Artistic Approach to Space
—Toward the Creation of a Space Culture

Kyoto City University of Arts

1. The Purpose of Research and Its Features

The utilization of the International Space Station (ISS), which symbolizes the advent of the Space Age, is regarded as a huge step that characterizes the remarkable developments in the natural sciences and engineering. With integrated experiments in science, technology, the human sciences, and especially in the arts, ISS will provide a new viewpoint of life and civilization on the earth, and lead people to share a new ethical approach to nature, the earth and space.

The Muse project is being launched in order to encourage research projects that embody new artistic concepts, conditions, potentials and methods for artistic expression in space. The Muse project also makes specific proposals and materializes these proposals to create new relationships for humankind, the earth and space by utilizing the full technological armory of the ISS. The Muse project has the following features.

(i) It is a unification of experiments in artistic communication for materializing artistic projects via the ISS's Japanese Experiment Module (JEM) "KIBO".

Fig. 1: Conceptual Imagery of the Muse Project

(ii) It is based on practical research projects in the actual space environment that is experienced by astronauts utilizing its unique artistic potential. It requires the following: 1) Close communication between astronauts and artists; 2) Past achievements and knowledge in various scientific fields; 3) Specific experiments and accumulated data at each stage of the research.

(iii) With conventional on-earth artistic concepts left aside, more emphasis is placed on getting back to fundamental questions such as "What is art?" or "What is humankind?" which are re-considered from the new perspectives that are created in space.

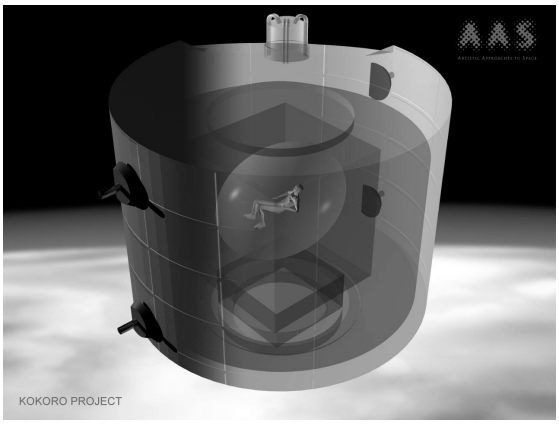

Fig. 2: "A Place for the Mind" is installed in the JEM:
Inside of it is a replica of the infinite universe created especially for the exploration of the human senses and emotions in the environment of space. This replica of the space environment is a place designed for a person to perceive himself/herself as a part of the universe and to re-discover himself/herself.

2. Contents of the Research Project

The Muse project comprises the following three projects that interact with each other:

(1) The Kokoro Project: An Artistic Experiment performed in a Microgravity Environment

This project has the following three objectives and is divided into two parts as described in [A] and [B] below:

(i) To seek a new form of intellectual and sensible communication in the space environment, and provide global messages that originate in Japanese culture to the whole world.
(ii) To seek possibilities of identifiable expression unique to the microgravity environment.
(iii) To promote people's instinctive understanding of space by presenting the microgravity environment identifiably.

[A] Research and Development of an Artistic Experiment Room

Experiments in the extraordinary conditions of the space environment bring changes in intellect and emotion and generate new forms of expression. Specifically speaking, it is aimed to create, works of art or equipment that are compact or of the size of a human being that can be brought into the JEM and stored and used in the KIBO. This artwork is itself an expression called "A Place for the Mind".

Also on earth, experimental data, such as numeric data, sensory data, and possibly materials for artistic expression will be collected for comparison with the experiments in the space environment. New research apparatus will be created to search for new forms of artistic expression.

A capsule-type human-sized apparatus has been created for exploring changes in the senses and emotions that occur in space.

[B] Research and Development for the Experimental Art Scheme

An experimental scheme is to be developed for the JEM, either in its pressurized section or in the external exposed area in order to demonstrate artistic expression and artistic communication. This scheme will make use of the physical conditions that are unique to the microgravity environment.

The following experiments that make use of the Space Shuttle's inner/outer physical characteristics have been proposed to Japanese astronauts as preliminary essays for art works and artistic experiments. 1) A painting experiment. 2) The creation of a space garden to be called "The Mind Garden". 3) A special capsule to bring home the space art works (see Fig.3); 4) The actual art works that have existed in the microgravity environment of the space shuttle ("The Beginning of Space") (see Fig.4)

Further experimentation on the reference axis that determines the human's sense of direction and on liquid behavior as well as several artistic experiments have been implemented in the microgravity environment created by the parabolic flight of an aircraft (see Fig.5).

(2) Cosmos Project: (Fundamental Research and Database Construction)

This project investigates and analyzes astronauts' experiences and information sources at NASDA and NASA. It also tests the physical and emotional conditions that are unique in the space environment and explores the results with regard to their possible application for other research projects and for art works.

A database of the results of this project will be valuable as an artwork in itself. Also, making the database accessible by the general public via Internet and other media will inspire other artistic expression, and will be helpful for research projects in the human sciences.

(i) Communicating with Astronauts
Proposals are made on artistic experiments for future artistic activities on the ISS, by seeking through discussions with astronauts, possibilities for artistic activities in the space environment. Also planned are artistic experiments that are useful for people on the earth to enable communication with the astronauts in space.
(ii) Research, Analysis and Cultivation of image archives
Also planned is the creation of a unique database by categorizing

Fig. 3: "Bring home the space" Capsule:
Prototype of an artwork which enables the collection and bringing back to earth of the space vacuum from outside the ISS.

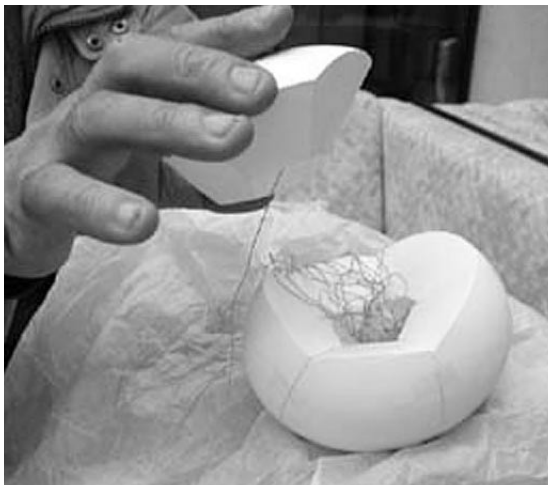

Fig. 4: The beginning of Space:
The creation of a prototype for artwork, that will focus on the movement of materials in a microgravity environment.

Fig. 5: An example of a preliminary experiment using a parabolic flight trajectory in a microgravity environment

and organizing the images that are stored by NASDA and relate to space activities in such ways as to make them artistically interesting.

(iii) Seminars

Open seminars are held for students and researchers at the Kyoto City University of Arts.

(3) W-HERE Project (Experiments on artistic communication between space and the earth and promotion of the Muse Project)

This is an interactive artistic experiment program between the space station and earth with the following two themes. 1) The two "Here"s (ISS and the earth); 2) "Where are we?" the question of the position of the humankind in the vast universe. Also subject to study and experimentation is how to open up the Muse Project to the public.

Efforts have been made to enable space-earth communication by broadcasts from the space shuttle in order to share with more people the experience of observing the earth from space.

(i) By Internet and broadcasting (space to earth, earth to space)
(ii) By exhibitions, lectures, and workshops (opening the resulting data to the public, for further research projects)
(iii) By publication media (books, CDs, DVDs, Websites, etc.)

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