

# **The Methodology of Creating a Hypermedia System**

## **A Case Study of an Interactive Dictionary and Illustrated Guide to Ichthyology**

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### **1. How is Hypermedia used in Museum Exhibits?**

“Hypermedia” has recently become a term that many people are accustomed to hear and a growing number of museum displays in Japan are utilizing hypermedia.

In our continuous effort to utilize new technologies in our museum, we must not forget that the starting point is the creation of displays which can be touched by the hands, observed by the eyes, and heard by the ears of the people coming to see them. We have discussed whether to utilize hypermedia to manufacture “a display for conveying messages to museum visitors” instead of “hypermedia to show technology”.

Next we wish to explain how the technology used for the Ichthyology Dictionary and Illustrated Guide set up in the Mutsu Hall of Science and the Technology Hall (both of which we developed from 1993 to 1995), led to the integration of hypermedia into museum displays.

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### **2. Why is Hypermedia used for Displays?**

First of all, why is hypermedia used for museum displays? What are the outstanding points of hypermedia in comparison with other display methods (e.g. graphic panels, etc.)? In preparing displays, it is very important to study the method of utilization in order to rediscover its advantages. We studied the following three advantages of the utilization method.

1. Various information can be combined. Thus, from one piece of information, it is possible to learn various other related matters. (refer to figure 1)
2. Phenomena which are normally difficult to observe can be reproduced (refer to figure 2).

3. Dramatic presentation can be utilized, and the character of the actual object can be made easier to understand (refer to figure 3).

However, the drawbacks of hypermedia also have to be realized. Although it excels in conveying information precisely in an easy-to-understand way, in the end it is still only information. Nevertheless, since there is an actual object, the information is indeed effectively utilized, and conversely, the power of hypermedia to convey information will make it possible for the actual object to convey a very broad view to the museum visitors.

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### 3. Aim of the Display

We installed a real water tank in front of the Hypermedia Dictionary. The water tank has tunnels and peep holes, and the fish can be observed from a very close position. The Hypermedia Dictionary was made so that visitors can have direct access to information on the characteristics and ecology of the fish.

Why then, you may ask, are both a real water tank and a Hypermedia Dictionary necessary?

This is a science museum, and not an aquarium where fish of many types can be seen. Thus, instead of merely showing a few fish swimming, hypermedia provides a way for visitors to observe fish from an interesting range of different viewpoints. This pleases them and sometimes helps them make new discoveries.

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### 4. The Design Concept of the Display

With computer-based explanation systems using monitor displays, etc., there is a dialogue between the system and the museum visitor. However, there is no mutual exchange between the visitor and the object being explained, the exhibit itself.

The important point of this display is that the Hypermedia acts as an intermediate between the museum visitor and the real water tank, and when the visitor begins a direct exchange with the tank, the hypermedia information is utilized more effectively.

In order to realize this mutual exchange, we came up with the concept of a box called "Container". In the West, there is the story of Pandora's Box. In Japan, there is an old story of a wonderful box called "Tamatebako" (Treasured Casket) which causes a great deal of speculation about what is contained inside. To draw upon the type of curiosity and expectation that Pandora's box and Tamatebako stirred,

the hypermedia for this display was based on a simple design concept: Visitors will interact with a Tamatebako-type box called "Container". (refer to figures 4 & 5)

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## 5. Integration towards Hypermedia Display

People tend to expect a little too much of new technology, as if it were some sort of almighty power capable of accomplishing just about anything. The object of a museum should not be to put on sophisticated technical shows. Although mutual exchange has always existed between the museum visitor and the exhibit, there are many cases where the excessive dependency on new technology that we are seeing today results in the loss of this exchange.

Nevertheless, since the effectiveness of hypermedia technology is sufficiently recognized at present, we do not deny its utilization in museums. Although we do not insist on the world of new technology, we believe that integrating hypermedia in the display is an effective means of promoting the mutual exchange between the exhibit and the museum visitor.

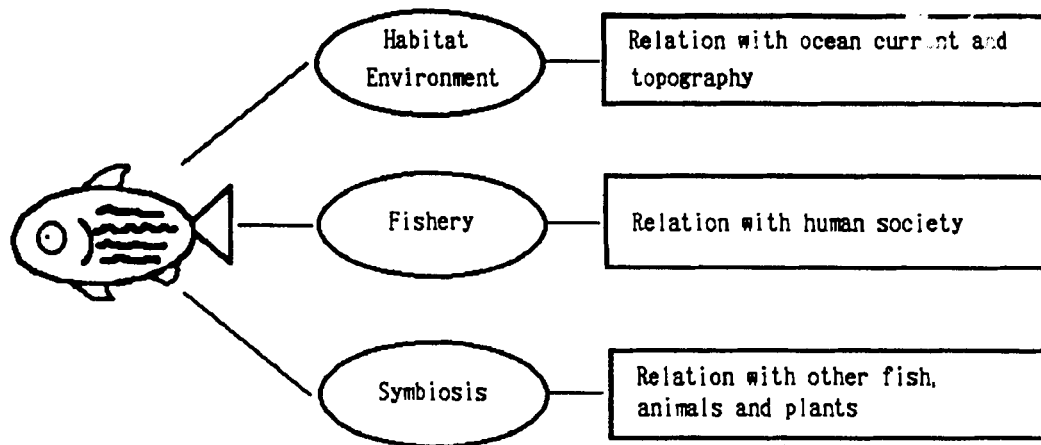
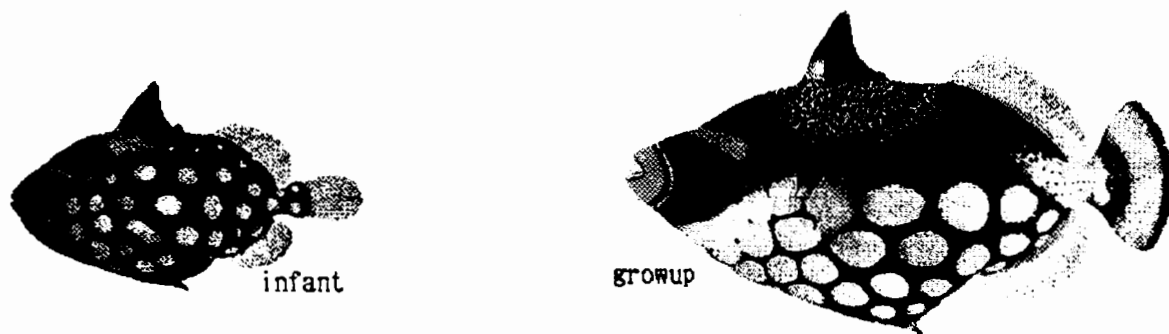


figure 1. Expansion from Fish Information

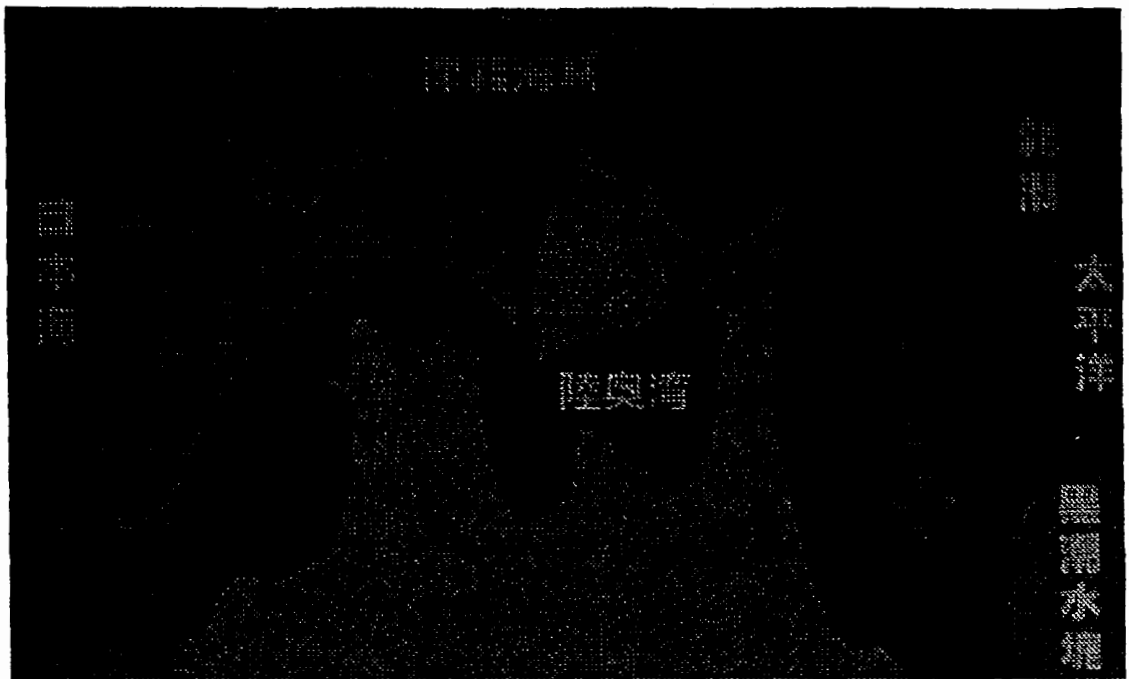


Changes in Body Color and Patterns of Spotted Triggerfish caused by Growth



Changes in Body based on sex Reversal of Goldfish Sea Bream

Fig. 2 Reproduction of Difficult-to-Observe Phenomena



The movement of an ocean current is observed by animation

Fig. 3 The Dramatic Presentation's Enhancement of Understandability

## Speak with Infinite TAMATEBAKO "Container"

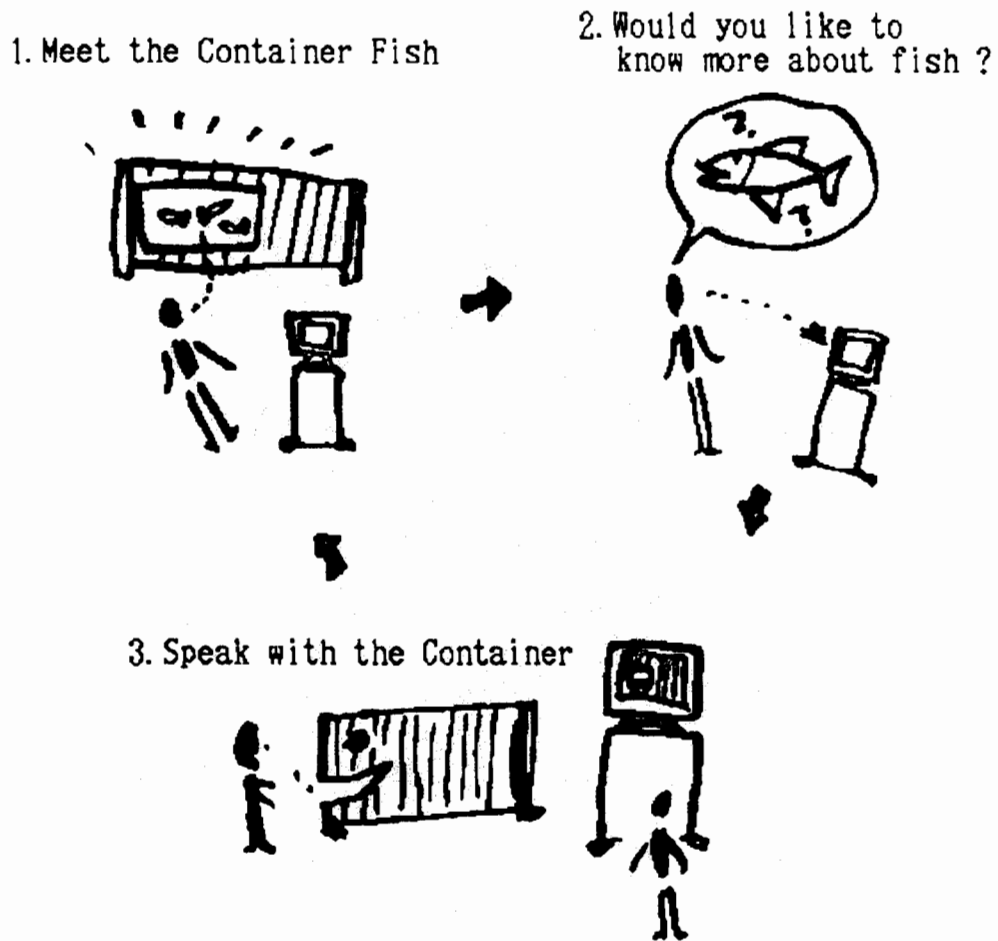


Fig. 4 Design Concept of Ichthyology Dictionary with Illustrated Guide



External Appearance of water tank



Picture of Hypermedia

Fig. 5 Picture of Water Tank and Hypermedia