

Exploration of the Path of Constructing The Natural Garden Curriculum in Kindergarten Based on The Theory of Embodied Cognition

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Abstract

The core of embodied cognition theory is how cognition occurs in the body, brain and environment. The nature park curriculum requires children to be their own masters, does not violate the law of children's own development, pays attention to children's personal participation and subject inquiry, and pays attention to the independent inquiry, situational, open and generative nature of the curriculum. The nature-based curriculum based on embodied cognition returns to the participation of children's bodies, and integrates the body and mind to correct the intellectual centrifugal state of the education center and adapt to the high-quality development requirements of preschool education. The construction of this course is based on embodied cognitive science, seeking a suitable path to achieve high quality and long-term development of children.

Keywords

Embodied cognition, Kindergarten-based curriculum, Nature education.

1. Introduction

The Guidelines for the Learning and Development of Children Aged 3-6 state that a rich educational environment should be created to maximize the support and satisfaction of young children's need to acquire experience through direct perception, practical manipulation and hands-on experience.[1] Traditionally, cognition is enhanced as a result of information processing by the brain, excluding the possibility of physical interaction with the outside world. [1] Traditionally, cognition is enhanced as a result of information processing by the brain, excluding the possibility of interaction between the body and the outside world, and ignoring the fact that the body is also an important part of cognition. The environment, as an extremely important interactive tool for cognitive development, provides a strong foundation to support the interaction between the body and the outside world. The concept of nature education is traced back to Rousseau, whose core requirement of the idea of nature education is to get rid of the destruction and constraints of traditional education on children's physical and mental development, to return to the child's position, and to allow young children to explore, discover, and grow on their own in the natural environment. In the interaction between the body and nature, they gain knowledge of the surrounding environment, know the body, know the mind, know the body, know the mind and get the same experience and unification of the body and mind, and enrich the existing knowledge and experience, and develop their cognition. In short, the combination of embodied cognition and natural curriculum greatly provides an environment for embodied exploration, releasing young children's intrinsic desire for exploration and vitality. In the natural field, children can explore embodiedly, grow freely, relax physically and mentally, and develop their nature freely, thus making their cognition free and autonomous, and growing with high quality to a great extent.

2. Recognition of the Theory of Embodied Cognition

The concept of embodied cognition was first elaborated by American scholars G. Lakoff and M. Johnson, who systematically argued the cognitive idea that the body is inseparable from the mind, which was made on the basis of traditional cognitive ideas such as representationalism and functionalism characterized by disembodied cognition. Based on this, foreign scholars Varela, Thompson and Rosch together wrote the book *Embodied Cognition: Cognitive Science and Human Experience*, which is regarded as the beginning of the theory of embodied cognition by the academic community. Embodied cognition clarifies the indelible presence of the body in cognition, and in brief, has the following three interpretations.

2.1. Primordial experience comes from the body

The primordial experience formed by an individual interacting with the surrounding world with the subject's body as a whole is, to some extent, the initial model of logical thinking and rational cognition. Individual cognition occurs from the primordial interaction between the subject's body and the outside world, which further generates primordial experiences that are ultimately transformed into the child's own knowledge. Unlike the kindergarten curriculum, which is unique in the whole education stage, in which the school education curriculum provides learning activities with complete knowledge presentation and abstract logic system, the kindergarten curriculum emphasizes the inherent demand of embodied cognition on how to elevate the initial model of knowledge to the final result, how to make children participate in the process of knowledge transformation and witness the presentation of complete knowledge. The body occupies a very important existence in kindergarten curriculum, and with the body of the child, fully participating in practical activities, letting go of the child and his/her body, and learning experiences in the interaction between the body and the environment.

2.2. Cognition arises from the unity of mind and body

The traditional concept of education, cognition is generated in the brain, is the result of the brain processing information, embodied cognition opposed to the occurrence of cognition as a single representation of the mind or reaction. [2] As the main body of active construction, the cognitive generation of young children, the generation of knowledge does not rely on the brain and thinking, does not rely on the teacher's "teaching". Mr. Tao Xingzhi proposed to free young children's eyes, hands, time, space, in addition to the brain, allowing young children to see, to do, to say, the body is first involved in the interaction between the subject and the surrounding environment, with the hands touching the eyes to observe the collection of information provided in the brain, and then the brain to process, knowledge and experience of each other to reach a new cognitive occurrence. Young children need to use their bodies to carry out comprehensive and in-depth explorations, to use their senses of touch, hearing, sight, smell, etc. to recognize the colorful and abundant world, to gain a large number of experiences, and to blossom the fruits of cognition in the brain, which depends on the degree of physical and mental unity, and the teacher's mechanical transmission of knowledge can only assist in young children's cognitive emergence, which is the height of cognitive construction that cannot be reached by the teacher's mere "teaching". The teacher's mechanical transmission of knowledge only assists in the cognitive development of the child, which is a high level of cognitive construction that the teacher's mere "teaching" cannot reach. The source of cognition is the mind and the heart, both of which are indispensable.

2.3. Coupling of body, cognition, and environment

In essence, the body, the environment, and the brain work together through a coupled relationship to accomplish children's awareness of the world around them and their conceptualization. Embodied cognition theory treats cognition, body, and environment as a

tightly connected whole, emphasizes the embedding of the body in the environment and field, and stresses the embodied nature of the practical cognitive process. Cognition connects the body-brain in the body, and the body participates in the environment through the senses, broadening the body and cognition in the environmental field, which is the embodiment of the unity and wholeness of embodied cognition. The body has a way of recognizing the world and cognitive activities, and should be treated as an indispensable part of cognitive development, where the body interacts with the world around it to produce the initial experience, which is then transformed into the child's cognition through the body's brain. Body-environment-body-cognition, one of the three can not be separated from the other to achieve the final cognitive generation, children's way of learning does not need to be a simple transmission of mature knowledge, but rather these three are interlinked, mutual constraints, mutual achievement.

3. Connotation of Kindergarten Nature-based Curriculum Under The Theory of Embodied Awareness

The kindergarten nature-based curriculum under the theory of embodied cognition is based on the body sensory system of young children in the natural field, and takes the release of the inner life exploration power of young children as the starting point to guarantee the free release of young children's nature, promote the high quality development of children's cognition, and realize the immersive enhancement of core literacy. To do what should have been done at the age when it should have been done, to return to the body, to return to the children's nature, to return to nature, is not only to introduce natural resources into the garden, but also to establish the original natural field in the garden. The flourishing of nature education thought, the nature education program of the original garden is essentially a continuous challenge to the traditional kindergarten education system, and every kindergarten educator is facing a serious test to plant the nature education thought together with the nature implantation in the garden.

4. The Value of Nature Education Garden-based Program Under The Theory of Embodied Cognition

Embodied cognition focuses on the role of the body in cognition, and nature education itself is also a kind of experience of the body and senses. Under the guidance of the theory, the nature garden-based curriculum should pay attention to the embodiment of education, reject the "pulling up seedlings" of learning, advocate the natural development of young children, and pay attention to the process-oriented rather than the result-oriented formation of knowledge logic. The construction of the nature-based curriculum under the theory of embodied cognition has the following value demands.

4.1. Implementing the modernization of education and promoting the high-quality development of education

At present, China's social efforts to promote high-quality development, not only limited to the requirements of high-quality development of the economy, should be the requirements of all aspects of social development, preschool education should follow the modernization of education, to achieve high-quality development of preschool education.

The kindergarten curriculum is mostly embodied exploratory activities, which is the process of transforming young children's primary experience into cognitive knowledge, while other school segments are mostly mature knowledge and mechanical teaching of logical systems. In terms of the activities of bridging the gap between the early childhood and primary school, it is currently too "left-leaning", and the parents' aggressive teaching of the knowledge of elementary school segments for young children in advance is contrary to the law of the natural development of young children, and contrary to the logic of cognitive development. It is against

the logic of cognitive development of the body. Kindergarten education should always focus on the initiation, comprehensiveness, and foundation, and emphasize the cultivation of children's abilities and qualities in all aspects, rather than the simple inculcation of knowledge. Rousseau pointed out in his classic work "Emile" that the purpose of education is to develop children's natural endowment and let them develop in accordance with nature, rather than forcibly instilling the so-called rationality and value of adult society. [3] Obviously, Rousseau also supports the development of children in accordance with nature, allowing children to explore freely to perceive the world around them, and opposes the excessive intervention of adults in the growth of young children, and opposes the "pulling up seedlings to help them grow" to promote the growth of young children. This is an inherent demand for the high-quality development of kindergarten education. First of all, we should put an end to "primary schooling", shift the focus of education to the development of the potential of young children, the comprehensive development of the level of long-term vision, focusing on the development of physical cognition, and gradually realize the high quality of education development in the natural garden-based curriculum.

4.2. Nurturing core literacy of young children and focusing on new opportunities for curriculum development

Core literacy is students in the process of accepting the corresponding section of education, gradually formed to adapt to personal lifelong development and social development needs of the necessary character and key abilities. [4] China's students for the cultivation of core literacy is to "comprehensive development of people" as the key and core, kindergarten education as the foundation stage of the school education system, the principle of education is still to implement the comprehensive, holistic and independent, which is the soul of the core literacy training, but also the starting point and landing point of the construction of the natural garden curriculum under the cognition of the embodiment. It is also the starting and ending point for the construction of the natural garden-based curriculum in the context of embodied cognition. At present, kindergarten education is still unable to achieve the multi-faceted, diversified and integrated development of children, and the garden-based curriculum is to serve children from the beginning to the end, and to provide children with a rich variety of practical courses with regional characteristics according to the local conditions, and to build an interactive field between the body and the environment, which is based on the characteristics of the regional nature and is not limited to a certain area of the curriculum for young children. In the park to build "nature" field, in the environment of all things "alive", by personal experience to trigger the interest of young children, its natural inner vitality will give children a strong desire to explore, enrich their own knowledge, broaden their way of thinking, and cultivate the key ability to meet children's learning needs. The children's learning needs are met. Focusing on all "living things" as an opportunity for curriculum and education, we will promote the early childhood nature program in a multi-faceted way to ensure the implementation of the core qualities of early childhood.

4.3. Correcting the mind and body of education by revealing nature and nature

The advancement of material and spiritual civilization in human society has brought about the destruction of the environment and natural ecology. American scholar Chad Love wrote about the phenomenon of "Nature Deficit Disorder" in his book, and kindergarten education should avoid this phenomenon from happening to children, and return them to a natural world, some natural feelings and natural exploration. [5] Natural curiosity and scientists reflect the autonomy and ownership of young children, relying on the body's active exploration, active construction of experience, and ultimately to achieve the generation of cognition, the valuable source of the initial experience of the exploration of the body can not be separated from the participation of the body. Body exploration is the starting point of cognitive generation and the

foundation of practice. Because of the intuitive nature of young children's thinking, teachers are required to use intuitive visual teaching aids, adopt the modeling method, and guide young children to rely on their body senses to know things. When the activity returns to the main body of the child, the child should dare to be himself/herself in the spatial environment, releasing his/her nature and developing vigorously. Education can not be detached from the body to generate direct cognition, Dewey believes that we must respect the natural growth of young children, can not go against the characteristics of early childhood development, detached from the body of education obviously breaks the law of natural growth of young children, education must be avoided "mind from the body" phenomenon, which is the concept of kindergarten education and teacher education played a dose of "unity of mind and body". This is a shot in the arm for kindergarten education and teachers' education concept of "unity of mind and body". The construction of natural garden-based curriculum under embodied cognition is precisely to return the body to young children, to ensure that young children fully enjoy the interaction between the body and nature, and to give young children the space and environment to release their nature, so as to achieve the "unity of mind and body" in education and to promote the all-round development of young children.

5. The Path of Constructing Natural Garden-Based Curriculum under Embodied Cognition Theory

When the kindergarten curriculum is constructed with children's bodies as the main body, the role of the body in children's cognitive and overall development is re-examined. The construction of nature-based curriculum under embodied cognition starts from the world around children's bodies, and establishes an embodied exploration environment that meets children's needs; starts from the sensations that children's bodies bring to the brain, and escapes from the unchanging experience of activities, and revitalizes the vitality of perception; starts from the perspective of children's scientific development, and gives children full opportunities for exploration, and strengthens the body as a key tool for experience exploration and cognitive development; and starts from the comprehensive perspective of kindergarten education, and gives teachers a chance to explore the body in a comprehensive way. From the perspective of kindergarten education, teachers work together with parents and the community to grasp the characteristics of the local natural environment to create a more comprehensive and scientific garden-based curriculum for children. The construction of nature-based curriculum based on embodied cognition has higher requirements for kindergartens, teachers and parents, and it is clear that the theory of embodied cognition is the core to guide the construction of kindergarten nature-based curriculum.

5.1. Being present: creating an immersive "natural learning field"

Embodied cognition emphasizes the participation of the body. Based on this, kindergartens should liberate the space for young children and transfer them from the classroom to a living and dynamic environment. Escape from the "false" garden-based curriculum, focus on the immersive creation of the natural learning field, and effectively create the natural field of kindergarten, deeply rooted in nature in the kindergarten, and firmly embedded in the body of young children in nature. At present, there are gardens in order to create a garden-based curriculum and deliberately create, deliberately obviously discarded the meaning of the construction of the garden-based curriculum, formality, floating on the surface of the garden-based curriculum can not be truly in-depth kindergarten curriculum to go, can not be implemented in the early childhood with the nature of the exploration, can not get the release of the inner nature of the natural nature. Therefore, the garden environment needs to spend a lot of time and energy to build, natural plants, natural animals, natural environment to truly exist, everything should start from the foundation.

The first is the selection of plant species, which is based on two aspects: first, the selection of plants should be adapted to the local climate and environment to ensure the most basic conditions for plant growth. Secondly, plant species should be determined according to the changes in natural patterns throughout the year, and their resources should be rich and diversified, so that they can be planted in zones or interspersed. Secondly, the planting area can be determined before the construction of the garden, and the planting area and the main area of the kindergarten can be embedded or surrounded by planting methods to create a full range of young children's immersive "natural learning field", or after the construction of the garden from the kindergarten interior and periphery, the classroom corners, corridor corners, and the outer edges of the floor for planting. Lastly, for the placement of insects in the garden, separate corners can be set up, a transparent ecological environment simulation box can be set up, and different plant areas can be set up in different insect corners. Children as masters, through the body boldly feel the world around them, to enhance their life perception, physical and mental together immersed in the "natural learning field", and natural integration, personal experience, to realize the kindergarten nature-based curriculum of the downward roots of the children's development of the upward growth.

5.2. Direct perception: "One hundred languages" to enhance experience

The Italian scholar Caroline Edwards wrote in her book "In the Hundred Languages of the Child" that children have a hundred languages, a hundred ideas, a hundred ways of thinking, playing and speaking, such as language, drawing, sculpting, clay work, building, body movements and so on. There are many different ways in which young children make sense of the world. [6] The source of a hundred languages of expression and ways of thinking still ultimately comes down to the medium of the body as emphasized by embodied cognition, where the initial direct experience, which can also be called source primordial experience, is gained through the body's interaction with the outside world, which is then transformed into cognition through the processing of the brain in the body.

It is the duty of early childhood teachers not to trap young children in a small classroom, to allow them to escape from the over-arrangement of teachers, and to lead them out of the classroom and into nature. Based on the law of development of young children, the brain of young children in this period has not yet developed soundly, and their thinking is mainly based on image thinking, so the importance of the body as a medium for recognizing the world and exploring the world comes to the fore. However, the body's various sensory organs are organs that can be easily overlooked. In fact, the sense of smell alone can distinguish one trillion different odors. Using the eyes to observe novel things visually stimulates young children's interest in exploring, appreciating and experiencing a sense of beauty; using the nose to distinguish odors through the sense of smell, feeling the aroma of the soil after the rain, and perceiving the taste of flowers and grass; using the skin of the hands to perceive things through the sense of touch, stimulating the brain through the sense of touch in order to trigger the operation of the nervous system, which brings about a brand-new experience; using the ears to perceive the dynamic sound of nature through the sense of hearing, and the interactive transmission of information between the two, the originating experience is then transferred into a more interactive and interactive way. By using the ear to perceive the spiritual sounds of nature, the information between the two senses of sight and sound is transmitted interactively, and the original sexual experience is already generated. In addition to this, the richness of body perception supports children's practical exploration and sensory experience in the natural ecological environment of the garden, transforming the existing emphasis on children's thinking activities to the participation of children's bodies, and reaffirming the value of the body and perception in the children's curriculum.

5.3. Putting it into practice: a return to child-centeredness and intensified exploration

Philosophical reflection on child-oriented philosophy begins with the child-oriented philosophical traditions of Laozi and Mencius, and goes on to Comenius' view that children are "children of God" and that even the youngest toddlers should be respected; and then to the French educator Rousseau's writing of the book "Émile", in which he argues that every toddler has his or her own thoughts, ideas, and emotions, and that the growth period of a child is a stage that cannot be jumped from one stage to another, and should be based on the child's own nature and grow in accordance with the child's own logic. The growth period of children is a stage that cannot be jumped, and should be based on the nature of young children themselves and grow according to their own logic; and finally the Copernican revolution of Dewey put forward child-centeredness, abandoning teacher-centeredness and textbook-centeredness, and seeing children as the center of education. Nowadays, although the idea of child-centered education is recognized, there is no lack of children's main position in the actual teaching and learning, and teachers intervene and dominate too much.

In an embodied environment, it is ensured that the curriculum is always child-oriented, emphasizing generativity, practice, exploration and reflection. Children are immersed in real natural situations, where themes are generated by their interests or experiences, and activities are carried out with the help of teachers' supportive functions. Children have ample space to move their hands and minds, operate with their hands, and gain experience and generate knowledge through one exploration after another. At the same time, young children enjoy sufficient opportunities for trial and error, constantly exploring, making mistakes, reconstructing experience, constructing cognition, the teacher as a "servant" for the children's services, in the true sense of the complete process of knowledge generation into the hands of children. Many kindergarten teachers find it difficult to ensure that every child has enough time to complete the exploration of experiences due to classroom time considerations. Generally speaking, when it comes to practical exploration, the conditions that teachers give to children for exploration are not only to give them a natural and extensive spatial environment, but also to provide them with sufficient time to ensure that they interact with the environment and with their peers.

5.4. Joint Co-Education: Integration for Borderless Learning

The embodied garden-based program should not be bound by the kindergarten body, leaving behind the natural environment set up in the garden, and the natural field for children should be turned to the outdoors. In this case, the activities are organized by a single teacher, and the community, parents, and teachers work together to create a nature-based curriculum. Joint education is not a new idea, based on U Bronfenbrenner's ecosystem theory, it can be learned that the development of young children is in the interactive layers of the environment, in addition to kindergarten, the family and the community is as important as the growth and development of young children's environmental dependence. We will set up a variety of natural environments to suit the needs of young children, and combine a number of supporters to ensure that the learning activities of young children can be achieved in a higher quality.

On the one hand, kindergartens with the conditions can unite with the communities in the region to jointly set up regional farms or outdoor parks, and set up planting areas in the farms or parks, such as: garden corners, succulent areas, fruit areas, vegetable areas, poultry corners, and so on, and animal and plant corners are set up according to the arrangement of the characteristics of the local natural environment, and a small ecological environment system is established in the farms, so that the ecological landscape is clear throughout the year, and there are abundant varieties of vegetables and fruits as well as plants in the environment with streams, ponds, hillsides and grasslands. There is a variety of vegetables, fruits and plants, and

there are streams, ponds, hillsides and grasslands in the environment. Farm days are organized once a week, where teachers lead children to experience the beauty of nature, turning the classroom into a real outdoor nature. On the other hand, during weekends, holidays and summer, organized by kindergartens, assisted by the community, parents lead young children to nature to trek, fly kites, fish, climb mountains, camping, etc., to breathe fresh air, once a week, to lead young children to the outdoors, the body and mind of the unrestricted, unfettered immersion in the curriculum, the teacher is good at following the young children to discover the problem, generate the theme, carry out learning without boundaries to develop the young children's thinking and Cognitive development, promote the physical and mental development of young children.

6. Conclusion

Kindergartens should create a rich and fulfilling natural environment, and set up plant corners, planting corners and insect corners for children to perceive and experience nature in the garden. Teachers should lead children to use their senses to perceive nature, and guide them to use various ways of representation in play activities and endless exploration in nature. The community should also respond positively to kindergartens and work together to create borderless learning for children, so that they can wander in nature to experience life, accumulate experience, construct experience, and gain development.

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