

Research Article

Innovative Research on the Teaching Mode of Preschool Education Courses under the Background of Wireless Communication and Big Data

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With the development of science and technology, big data and wireless communication technology are gradually applied in the field of education. As people nowadays have higher and higher requirements for the orientation and characteristics of kindergarten curriculum, kindergarten curriculum presents a development trend of “a hundred flowers bloom.” However, the curriculum setting of kindergartens in our country is affected by many factors, and it is not uncommon to see unscientific phenomena. To solve these problems, there is an urgent need for the teaching of relevant curriculum theory. Based on wireless communications and big data background before school education teaching mode, on the basis of the literature on preschool education course teaching mode of related theory to understand, then by using the method of questionnaire survey on the present stage preschool education curriculum innovation present situation investigation, through the results of the survey, at the present stage, the main problem existing in the innovation of preschool education curriculum teaching mode is the shortage of educational resources, accounting for 44%, followed by the faculty.

1. Introductions

With the progress of the times, the kindergarten teaching model is also constantly innovating and improving [1, 2]. Teaching methods, hardware facilities, and the teaching level of teachers are constantly improving [3, 4]. With the development of the Internet, high-tech technologies represented by big data and wireless communication are gradually applied to the field of preschool education [5, 6]. The progress of science and technology provides new teaching ideas for preschool education, changes the teaching mode, and has a great impact on the development of preschool education [7, 8].

Through diversified and personalized teaching, preschool education curriculum can expand children’s innovative thinking, meet children’s curiosity, make them interested in learning, and form the habit of actively seeking knowledge [9]. But in fact, some teaching courses in kindergartens have not achieved this effect [10, 11]. Therefore, many kindergartens conform to this trend and find it diffi-

cult to follow different curriculum models. Therefore, due to the lack of a deep understanding of the spirit of the curriculum model and the lack of positioning in our kindergarten curriculum, they often lose the way of nationalization [12, 13]. Studies have also shown that the tendency of kindergartens to “primary schools” violates the law of children’s development and has a significant impact on children’s physical and mental health [14, 15]. For example, due to the pressure of learning, children are not so naive, self-sufficient, and happy. They take on the pressure of going beyond their age too early [16]. This not only fails to improve their learning ability but also leads to their loss of interest in learning [17, 18]. It can be seen that the “primary school” education in kindergartens is not worth it for children’s long-term development [19]. In summary, there are still many problems in preschool education that need to be solved urgently, such as the study of teaching models.

This article studies the preschool education curriculum teaching mode in the context of wireless communication and big data and then analyzes the impact of wireless

communication and big data era and the challenges faced by preschool education on the basis of literature data and uses the method of questionnaire survey at this stage; the preschool education curriculum model is investigated, and the results of the questionnaire survey provide experimental basis for curriculum model innovation.

2. Innovative Research on the Teaching Mode of Preschool Education Courses

2.1. The Impact of Wireless Communications and the Era of Big Data

- (1) Big data makes life better. Some people say, "Big data is a mystery." In fact, big data is everywhere and with us. We are creating new data every day and receiving large amounts of data at the same time, so we have the dual identity of data creator and receiver [20–23]
- (2) Big data injects new impetus into economic growth. Big data is ubiquitous in all fields of society, "joining" multiple industries, cultivating more new formats and new blood, forming a "big data +" industrial chain, and bringing growth to economic transformation [24]
- (3) Big data promotes the modernization of the national government system. In the era of big data, the Internet is a new platform for the government to implement management. The government establishes big data awareness and promotes the sharing of relevant data through the e-government system. This enables the government to make decisions with the support of large amounts of data [25–27]
- (4) There is uncertain risk of data analysis results. Big data is undoubtedly of great value as a driving force for social progress and industry changes. However, the current analysis and processing of big data is a disturbing factor that affects the accuracy of analysis results. Factors such as erroneous data, redundant data, and technical analysis of related data, computer technology, data authentication crisis, and other factors all require data users to improve their ability to distinguish between true and false data results [28]
- (5) There is risk of leakage of personal confidential information. In the era of big data, people's "digital footprints" left on the Internet and mobile devices equipped with smart chips and microprocessors (such as smartphones, cameras, and video cameras) are vulnerable to surveillance [29]

2.2. Challenges Faced by the Teaching Mode of Preschool Education Courses under the Background of Wireless Communication and Big Data

2.2.1. *Innovation in the Concept of Preschool Education in Colleges and Universities.* The development and change of educational concepts is one of the places that cannot be ignored in the reform of preschool education in colleges

and universities. To some extent, educational concepts are also called the soul of education [30]. They are the basic principles and directions of preschool education. The innovation of educational concepts is the specific behavior of educational program innovation. The educational philosophy of preschool education has also evolved with the changes of the times, so the emergence of educational philosophy is closely related to the social and historical conditions in which it is located. The concept of preschool education must be innovative. On the one hand, we should respect the excellent results and policies of traditional preschool education. On the other hand, it must be completed under the premise of constantly grasping the pulse of the times and accurately grasping the new situation. In the era of big data, people tend to develop individuals based on understanding and set new educational concepts and goals to better complete preschool education.

2.2.2. *Innovation of Preschool Education Methods in Colleges and Universities.* A method is an important tool for preschool education innovation. In preschool education, methods act as an intermediary, responsible for the exchange of innovative educational methods between educators under the established educational goals. The preschool education method is the main tool of preschool education activities, especially the method adopted by preschool educators to achieve educational goals, such as the transformation of educators' thinking and concepts. From the perspective of the specific implementation process, it is an activity carried out by teachers to help students develop comprehensive thinking. When applying preschool education methods, the main goal is to enable students to acquire appropriate social knowledge and improve their own quality during the preschool education process.

However, with the continuous changes of social reality and the continuous growth of productivity, the advancement of science and technology in the new era has made the process of information exchange more convenient and developed, especially the development of the Internet. The reform of big data and information has changed the original operation mode of society to a certain extent. All kinds of information collide and exchange with each other, bringing new challenges to preschool education. Preschool education innovation is an effective way to adapt to and meet the new challenges of this huge big data revolution.

3. Innovative Research on the Teaching Mode of Preschool Education Courses under the Background of Wireless Communication and Big Data

3.1. *Purpose of the Investigation.* The overall purpose of the survey is to provide a report on the innovation of the preschool curriculum model based on the survey results for subsequent data analysis. Exploring strategies to address these issues is expected to provide a reference for the design of future preschool curriculum models.

3.2. Investigation Method

3.2.1. Interview. In order to hand over the current education and teaching methods and existing problems in kindergartens, a semistructured interview outline was prepared according to the content of the survey requirements (see the attached table for the interview outline). Interview preschool experts, kindergarten principals, and kindergarten teachers. The three preschool education experts who participated in the interview each had an appointment of about 15 minutes. The interview took the form of question and answer, and the questions were mainly based on the interview outline. The principals of the five kindergartens are mainly the heads of the Ministry of Education. Each interview lasts approximately one hour. The basic course project carried out by the kindergarten: 5 kindergarten teachers were interviewed, each about 30 minutes. The main purpose of the interview is to understand the basic views of kindergarten teachers on the necessity of designing the preschool curriculum model and to understand the basic situation of the curriculum that affects the implementation of the kindergarten.

3.2.2. Observation. Choose a class from each kindergarten (usually a middle class) to conduct a half-day or full-day classroom observation to understand the curriculum and implementation of the kindergarten, and review the content of the above interview. At the same time, this article will collect typical cases of preschool education activities as a basis for understanding the current situation of curriculum design and implementation in kindergartens.

3.3. Respondents. In view of the fact that public kindergartens should represent the overall situation and basic development level of kindergartens in our country, the kindergartens selected in this study are mostly public kindergartens. Below, the letters A to C are used to denote different kindergartens.

3.4. Data Processing

3.4.1. Choose Model. The selection model includes the distribution of the complete data and the distribution of the missing data itself. Therefore, the distribution of the two joints can be expressed as

$$H(T, U|\mu, \lambda) = H(T|\mu) \oplus H(U|T, \lambda), \quad (1)$$

where H stands for function, μ represents the unknown parameter of the complete data population, and λ represents the conditional distribution parameter of the missing data distribution U given the complete data. In the formula, the value of this function can be calculated by including the T probability function of all missing data. The maximum probability value is not always analytic, so iterative methods are needed to approximate the estimated value of i . Another problem in choosing a model is that it is very sensitive to the format of the overall distribution function.

3.4.2. Mixed-Mode Model. In the mixed-mode model, the entire sample is grouped according to the distribution of missing data. The model can be expressed as

$$H(T, U|\mu, \lambda) = H(U|\rho) \oplus H(T|U, \omega). \quad (2)$$

If μ and λ have the same meaning as the selected model, n represents the overall percentage of each missing dataset, and ω represents the parameter of the complete data distribution under a specific missing dataset. The disadvantage of the mixed-mode model is that it is difficult to estimate the parameter ω containing the unobserved dataset, which requires very strict or unverifiable assumptions.

4. Analysis of Survey Results

4.1. Problems in Preschool Education at This Stage. This paper uses the questionnaire survey method to investigate the current situation of preschool education curriculum model innovation under the background of wireless communication and big data and obtains data on the problems existing in the current stage of preschool education curriculum model innovation by collating the collected data. The results are shown in Figure 1.

It can be seen from Figure 1 that among the main problems existing in the innovation of preschool education curriculum model at this stage, the shortage of educational resources accounts for about 46% and then the problem of insufficient teachers.

4.2. The Use of Teaching Methods by Teachers. This paper uses the questionnaire survey method to investigate the current situation of preschool education curriculum model innovation in the context of wireless communication and big data and obtains data on the current preschool education curriculum teachers' use of teaching methods by collating the collected data. The results are shown in Table 1.

It can be seen from Table 1 that the most common teaching method used by most teachers is situational teaching, some teachers use cooperative teaching, and a small number of teachers use inquiry-based teaching.

4.3. Teachers' Evaluation of Teaching Methods. This paper uses the questionnaire survey method to investigate the current situation of preschool education curriculum model innovation under the background of wireless communication and big data and obtains data on the evaluation of teaching methods by teachers in the current stage of preschool education by collating the collected data. Teacher feedbacks on situational teaching method results are shown in Table 2.

It can be seen from Figure 2 that more than half of teachers believe that the teaching method inherited in the era of big data is different from the current teaching method based on lectures. Preparing lessons before class and carefully planning lesson plans require more energy. They often encounter various problems in class, and it is difficult for them to teach using these teaching methods.

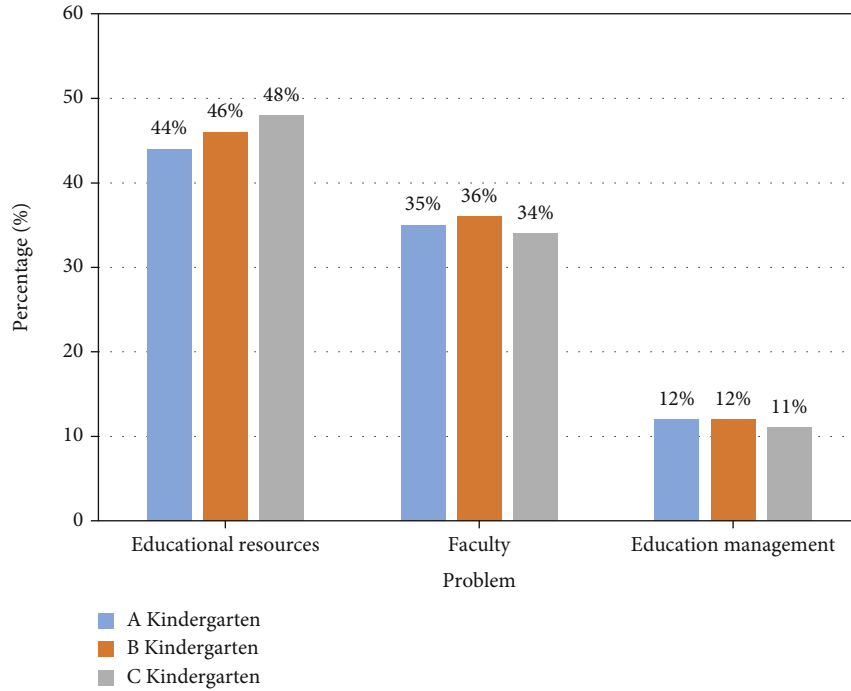


FIGURE 1: . Problems in preschool education at this stage.

TABLE 1: How teachers use teaching methods.

	A kindergarten	B kindergarten	C kindergarten
Situational teaching	57%	56%	58%
Cooperative teaching method	23%	25%	24%
Inquiry teaching method	13%	11%	11%

TABLE 2: Teachers' evaluation of teaching methods.

	A kindergarten	B kindergarten	C kindergarten
Situational teaching feedback	23%	21%	21%
Generally	13%	15%	14%
Difference	58%	57%	59%

4.4. *The Implementation of the School's Innovation in Improving Teaching Methods.* This paper uses the questionnaire survey method to investigate the current situation of the innovation of preschool education curriculum model under the background of wireless communication and big data and investigates the probability of using different new technologies in different kindergartens. By arranging the collected data, the school's implementation data on improving teaching method innovation and technical direction are obtained. The results are shown in Table 3 and Figure 3.

It can be seen from Figure 3 that the school is still more concerned about the innovation of teaching methods, and implements the transformation of teaching methods through teacher training, application for topics, and class leaders.

4.5. *Innovative Suggestions for the Teaching Mode of Preschool Education Courses under the Background of Wireless Communication and Big Data*

- (1) Have the ability to use network information systems

The development of science and technology has brought us into the information age. In the historical process of kindergartens, whether it is admission, educational research, kindergarten education management reform, or infrastructure improvement, these series of tasks should not be inseparable from the support of information elements. The collection, analysis, and retrieval of information are a key management task for the development of kindergartens, and the principal of the kindergarten must be responsible.

Therefore, in the actual management process, information is the market, and information is the business opportunity. Accurate information is the key to success. The lack of information flow can easily lead to failure of planning and decision-making. Therefore, the concept of information advantage value should be evaluated and established by the principal. It mainly depends on whether the correct information can be obtained in time and processed and implemented accurately. The process of kindergarten administrative work is not continuous but comes from the

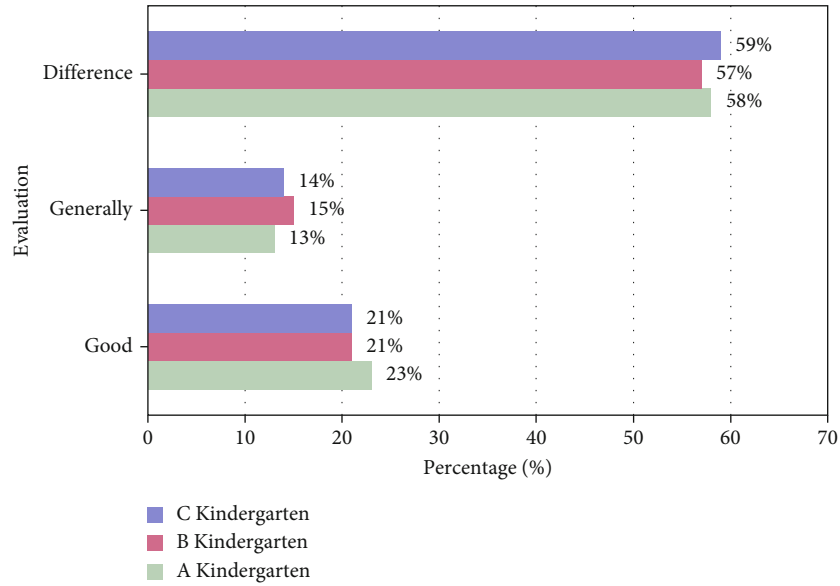


FIGURE 2: . Teachers' evaluation of teaching methods.

TABLE 3: Probability of new technology implementation.

New technology	A kindergarten	B kindergarten	C kindergarten
Using wireless communication equipment	16%	13%	14%
Adopt big data technology	4%	5%	6%
Combine artificial intelligence technology	3%	1%	3%

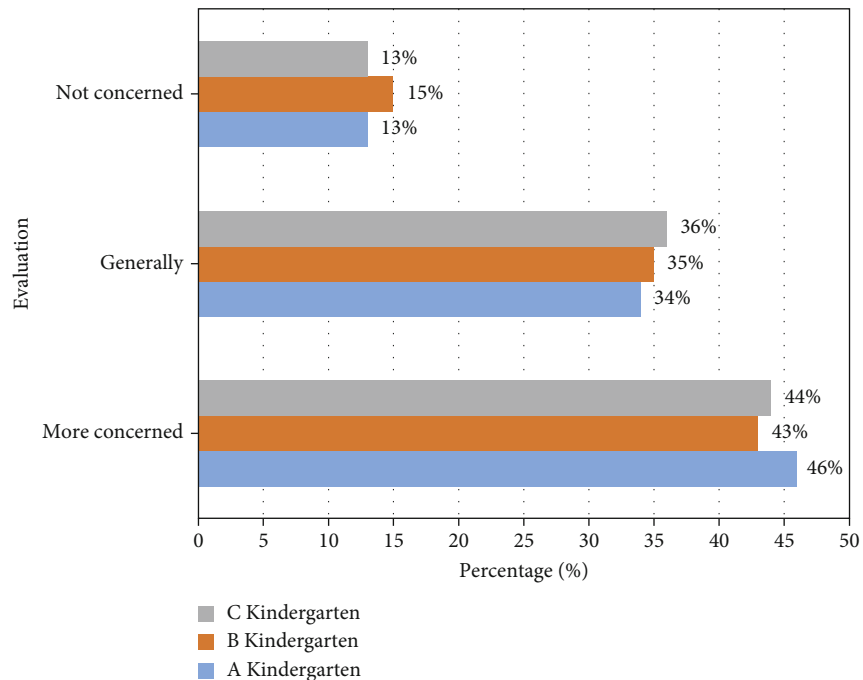


FIGURE 3: . The implementation of the school's innovation in improving teaching methods.

evolution and changes of things, and relevant information needs to be constantly updated in order to effectively manage, coordinate, monitor, and perform daily management tasks.

(2) Transition from a single course to a flexible course

Consistent goal setting, variable methods, focused work, and children's rest arrangements are all realistic curriculum

management models that allow teachers to focus on completing and responding to a consistent static education plan. The principal's on-site inspection no longer pays attention to the needs of children. This has also led to teachers' increasingly passive education. The ability to shift from a single course to a flexible course allows teachers to choose their own teaching content, lesson plans, teaching games, and teaching methods according to the actual teaching situation in the classroom and the children's learning progress and choose accordingly according to the actual situation of the students in the classroom.

The curriculum layout allows teachers to adjust the time and space layout according to the activities and needs of the children in the classroom, so it empowers teachers to teach, stimulates their creative potential, and allows teachers to think about what to do, why to do it, and to do it and what and how to do it best. In addition, this kind of kindergarten curriculum needs to be tailored to the different conditions put forward by teachers of different skill levels, so as to be more in line with the characteristics of kindergarten children.

- (3) Kindergarten teachers need to actively participate in various education and training, not only to learn through books and big data but also to enrich their lives. Kindergarten teachers also need to humbly learn from their peers. In the process of teaching and learning, continue to deepen your knowledge

Today, with the devastating changes brought about by the development of Internet and mobile Internet technology, kindergarten teachers can not only understand education, train, and master education but also benefit from large-scale platforms, so teachers also need to know how to use it to make education more suitable for children and improve the effectiveness of education. At present, there are many APP multimedia courses available for kindergarten teachers. The courses are basically created by five main interactive course systems. Although not perfect, teachers can use the essence of their needs to teach. By integrating animation, video, and entertainment into education, children's learning has become interesting. The content that the teacher blurted out is displayed not only in front of the children through the multimedia screen but also through the well-designed curriculum so that the children can quickly understand the meaning of teaching.

5. Conclusions

This paper studies the innovation of preschool curriculum teaching mode in the context of wireless communication and big data. On the basis of understanding the relevant theories, the current preschool education teaching mode was investigated through a questionnaire survey. The survey results show that more than half of teachers believe that the teaching method advocated in the era of big data is different from the previous lecture-style teaching method. The traditional method of teaching adopts the method of preparing lessons before class and designing lesson plans

carefully. However, various problems are prone to occur in classroom teaching. These circumstances make it difficult for teachers to use these teaching methods to teach. However, after combining big data and wireless communication technology, the efficiency of preschool education classroom teaching has been greatly improved, and the learning efficiency of students has also increased.

Data Availability

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Conflicts of Interest

It is declared by the author that this article is free of conflict of interest.

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