

Analysis on the Strategy of Developing Maker Education in Kindergartens

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Abstract: Learning by doing, cooperation and experience, bold creation and happy sharing are the core concepts of early childhood maker education. It coincides with the guide to learning and development for young children. By analyzing the current situation and confusion of early childhood maker education at home and abroad, we can summarize the influencing factors of early childhood maker education, establish the path and framework of early childhood maker education practice, and put forward specific suggestions from the aspects of establishing a team, creating an environment, experts leading teacher training, constructing curriculum application research, strengthening effective management evaluation, multi-party participation and promoting development.

1. Introduction

Since "maker" was first written into the work report of the Chinese government in 2015, under the concept of "mass entrepreneurship and innovation", maker education has also been sought after by a group of preschool teachers who are good at thinking, hands-on and happy to share. According to the spirit of the 13th five year plan for educational informatization, Yang Xianmin and others believe that maker education is a new educational model that integrates information technology, adheres to the educational concept of "open innovation and Inquiry Experience", takes "creative middle school" as the main learning method and aims at cultivating all kinds of innovative talents. Zhu zhiting and others also put forward that maker education is based on the integration of information technology and inherits the ideas of experience education, project-based learning method, innovative education and DIY. Therefore, maker education is in line with children's cognitive characteristics.

2. Analysis based on kindergarten maker Education

2.1 Theoretical basis

The first is the constructivist theory, which emphasizes the positive meaning creation process of

learning and using the existing knowledge background, experience, psychological development stage and cognitive structure. It mainly emphasizes that children are the main body and "learning" actively is the active exploration and discovery of knowledge. According to this theory, when carrying out maker education, preschool teachers should pay attention to creating situations for children, promote children to find and try to find answers according to their own perspective, and turn their ideas into reality on this basis[1]. The second is the theory of multiple intelligences, which was put forward by Gardner. It mainly advocates the educational concept of "children as the main body and teachers as the leading", and realizes the all-round development of children with diversified educational methods. In addition, the application of multiple intelligences theory in early childhood maker education is not only in line with the core idea of children's guide, but also emphasizes the diversified training methods needed by children's growth. In view of this, teachers in maker education should pay attention to respecting children's individual differences, teach students according to their aptitude, fully respect the diversity of children's subjects in evaluation, and promote the development of children's multiple intelligences.

2.2 Practical Basis

2.2.1 Domestic Status

The main domestic literature on early childhood maker education focuses on early childhood maker education products. For example, some are studying the characteristics of children's age, summarizing the principles, methods and processes of early childhood maker education product design, and advocating that maker education should be cultivated from an early age and start from the early childhood stage[2]. Relevant professionals have studied the application and significance of scratch in early childhood teaching, analyzed the current situation and problems of domestic early childhood maker education from the connotation of maker education, and provided a new way for early childhood maker education. Some scholars also put forward the educational model of "Ubiquitous Learning", which provides certain material support for children's teaching activities, creates an environment of thinking collision, and helps children develop their music creation ability. It can be seen that the design, development and application of domestic early childhood maker education products have made preliminary progress, which has attracted the attention of scholars and professionals.

2.2.2 Foreign Situation

In the United States, maker education is in the stage of teaching reform. Its main purpose is to cultivate excellent scientific and innovative talents, which has effectively brought into play the practical significance of maker education. (1) They believe that the kindergarten stage is an important period to shape children's maker spirit, which can effectively cultivate children's maker culture; (2) The United States has implemented various forms of maker education methods; (3) A special maker workshop has been set up in the kindergarten, focusing on the cultivation of students' hands-on operation ability. In this regard, Japan has formulated clear goals and tasks for maker education, established special funds and training plans, strengthened the training of preschool teachers, and encouraged women to actively participate in stem education[3]. In addition, Canada also pays more attention to the development of manual and cultural practice activities; In Britain, maker space is set up in each city; Israel advocates everyone's participation in stem secondary education. The above relevant academic research and practice at home and abroad can bring certain

reference value to China's early childhood maker education activities, and also prove the urgency of China's early childhood maker education.

3. Implementation Path of Maker Education Based on Kindergarten

3.1 Establish a Strong Team of Teachers and Create a Good Educational Environment

In the process of kindergarten education and teaching, in order to meet the actual development needs of maker education and improve children's multiple ability development. The kindergarten needs to create a perfect team internally to provide sufficient teachers for children's maker education. With the great attention of the government, the concept of "developing children, achieving teachers, meeting parents and catering to the society" has been formed in kindergarten teaching. Subsequently, a maker education leading group was established in the form of mutual recommendation[4]. The improvement of teachers provides strong preparation for the development of maker education. At the same time, in order to prevent the waste of funds, the functional classroom should be reasonably adjusted, and the kindergarten should provide children with sufficient maker activity materials and functional equipment. For example, art drawing board, art multimedia classroom, etc. At the same time, we should provide all-round training for preschool teachers to provide sufficient preparation for maker education. In the real maker education environment, preschool teachers should pick up all kinds of teaching tools and apply them in the form of creation. They can also improve their creative ability through the creation of maker space. In the case of mutual cooperation with enterprises, it shows a double qualified preschool teacher. The kindergarten should organize expert lectures, increase the investment in teacher training, and connect the educational information audio-visual education hall with the kindergarten. Finally, using the form of subject creation let preschool teachers boldly explore maker education.

3.2 Reasonable Establishment of Early Childhood Education Curriculum

3.2.1 The Learning and Development Guide for Children Aged 3-6 is an Important Guide for Preschool Teachers to Carry out Maker Education

In the actual teaching process, teachers should clarify the teaching objectives. Starting from the spirit of the learning and Development Guide for children aged 3-6, we can pay attention to the requirements of maker education for early childhood education on the basis of "comprehensive theme game Park-based curriculum", and then form a clear maker education goal. Children's interest is the basis and premise[5]. We should confirm the objectives of multiple fields of teaching, focusing on the aspects of artistic creativity, electronic building blocks, artistic creativity and scientific experiments. In this context, children can use both hands and brain in the process of actual learning. Learn in happiness and dare to innovate.

3.2.2 We should focus on Innovation of Maker Education Content and Carefully Select Resources

Maker education curriculum is closely related to children's real life. Starting from the age characteristics and life needs of children, teachers choose the content that children are interested in, and integrate appropriate resources into the specific game park based maker education system. The course content is mainly divided into modules of self-awareness, getting close to nature, entering society, happy life and feeling culture[6]. Different theme contents are formulated for children of

different ages. Preschool teachers take "car" as the theme to create classrooms from the aspects of artistic creativity, electronic building blocks, and scientific experiments and so on. Rich maker resources are collected on the network, and finally a novel maker education activity is formed.

3.2.3 Carry out fine Planning and Reasonable Implementation

In the process of developing maker education in kindergartens, we can actively show the characteristics of preschool teachers in different fields and integrate teacher resources. With the theme of "little lion" as the content of maker education, preschool teachers should integrate multiple fields of maker education and create a teaching environment. Teachers provide children with production materials. Children can make DIY paper-cut lions through direct perception and practical operation[7]. Maker teachers process DIY creative paper-cut lions, in which multiple technologies are used. Teachers guide children to use creative tools such as batteries, LED lights and tape to make a novel handmade product. In this context, children improve their operation ability and thinking ability through hands-on practice.

3.3 Strengthen Management and Carry Out Reasonable Evaluation

After the maker education, kindergarten teachers also need to focus on the evaluation and analysis of children's learning effect. Evaluation should be carried out simultaneously with activities, mainly by using diversified evaluation models. It involves the maker activity plan, teaching environment and children's actual innovation. At the same time, when carrying out maker education, preschool teachers should fully recognize the individual differences between children, pay attention to children's imagination and expression, and focus on improving children's ideological quality. Teachers can share and exchange children's maker works, so that children can evaluate each other, or provide them to parents, so that parents can understand the actual development of children through their works. Finally, under the effective evaluation, promote the all-round development of children[8].

4. Conclusion

Maker activities are deeply loved by children. All parents believe that the activities are very creative, can teach in fun, broaden children's horizons, and children learn interesting, effective and useful. However, difficulties and problems also exist objectively. For example, at present, maker education still faces a shortage of funds, teacher training can not keep up, resources are relatively scarce, the resources provided by many suppliers are difficult to match with park based courses, and the forms of maker activities need to be further innovated. Therefore, in order to make maker education sustainable, we need to actively integrate multiple fields, pay attention to the coordination of various factors, fully tap the utilization value of safe waste materials, realize resource sharing, strive to improve the professional quality and practical ability of teachers, enhance the trinity of "home, garden and society", and comprehensively improve the quality of maker education in kindergartens.

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