology. Instead, they focus on promoting the organic digital technology integration and traditional teaching media, building a hybrid teaching paradigm that is both traditional and modern.

(2) Strengthen the construction and operation and maintenance of basic hardware facilities

The basic facilities for the informatization of early childhood education are the foundation for the implementation of the goals of informatization of early childhood education, and are also a necessary prerequisite for the cultivation and improvement of the informatization literacy of teachers in the early grades. At present, there is a general lack of attention paid to early childhood education in countries in terms of social awareness and parental attention. If we want to achieve stable and long-term development of the informatization of early childhood education, we urgently need the guidance and support for operation and

maintenance by professional and technical personnel. Therefore, strengthening financial investment is the main driving force to ensure the sustainable advancement of the construction of kindergarten informatization. This is not only related to the construction and improvement of infrastructure, but also involves the establishment of a technical talent team and the construction of a professional development system.

(3) Create a comprehensive and expert teaching resource library

The lack of information-based educational resources is the main reason that restricts kindergarten teachers in my country from using new media technology for teaching. Although the use of digital technology (DT) in preschool education settings continues to increase, little is known about how teachers use DT.^[13] The lack of resource support will make it difficult for digital technology facilities to play a role. Currently, there are few early childhood education software and insufficient high-quality resources. Teachers need to combine the characteristics of young children with educational concepts to create high-quality content. my country's resource specialization level, total amount and software development and application lag behind those of developed countries, making it difficult to meet front-line needs. Although existing resources include courseware material libraries, if we want to meet the psychological characteristics of young children (games are a suitable way of learning), The current learning materials designed especially for young children are still insufficient, so we need to incorporate high-quality game software and include

engaging game content in the curriculum.

(4) When training teachers, try to integrate theory and practice

The core of teaching effectiveness depends on teachers. It is necessary not only to improve teachers' and students' mastery of new media technology from a technical level, but also to let students understand the integration logic of technology and classroom. A key challenge was creating engaging learning environments for digitally and globally connected learners and enabling teachers to track the link between teaching choices and student outcomes.^[14] Educational administrative departments and technical workers need to accurately implement digital technology training to ensure that front-line teachers recognize the practical value of professional knowledge and technology in teaching. So that technology can be genuinely incorporated into children's learning environments and become an organic part of gamification learning, the training should specifically strengthen teachers' ability to use game technology to integrate children's digital technology. This will encourage the deep digital technology integration and kindergarten courses and assist teachers in effectively utilizing high-quality teaching resources.

3.Experiment

3.1 Research Purpose

This paper, focusing on a kindergarten in City S, explores the current status of digital technology applications in preschool education. This paper provides theoretical and practical support for the promotion of digital technology in kindergartens in

City S by thoroughly analyzing the current state of digital technology in this kindergarten using a range of research methods. It focuses on the application effects and solutions of digital technology. In order to provide a scientific reference for the implementation of digital technology in kindergartens in other locations, this study intends to advance the development of digital technology in City S and, to the greatest extent feasible, convert the research findings into workable solutions.

3.2 Design of the Questionnaire

This survey randomly selected 100 kindergarten teachers from S City and collected 95 valid questionnaires (recovery rate 95%). There are 10 male teachers (10.52%) and 85 female teachers (89.48%) in the sample. The teacher education structure is consistent with the current situation of the industry, and the data is credible; teachers in large, medium and small classes are evenly distributed, avoiding the interference of class differences on the level of digital technology application of the sample.

The survey shows that 59.6% of teachers have a bachelor's degree, 29.8% have a college degree, and the educational level of preschool teachers has been significantly improved; Middle-aged teachers make up the majority of those with five to fifteen years of teaching experience. Although there is no significant correlation between academic qualifications and teaching ability and information literacy, there are still differences in the comprehension of technology use and teaching theory between teachers with high and low academic qualifications. From the perspective of

computer contact time, most teachers have more than 4 years of experience and have adapted to the teaching information environment.

3.3 Test of the Questionnaire's Reliability

The reliability coefficient was determined using the "half-half reliability" test method and formula (1) after the variance of the data was determined in order to confirm the stability and reliability of the questionnaire and the correlation coefficient was obtained as ****r=0.883****. According to modern scientific research standards, a reliability of ****0.80 or above**** is considered a high reliability test. The test results show that the reliability of this questionnaire is relatively high.

$$S^2 = \frac{(M-x_1)^2 + (M-x_2)^2 + (M-x_3)^2 + \dots + (M-x_n)^2}{n}$$
 (1)

$$r = 1 - \frac{S^2(1 - r_1)}{S_n^2}$$
 (2)

$$r = \frac{2r_{ban}}{1+r_{ban}}$$
 (3)

4.Discussion

4.1 The Primary Level of New Media Technology Application

In primary school, digital technology is used as a teaching aid to assist teachers in conducting demonstration lectures. Children's sensory channels are completely activated with the aid of multimedia features, maximizing their capacity to absorb educational content. Table 1 displays how kindergarten instructors use information-based teaching time each day:

Table 1. Utilize instructional time for informative purposes

	Teachers
Less than < 1 hour	18.70%
1 to 2 hours	35.90%

digital technology into education. See Table 2 for details.:

Table 2. What elements influence how multimedia technology is incorporated into instruction

	Teachers
Limited impact observed after implementation	30.50%
Preparing lessons feels time-consuming and repetitive	30.40%
Shows moderate improvement in teaching effectiveness	16.20%
Lesson planning requires additional time and effort	22.90%

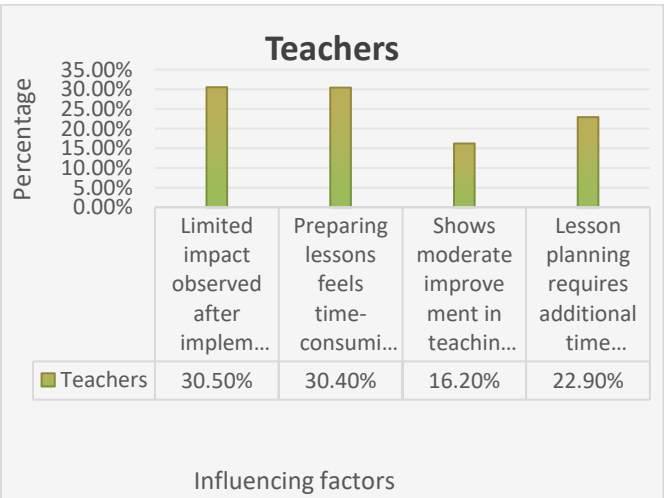


Figure 2. What are the factors affecting the integration of multimedia technology and teaching

Figure 2 shows that when asked, "What are the factors that influence the digital technology integration into teaching?" 30.5% of teachers believe that digital technology does not play a significant role in curriculum design and implementation, and has no impact on children's actual learning; 30.4% believe that digital technology course preparation is cumbersome; and 16.2% believe that course preparation takes up too much time and that they lack proficiency in relevant digital technology knowledge and skills. These factors contribute to teachers' inadequate application of digital technology in teaching. Therefore, preschool teachers need to integrate

2 to 4 hours	33.80%
More than 4 hours	11.60%

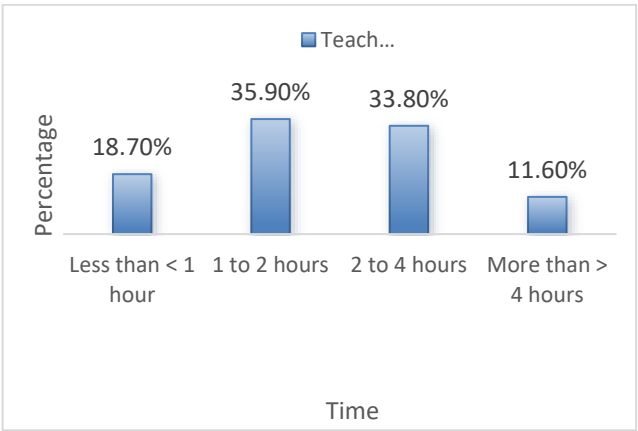


Figure 1. Make use of instructional time for information.

As shown in Figure 1, among the average daily teaching time of teachers, 11.60% of teachers use it for more than 4 hours, the highest proportion is 1-2 hours, accounting for 35.90%, 33.80% of teachers use it for 1-2 hours, and 18.70% of teachers use it for less than 1 hour, indicating that teachers generally have the capacity to apply digital technology. Its application scenarios mainly cover video material playback, teaching content display, and after-school communication with parents.

4.2 Highest Level of New Media Technology

To promote the deep integration of technology and curriculum, we need to encourage the mutual penetration and active adaptation of new technologies and media into the curriculum. This will enable technology to accurately convey educational information while also fostering children's digital literacy and competence through the use of various technologies, including multimedia, as educational resources. However, according to interviews, educators in kindergartens in City S are still in the early stages of integrating

digital technology with the external environment while also improving their own digital technology and skills.

5. Conclusions

New media technologies have been extensively employed and researched in the field of teaching because the widespread use of mobile Internet and new media technologies, as well as the national and social criteria for the promotion of educational informatization, coincided. ICTs have an impact on kids and teens today that is on par with or even greater than that of conventional media, yet there isn't a suitable structure in place to deal with the problem.^[15] As the starting point of education, preschool education has become a weak link in education due to the shortage of teachers and non-compulsory education. The implementation and management of its teaching informatization have not yet gained full cooperation from all sectors of society. Although the country has paid high attention to it, the specific practical path of preschool teaching informatization still needs to be explored in depth.

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