

The Concept and Effect of Exhibition to Promote Science Communication between Preschool Children and Their Parents

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How can we cultivate scientific literacy among pre-school children aged 4 to 6?

The answer that we propose is "ComPaSS ". "ComPaSS -Exploration Area for Families with Children- (referred to below as "Compass")" is a model of an exhibition room for practicing science communication for pre-school children.



Pic.1 panoramic view of ComPaSS

For children, the entrance to science world begins with touching and surprising, and thinking "Why?" We thought that children would need such experiences in the museum, to look back on and to establish in children's mind, with their parents. "Parents are intermediary of outside world, and education in their home is the starting point for all education!" - With this statement as a basic idea, ComPaSS is preparing a lot of exhibitions to encourage "parent-child communication" among playing, which will generate a common museum experience in parents and their children. Having a common museum experience between parents and children will help children to enhance scientific literacy in everyday life.

Background

The National Museum of Nature and Science (2010ⁱⁱ) developed the “Continuous Educational Program Framework to Foster Science Literacy” which is composed of 4 goals and 5 generations including from preschooler to old ages that seek to foster science literacy over a human lifetime. 4 goals are Awe and appreciation, Knowledge and understanding, Attitudes, and Communication.

According the framework, the ComPaSS objects 2 goals, Awe and appreciation, and Attitudes of preschoolers. That are to have an interest and curiosity in science and to think and investigate interested phenomena and engage in an activity.

Origin of the name "ComPaSS"

The name "ComPaSS" comes from a compass, a necessity for researchers to explore and record destinations. For children, communicating with parents and discovering / achieving themselves will lead to self-affirmation which is indispensable to their growth especially when working on issues hard to solve. As a compass is the necessity for investigation and exploration, we thought that experience with parents in this exhibition would be a treasure for children, and named this exploration area after compass. This notation "ComPaSS" is a combination of "Communication", "Parents", "Society" and "Science".

Communication in ComPaSS

We define the ComPaSS's communications between parents and their children as "cooperate", "share" and "touch". Exhibition methods and workshops are aimed at encouraging such communications.

Cooperate :Make things together / Imitate movements

Share :Talk about their wonder & discovery/Look back on their experience

Touch :Physical assistance

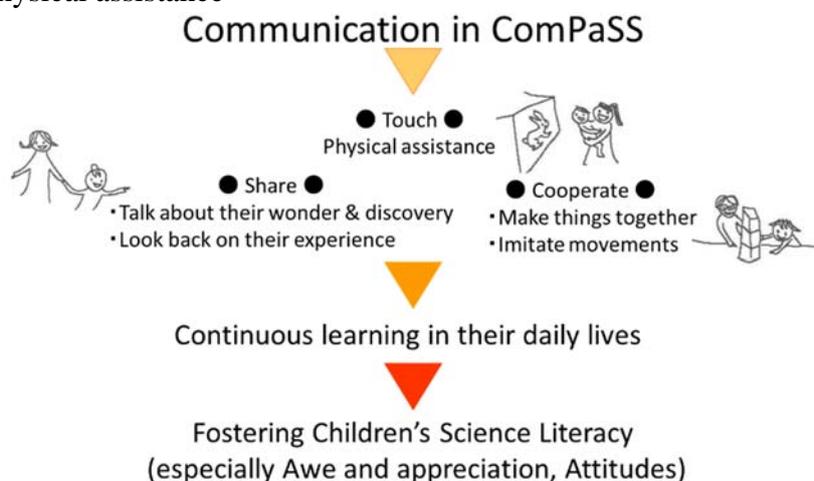


Fig.1 Three types of Communication of ComPaSS

Parents and children will inevitably take these communications while spending time in ComPaSS. In other words, ComPaSS itself is a big “mechanism” that promotes those communications between parents and children. Exhibitions and workshops on ComPaSS are seemingly "labor-intensive", such as not being established unless parents and children work together, not being able to find without the children's eyes, and not seeing if there is no assistance from the parents. However, by experiencing it with time and efforts, parents and children will look back on their memories in the museum at home. We expect that the museum will be more familiar for them after experiencing CompaSS.

Elements of ComPaSS exhibition

ComPaSS's exhibitions have plenty of elements of "playing" so that pre-school children can have fun. We made the space as a whole by adding functions of “euphoria” and “suddenness” to the layout that children and their parents can go around. The space can be divided into "kinetic play" and "static play". "Kahaku Window" in the kinetic play space of movement, “Miru-Miru” table, "library" and "Workshop space" applies to the space of static play.



“Kahaku Window”

Among the three-dimensional structures, mounted animals mainly selected from Yoshimoto collection are arranged in different angles around the structure with a euphoric netting tube etc.

“Miru-Miru” table (table for observing)

Hundreds of acrylic embedding specimens are placed on the table. As well as observing specimen inside, visitors can simulate museum activities by collecting and categorizing their favorites.



Library

More than 600 books, mainly picture books about nature, science and technology are distributed here. Some of them are recommended books with comments by researchers of Kahaku.

Workshop space

Space for workshops to encourage communication, cooperation, and contact between children and parents. In addition, we are distributing worksheets for enjoying permanent exhibitions.



The effect of ComPaSS on children

Through quantitative surveys of ComPaSS users, it is suggested that those three communication patterns are actually seen there. The survey was conducted for parents, and responses were collected using paper-based questionnaires. (n=240)

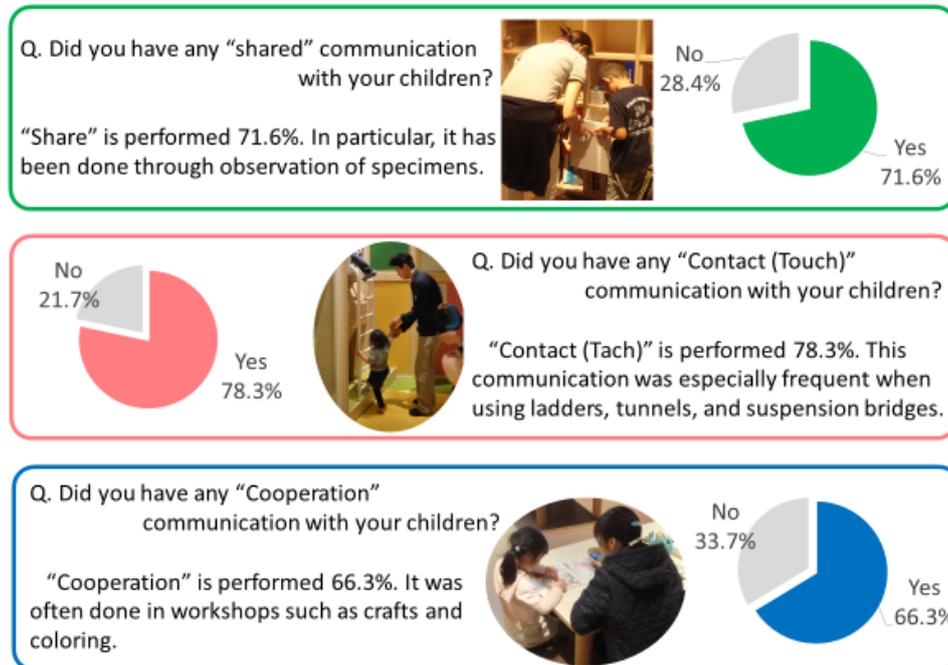


Fig.2 Result of paper-based questionnaires

Also, we conducted a follow-up survey after the ComPaSS experience (n=103). This survey reports on the behavior of children at home as they relate to the ComPaSS experience. According to the report, after visiting ComPaSS, children continued asking questions about nature and science, telling what they observed at ComPaSS to the parents and that it would come out on the television or a book, and so on.

Those results show that the experiences in ComPaSS extend children's curiosity to next learning not only at the museum but also at home, which will help children to enhance scientific literacy in everyday life.

ⁱ Tokyo Metropolitan Lifelong Learning Council: "About the way of the education environment creation to support the development of the child from the early childhood period in the local society" the first report, 2007.

ⁱⁱ The Advisory Council on Fostering Science Literacy National Museum of Nature and Science, Tokyo: "Development of a Continuous Educational Program Framework to Foster Science Literacy -for development of the programs focusing on each generation" Summary of the final report, 2010.