

Learning in Nature: Perspective from Behavioral Biology

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Summary:

Children can enjoy and get adapted to harsh environment much more easily than adults. Then, through the experience, they learn how to deal with nature, and then would in turn really understand the power of the nature. Thus, to develop the attachment to the nature in children's mind, what we need to give children is not knowledge, but real experience in the nature.

This is the biggest goal of environmental education for school age children.

In this lecture, I would like to emphasize only a fact that "we are a part of the evolution system". Everybody is a part of a species named *Homo sapiens*, which is a mammalian species that evolved from more primitive living creatures taking billions of years. It is important to be conscious about it when we think of the development of children. Just imagine a man who has been grown up in a green house, under some moderate temperature and humidity for 24 hours a day. Suppose that he has been fed the same food everyday, which is very soft, tasty, and made of perfect nutrients he needs. Suppose that he has been spoiled as much possible, having no objection from others in any case. This man won't be able to survive in the real life: he may not be able to handle with social problems, he may get flue very easily, may complain all the time about the climate. If not, at least he will suffer pyorrhea. This example sounds extreme, but we have known many examples in which children under extreme environment show abnormal behaviors or health problems when they get grown up. Many diseases like bad teeth, diabetes, high blood pressure, fatness, lack of vitamin-C, constipation, or other psychological problems are partly derived from the diet of developed countries, which is very much different from the food to which the body of human being is adapted. Even if we can enjoy highly technological life without moving a finger, the fact that you are still an animal, that need particular environment for your survival and reproduction, will never change.

As Human being, we need clean air, variety of plant and animal food, sunshine, water, proper temperature, other people who can cooperate with us, and so on. In other words, we need particular environment for our lives. But the environment in nature is never stable. To adapt to the dynamics of our environment, we have abilities to be adaptable to different environmental factors, and that ability is acquired by the complicate interaction of genetic elements and developmental process. We should not neglect the necessity of proper development in proper environment for our healthy and sound lives.

Then, what is the proper environment we are supposed to be in? The only answer is "the life like people before agriculture", which is about ten thousands years ago. Remember that we human being evolved taking more than four million years, but most of the time-until the beginning of the agriculture-our lives were rather

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stable. We were living in the nature, coordinating with the nature perfectly. Our body and brain had been designed for the life in the nature, and we still have the same design.

We feel comfortable in the forest when it is very hot, or we feel safe when we are with family or friends.

This is the real environmental problem for children. In the developed countries, or even in developing countries in many cases, children are deprived of many opportunities to learn from nature. It is not essential at all to teach children how human beings are stupid to pollute and overexploit natural resources. This is something anybody can learn anytime of one's life. What we need is not to stop the children to experience as much as possible in the nature, so that children, who have the mechanism to learn and develop their skills much more effectively than adult people, can have their chances to be wiser than us.

I have not discussed about sustainable development so far. If children can have sound body and brain, does it have nothing to do with the sustainable development of the earth? Yes, it has. If we need a sustainable world, we must solve many problems, and also we know instinctively that we need deep respect and love for nature that we have lost.

People tend to feel uncomfortable when it is too hot or too cold, when there are insects surrounding them, when it is dark, or when the sunshine is too strong. People tend to feel comfortable when they do not need energy to move to different places. People prefer soft and highly nutritional foods than fibrous food. The preference is mostly made up through the developmental course. We have to admit that it is easier to spoil children than to put them into the environment that is severe for grownups. But children can get adapted to a harsh environment much more easily than adults. Then, through the experience, they learn how to deal with nature, and then would in turn really understand the power of the nature. Thus, to develop the attachment to the nature in children's mind, what we need to give children is not knowledge, but real experience in the nature.

This is the biggest goal of environmental education for school age children.

We staffs of the Environmental Education Center, Miyagi University of Education, have launched the "friendship project" since 1996. In the project, we train university students in the natural field, and after enough experience, we let them to lead children in wild. We do not plan detailed schedules, as we believe that children should not have the idea that they have to do something there. We just release them in the nature to help them learn by themselves. At the beginning, it is very hard to teach university students not to say "No!" or "Don't do it!" to children, as they are the easiest way to control children's behavior. The almost only thing a leader should do is to do something that can inspire children's voluntary experience. When children start make questions, leaders must be able to answer properly, but leaders should not force children to ask questions. It may not sound like school education, but we believe that children need to feel more in nature and interact with each other in wild. They need to love the experience in nature much more, so that they will think about nature and grow interest in natural systems.