

How do kids use pictograms?

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1. INTRODUCTION

Pictograms are used widely to communicate in visual languages [1]. The Pictograms can be classified into (1) symbols, (2) icons and objects, and (3) explanations of picture characters. An explanation should be given before using pictograms such as, "The words of the sentences have been exchanged for pictograms" or "I have used symbols that everyone can recognize."

Pictogram Ideogram Communication (PIC) can be used to communicate using pictograms [2]. In 1980, Dr. Subhas Maharaj contrived PIC as a means of communicating using picture words and ideograms for people who have difficulty using and understanding a common language. PIC is used to communicate by combining pictograms, which express concrete matters, and ideograms, which express abstract concepts.

In this study, I examined how children use pictograms to communicate among cultures. I expected to find that pictograms have a new usage: for children to go beyond linguistic barriers. In previous studies, pictograms were substituted for words in sentences. In contrast, we prepared a canvas on which pictographs could be arranged freely.

We asked the following two questions.

- Are pictograms substituted for words in sentences, or are they used in different ways?
- Do they often use pictograms with precise meaning for telling exactly what they mean, or rather showing their feeling expressively even if the meaning of the message become ambiguous?

In this paper, I report the results of a demonstration experiment and attempt to answer these two questions.

2. Experiment

The participants in this experiment were 10- to 14-year-old Japanese and Korean children. The children participated in the NPO Pangaea periodically to become

friends with children from other countries through activities.

In this experiment, the participants made messages using e-mailing software for pictograms, which we call Communicator. Communicator consisted of a pallet, which is a list of pictograms, and a canvas, where the pictograms were combined. In the experiment, the left side of the display was the canvas, and the right side was the pallet. The pallet contained 120 pictograms. The children chose the pictograms and dragged and dropped them from the pallet to the canvas. Then, they moved and combined them freely in the canvas area. The size of canvas did not have limits, and the users were able to expand it right and down.

Some pictograms in the Default Pictogram Set cannot be shared among all users because of the differences in cultural background. So, we used a Pictogram Set to these country people in this experiment [3].

We surveyed and analyzed the communication between the Japanese and Korean children.

3. Observation

In this section, we convey the structure of the pictograms in the messages. We found that the construction of the children's messages can be classified as syntactical replacement, pictorial composition, and storytelling.

Syntactical Replacement: Vocabulary words are exchanged for pictographs and arranged in the word order of the original sentences.

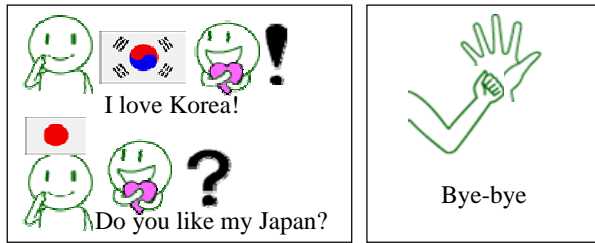
Pictorial Composition: The whole canvas is one picture. The pictograms are not used rigidly and are used as parts of a picture.

Storytelling: The pictograms are placed in a time series as a story.

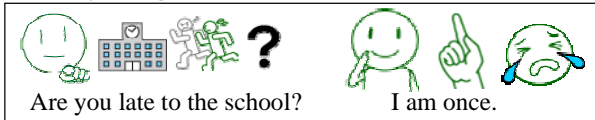
In addition, we observed the mixed type of the above three types. Examples of the cases are shown in Figure 1. The sentences under each example are the meanings of messages that children intended at the time of making it.

We found the following.

(1) Syntactical Replacement (2) Pictorial Composition



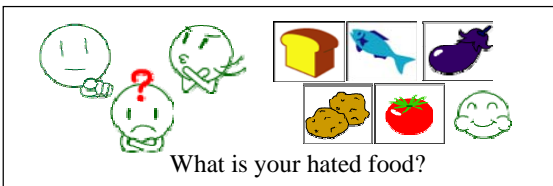
(3) Storytelling



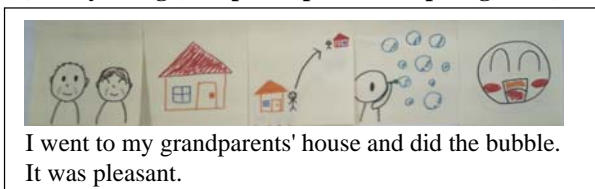
(4)-a Mix (Syntactical + Pictorial)



(4)-b Mix (Syntactical + Storytelling)



(5) Storytelling (The participant drew pictograms.)



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Figure1. Examples of the pictogram message.

- In the case of syntactical replacement, the children tended to correctly use pictograms to communicate meaning.
- Clear meanings can be communicated using multisense pictograms through pictorial composition and storytelling.
- Even pictograms with clear meanings will sometimes have different meanings in pictorial composition and storytelling usages. In these cases, the pictograms are combined with other pictograms and become parts of pictures.

For example, the pictogram in the lower right of Figure1 (4-b) means "happily", "sounds good", and "I eat"

according to the results of a web questionnaire. Therefore, this pictogram is a multisensed word. However, the pictogram takes the meaning of "I eat" in the message because it is combined with "food".

In Figure1 (3), "school" + "I run" = "I'm late".

In Figure1 (4-a), "teeth" + "gold, silver, and copper" = "teeth are shining" = "teeth are beautiful". The new meaning was made using a pictogram as a part of a picture.

In addition, figure1 (5) shows the message, children drew the pictograms in the post-it and combined them. It's storytelling type.

Therefore, we found that the pictograms were used as words and pictures.

4. CONCLUSION

We analyzed how pictograms were used in communication in which they could be combined freely. The followings were clarified by observing children's communication.

- Pictograph messages are classified by their construction into three types: syntactical replacement, pictorial composition, and storytelling. These compositions are sometimes combined.
- In syntactical replacement, pictograms that have single meanings tended to be used. In pictorial composition and storytelling, the children tended to create their own meanings.

In conclusion, in the communication between children using pictograms, we found that pictograms were alternatively exchanged for vocabulary words and used as pictures. In other words, even if the meaning of a pictogram was not clear, the children used the pictograms to create parts of pictures and tell stories. The children used the pictographs in various ways.

The children enjoyed communicating using pictograms to overcome language differences. Pictogram messages clearly encouraged them to communicate beyond language barriers.

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