The Application of Modern Multimedia Technology in Early Childhood Science Education

Wei Nie
Feixian Campus, Linyi University, Shandong 273400, China
lydxfxnw@163.com

Keywords: Modern multimedia; Early childhood; Science education; Application; Research

Abstract. With the rapid development of science and technology, more and more modern multimedia technology has been applied to the kindergarten science education activities. Compared with the traditional teaching of modern multimedia technology, modern educational technology teaching is a comprehensive use of a variety of media sound, images, text, animation, video and so on, not only interesting, but also is controllable and interactive. This paper, mainly through the application of modern multimedia technology in science education of kindergarten, explores the modern multimedia technology in children’s science education and the role of multimedia in prospects of kindergarten’s development, and hopes to bring some inspiration to improve the teaching quality of kindergarten’s science education.

1. Introduction

Early science education plays a decisive role in the formation of a person's scientific literacy, [1] good children's science class on the development of children love science, learning science, scientific ability, it is of great significance to improve the scientific literacy of teenagers.

In the process of children's science education, teaching methods and means of lively and interesting is the necessary condition to accomplish educational goals. [2] In modern educational technology, multimedia projector, TV, video, computer has a vivid image, strong, easy advantage to stimulate children's interest, and can break time and space constraints, make up for the lack of direct experience of children, encourage children to actively participate in science education activities. [3]

Modern multimedia technology refers to computer through text, data, graphics, images, animation, multimedia sound and other information comprehensive processing and management, users can conduct real-time interactive information through a variety of sensory and computer technology. [4] The use of modern multimedia technology, information processing, display and reproduction, simulation, simulation and application animation technology, can make the process and phenomenon of some common conditions cannot be achieved or cannot be observed vividly displayed. Multimedia technology will map, text, sound, like the integrated information transmission mode breaks the linear way of traditional media, the full range, [5] with vivid and stimulating information strong, broad spatial and temporal characteristics. Compared with the traditional teaching method, the characteristics of modern multimedia teaching with sounds and pictures fully active in children's thinking, cultivate children's interest in learning, to stimulate children's creativity. Therefore, to help children acquire scientific knowledge and form a good behavior in the process of education and teaching, the proper use of modern multimedia technology, to optimize the educational process and to improve the effectiveness of education, interactive, can play a significant role. [6]

2. The superiority of modern multimedia technology in current science education for young children

2.1 Human-computer interaction, stimulate children's desire to explore

Human computer interaction is a prominent feature of multimedia, which is not available in any other media. Moreover, the multimedia as a cognitive tool and learning resources have a good interaction can increase children's attention and understanding of teaching information, and extend
the retention time of knowledge information in the nerve center. Such as scientific activities "to small animals to find the tail", with the mouse to pull the tail of the small animals, pull on, and small animals respond to smiling faces and applause; pull the wrong, you have to return to. This evaluation method allows children at a glance, and is willing to accept, the teaching process has become a human-computer interaction activities. Therefore, the science education of multimedia computer aided has great superiority, a variety of children's sensory coordination activities, fundamentally stimulate children's interests, and actively put into play, naturally happy to learn, develop independent learning habits.

2.2 Reproduction of the development process, stimulate children's observation

Science education activities have a lot of content is personally asked the children to observe, but some need to observe for a long time, such as "chicken", due to the limit of time and condition, the children's observation is random, the knowledge is fragmented, loose, teachers can organize random observation, not in a in a true and complete understanding process of chick growth change, which is not conducive to children to establish a complete knowledge system. But with the help of multimedia teaching, the knowledge points can be connected in series. The use of Flash software to the hen from eggs to hatch after 21 days, breaking the egg shell growth process that made animation, combined with text and sound, make children more intuitive understanding of the growth process of chicken. Through observation, children know how the chick is drilled out of the eggshell. Through the amplification of the picture, slow down, freeze, and other means, so that children carefully observed, active thinking, exploration, discussion of reasonable reasons. This allows children to be able to perceive, not only easy to understand, deepen the impression, more conducive to the establishment of a complete and correct cognitive structure.

2.3 Reasonable selection, breaking the key points

The selection and design of modern multimedia teaching content must be used in accordance with the purpose of teaching, which is used to solve the key and difficult points in teaching. Such as "food and travel" in the teaching of modern multimedia technology will be the name of the various sites of digestive system and digestive process of food, the courseware vividly demonstrated in front of children, so that the abstract content becomes intuitive. Look at the food in the body of the travel, the child has a wonderful feeling, which inspired the children to explore their own physical desire.

It is proved by practice and not all scientific activities are suitable for the use of modern multimedia technology, the science education in kindergarten must choose only the multimedia technology to achieve, and other media cannot reach the target of the theme, fully demonstrate the superiority of multimedia teaching.

3. The principles of the application of modern multimedia technology in preschool education

3.1 Initiative principle

When using the modern multimedia technology to carry on the science education to the young child, the child should be the main body of the activity, let them be free to participate in the activity. The multimedia technology has a rich sense of touching the screen, but not to abandon the traditional teaching methods such as charts etc. The reasonable combination of the two can fully mobilize the enthusiasm of young children, but also allows children to better grasp and understand the content. For example, in the "seeds of travel" in the teaching, teachers can produce seed charts, tell children what plant seeds, what can grow what plants, basic master in children, using multimedia animation, the plant growth process dynamic demonstration to the children to see, this to avoid the original single chart demonstration is boring, so that the whole teaching activities with "activity", vivid and interesting, can help children understand the whole plant growth. So that children can learn the knowledge of the state of mind to watch multimedia courseware, find the answer.

3.2 Experiential principle

The experience is through their own practice to understand things; let the children experience learning is subject directly involved in learning activities through various senses of their own, should
be combined with the daily life of children in the context of the actual creation of science education, which is beneficial to children's initiative to try.

The advantages of multimedia assisted teaching is obvious, but not all teaching activities must be complemented by multimedia courseware, cannot be divorced from the reality, instead of children's cognition of the physical. Must be timely, appropriate, appropriate use of multimedia assisted teaching, active teaching atmosphere, the breakthrough teaching difficulty, greatly improve the flexibility of teaching, teachers have to play ability; conversely, if any of the activities to the pursuit of modern means of education and the use of multimedia technology, may be contrary to the law of children's cognitive.

For example, children's daily life closely related to the teaching content—vegetables, a fruit, daily necessities of understanding, is far less than the use of physical teaching to observe the natural. If the direct experience that can be obtained through perception can be turned into the indirect experience of the courseware, it runs counter to the teaching idea.

3.3 Extension principle
The situation of science education resources construction of modern multimedia technology should have broad knowledge, rich content and other characteristics, to have divergent thinking space for children, in order to expand their cognitive domain. Courseware cannot blindly pursue the rich picture, to highlight the focus of teaching, in line with the cognitive characteristics of children.

For example, in the "four seasons" in the teaching of the two teachers were different, a teacher is quite fine, in the courseware creating seasons in different scenes, with beautiful text and soothing background music; another teacher of the courseware in only the most significant features of convex dynamic changes of seasons the picture is a single plant. However, the courseware teaching effect of second teachers but better than the former, because the former contains too many children, put more attention to beautiful picture, background music and commentary, because with commentary, give children free development and imagination is small.

4. The limitation of modern multimedia technology in current science education for young children

4.1 Restrictions on the level of Kindergarten Teachers
The modern multimedia technology into preschool education in the classroom, completely subvert the traditional mode of teaching, increase teaching workload of teachers, teachers use the corresponding courseware in the teaching process, not only to show the theme of the characteristics, but also pay attention to children's life and the world, the material content selection for children's cognitive level and growth law the. For multimedia teaching, some teachers think that we should keep abreast of the situation, master the modern teaching methods, so in a variety of courses in the use of multimedia technology, whether it is necessary or not. The phenomenon of abuse of multimedia education reform is actually looks rich, is a new tool for traditional multimedia teaching. However, some teachers because the technology is not in place, or the ability and time is limited, some teachers do courseware is too simple, cannot play the role of auxiliary teaching. At the same time, too much energy in the classroom on the operation of multimedia, ignoring the feedback of children, cannot better grasp the classroom teaching. Because of the use of complex, many teachers only in the open class or teaching and research classes in the use of multimedia software, but in peacetime teaching rarely used. In order to increase the use of modern multimedia technology, kindergartens can establish the corresponding incentive mechanism.

4.2 The limitation of kindergarten software and hardware
Although the kindergarten construction continued to increase investment, but the geographical, economic and other factors constraints, most of the kindergarten is not batch construction of multimedia classroom and the activity room, even the kindergarten has a certain scale, also not equipped with specialized teaching management personnel, more cannot establish the organization
team teaching software, so the use of teaching to the popularity of computer multimedia technology in kindergarten, kindergarten in China needs further efforts.

The level of software and hardware of multimedia teaching in kindergartens is uneven. Some of the economically developed areas of the kindergarten has used some of the emerging multimedia hardware, such as smart touch screen TV, tablet PCs, etc. These intelligent multimedia teaching hardware equipment is very important for children's science education. In particular, tablet computers, can be used as a tool for teaching aids, but also in certain circumstances to guide children to learn.

The software and hardware environment of preschool teachers should be familiar with the park, improve the teachers' ability of making courseware, and actively explore the methods in teaching the application of multimedia technology, multimedia technology will be effectively integrated into children's science education, and effectively improve the efficiency and effectiveness of classroom.

5. Conclusion

The application of modern multimedia technology in kindergarten science education is an important part of preschool education reform. The use of multimedia technology for the creation of children's learning situation, effectively stimulate the children's interest in learning, and fully mobilize their senses, to develop children's thinking, cultivate their innovative spirit. But the modern multimedia teaching is a new discipline, the development of teaching methods is not mature enough, used in science education in kindergartens also exist some problems, this paper studies the advantages and role of modern multimedia technology, discusses its application in the kindergarten science education significance, to improve the quality of teaching science education in kindergarten.

6. References


