

Implementation of STEM Education in Kindergarten and Cultivation of Children's Interest in Science

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Abstract: This paper discusses the effect of STEM education in kindergarten on the development of children's science interest. Through a comprehensive analysis,the study found that STEM education significantly increased young children's interest in science by stimulating curiosity,developing problem-solving skills,and emphasizing practical applications of science.The design of STEM curriculum and the selection of teaching materials play a key role,and the active participation of teachers is also a key element of the successful implementation of STEM education.Therefore,the implementation of STEM education in kindergartens not only contributes to children's learning,but also lays a solid foundation for their future scientific learning and career development.

Keywords: STEM education;Kindergarten;Scientific interest;Course design;Teaching material resources

Introduction:

As a comprehensive education method,STEM education has attracted more and more attention in the field of kindergarten education.However,how to effectively implement STEM education to foster young children's interest in science remains an important and complex issue.This study aims to explore the implementation strategies of STEM education in kindergarten and its impact on young children's science interests in order to provide deeper understanding and guidance.

1. Implementation of STEM education in kindergartens

STEM education,namely Science,Technology,Engineering and Mathematics education,has become a hot topic in the field of education around the world.The core goal of STEM education is to develop students'scientific literacy,creativity,problem-solving,and teamwork skills.

Kindergarten is an important starting point for STEM education,providing young children with the opportunity to explore and discover the world of science.The following will explore in depth the implementation strategy of STEM education in kindergartens,emphasizing the key elements of curriculum design,textbook resources,teacher roles,and assessment methods,with a view to providing a deeper academic understanding of the practice of STEM education in kindergartens.

One of the primary implementation elements is curriculum design.The curriculum design of STEM education must take into account the age and cognitive level of children to ensure that the content is both interesting and challenging.In 3-to 4-year-olds,the curriculum can be based on exploratory learning,emphasizing curiosity through observation and interaction.To achieve this goal,simple scientific experiments involving nature,everyday objects or living environments can be designed,such as observing plant growth,the properties of water,etc.At the same time,mathematical games can be incorporated into the curriculum,such as counting games or simple geometric shape recognition.For young children aged 5 to 6 years,the curriculum can be gradually strengthened to introduce more challenging engineering and problem solving activities.For example,small engineering projects can be designed that ask young children to design and build simple Bridges or paper airplanes to exercise their creativity and spatial cognition.

The choice of teaching materials is another crucial aspect.Teaching material resources should have operability and affinity to stimulate children's interest in learning.For scientific experiments,choose easily accessible,safe materials such as fireworks,small animal models,or simple chemical reagents.These materials can trigger curiosity in young children,prompting

them to ask questions and pursue answers. At the same time, science storybooks are an indispensable resource in STEM education. These books are able to embed scientific knowledge into the storyline, making it easier for young children to understand and accept.

The role of teachers in STEM education is critical. They should act as guides and inspirators to guide children to inquiry learning. Teachers should encourage young children to ask questions and encourage them to seek answers. By providing guiding questions and prompts, teachers can help young children think and solve problems. Teachers should also encourage teamwork, allowing young children to share ideas and solve problems collaboratively in group projects. Through interaction and collaboration, young children can develop communication and collaboration skills that are essential for future STEM learning and career development.

Evaluation is a necessary part of STEM education implementation. Assessment not only helps to understand the learning progress of young children, but also helps to improve educational strategies. In kindergarten, assessment can take the form of observation, recording and reflection. Teachers can observe children's engagement, problem-solving and problem-solving skills and record these observations. Teachers can then work with other education professionals to analyze the data to determine the effectiveness of educational strategies and develop improvement plans.

In summary, the implementation of STEM education in kindergartens requires well-planned curriculum design, appropriate teaching materials, active teachers and effective assessment methods. Together, these elements build a beneficial learning environment that lays a solid foundation for young children's science interest and future learning. By focusing on these key elements, STEM education can achieve higher levels of academic and educational value in kindergarten.

2. STEM education cultivates children's interest in science

The implementation of STEM education in kindergartens is not only a teaching method, but also a strategic initiative aimed at cultivating children's interest in science. In STEM classrooms, young children not only learn science knowledge and skills, but also develop exploration, curiosity, critical thinking, and problem-solving skills, which are key ingredients for scientific interest.

STEM education fosters interest in science by stimulating curiosity in young children. Early childhood is a period of rapid cognitive development, and they are full of curiosity about the world around them. STEM programs encourage young children to ask questions, explore answers, and gain experience from experimentation and observation. This proactive learning approach not only satisfies children's curiosity, but also stimulates their deep interest in scientific phenomena. By constantly asking "why" and "how" questions, children gradually form a thinking mode of scientific inquiry, which is crucial for future scientific learning.

STEM education emphasizes problem solving, which is one of the key elements in developing an interest in science. STEM programs encourage young children to analyze complex problems, develop solutions, and practice them. Through participation in engineering design, math challenges and science experiments, young children develop problem-solving skills and enhance their self-confidence. The sense of accomplishment and satisfaction when successfully solving problems makes children more willing to devote themselves to scientific learning and constantly challenge more difficult problems.

STEM education integrates science with everyday life and helps young children realize the practical applications and importance of science. Through projects and activities related to real life, young children can more easily understand abstract scientific concepts. For example, by observing the growth of plants, they can learn the basic principles of ecology, and by making simple mechanical toys, they can understand the basic concepts of physics. This connection makes young children value scientific knowledge more and see it as a powerful tool for solving practical problems, thus further developing scientific interest.

The implementation of STEM education in kindergartens is not only an educational method, but also a strategy to cultivate scientific interest. By stimulating curiosity, developing problem-solving skills, and emphasizing practical applications of science, STEM education provides young children with profound scientific experiences that lead them to a scientific world full of exploration and discovery. Therefore, the implementation of STEM education in kindergartens has important academic and educational value and has a profound impact on the training of future scientists and engineers.

Conclusion:

Based on the above research, it can be concluded that the implementation of STEM education in kindergartens has a positive and far-reaching impact on cultivating children's scientific interest. By stimulating young children's curiosity, developing problem-solving skills, and emphasizing the practical application of science, STEM education provides young children with profound scientific

experiences and enables them to become more actively involved in science learning. However, in order to achieve the best results, the design of STEM courses and the selection of teaching materials are crucial. Educators should continue to improve their educational level, pay attention to the latest educational research results, and constantly improve the implementation of STEM education methods. Future studies can further explore STEM education strategies for different young children's ages, and further study the impact of STEM education on young children's long-term science interest, so as to better meet the learning needs of young children and the goal of cultivating science interest. Continuous improvement in STEM education will help create a richer learning experience for young children and provide them with broader opportunities for future development.

References:

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