

Using Zuzie2 to Exchange Viewpoints for a Broader Outlook

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Abstract

In this paper, we present Zuzie2, a computer application designed to help people extend their interpretation of the meaning of their activities, and propose that Zuzie2 is effective in cultivating the power of understanding and expression.

In an earlier paper we presented the Constructive Scrapbook computer application which has the potential to make the user analyze expressions, extract significances to consider them deeply, and then create new expressions [1]. Zuzie2 is an improved version of the Constructive Scrapbook. Using this tool, in the same way as with the earlier version, the user arranges compositions of pictures in a two-dimensional space, makes various compositions, and switches them freely. In Zuzie2, we have added a new function that enables users to import composition grounds that show the viewpoints of other users into their works.

Our objective is to have children and ordinary people use various facets to analyze their activities and then create new expressions. Humans think and express something in a conceptual framework such as ordering, classification, or quantity. However, the thoughts of a single person have limitations due to the fixed frame of viewpoint. We have designed this tool so that the viewpoints of other persons combine with the user's work to form new expressive works.

We held a workshop using the Zuzie2 application. The results show that this tool has the potential to make users analyze their activities, import other viewpoints to consider them deeply, and then create new expressions.

no cooperation between the two kinds of classes. Subjective expression and objective analysis are regarded as totally different activities. The tools that support these studies are also separate. The drawing of a picture is a subjective expression and is supported by painting tools. On the other hand, the text, tables and graphic charts that are used for objective analysis are supported by documentation tools and numerical analysis tools. Expression is derived from personal experience, while analysis is based on universal law that transcends the personal. Therefore, these two activities appear to be very different.

Although these activities seem different, a person performs them simultaneously on the same objects at a time. For example, Piet Mondrian painted a picture of daily necessities (P. Mondrian, 1911 "Still Life with Gingerpot I" : Figure 1). Then he extracted the fundamentals of the expression and composed them again as an abstract painting (P. Mondrian, 1912 "Still Life with Gingerpot II" : Figure 2). He performed expression and analysis on his canvases. Therefore, a tool that supports expression and analysis simultaneously is better because it makes the user think about his/her objects on the tool itself.

1 Introduction

In the field of education, classes for expression such as painting and those for analytic study such as science or social studies are very different. Moreover, there is



Figure 1: “ Still Life with Gingerpot I” (Guggenheim Collection)



Figure 2: “ Still Life with Gingerpot II” (Guggenheim Collection)

The multi-viewpoints approach is important for the interpretation of meaning. Humans think and express something in a conceptual framework such as ordering, classification, or quantity. However, the thoughts of a single person have limitations due to the fixed frame of viewpoint. If we have different viewpoints and share them with others, we will have a broader outlook than we had before.

2 Concept

This project aims to design and implement a tool that supports expression and learning and that handles subjective expression and objective analysis simultaneously. The targeted users are children and non-experts.

This tool uses standardized card-type objects which are digitized from the real world by a camera or scanner to handle the user’s activities. The tool provides a field where the user can express something

through the composition of the cards. The main objective of the design is to have the user concentrate on the composition of the cards and find meaning or rules through that composition.

When humans express something, they express it as a story. However, other persons cannot understand the story until they share the same context with the author. When a story is transmitted to other persons, the viewpoint of the author is also transmitted. The exchanging of viewpoints for objects will extend the users’ outlook and cultivate their power of understanding and expression. We should therefore design the tool to enable the users to exchange their viewpoints of objects easily.

3 Related Work

There are many painting tools available for personal computers. Some painting tools such as Kid Pix [2] do not require the user to have any special skills. The main purpose of these tools, however, is to support the user’s free expression. They do not have any functions for analysis of the contents.

Some idea processors arrange pictures and text in a two-dimensional space. “Inspiration” is a typical example of such tools [3]. Although this tool arranges a composition of the cards, it cannot be used to easily change from one composition to other compositions.

4 Design of Zuzie2

4.1 Base Architecture

We designed the base architecture of the Zuzie2 application for today’s ordinary personal computers. This tool is a desktop application tool. The user uses a pointing device such as a mouse or tablet digitizer to manipulate the objects in the two-dimensional display in the computer.

This tool uses digitized photos or pictures as cards. The user creates his/her work by arranging these cards into a unique composition. All of the cards are always displayed on the screen to enable them to be handled easily by the user.

All of the objects are created by Morphic in Squeak Etoys [4]. This format enables the user to move the objects directly with the pointing device.

4.2 Data Structure of Zuzie2

The user uses Zuzie2 to make and output a composition work (“work”). A “work” consists of several “sheets”. Each “sheet” has a composition of a same set of “cards” using corresponding “locations”.

Details of the output from Zuzie2 are shown below. (Figure 3)

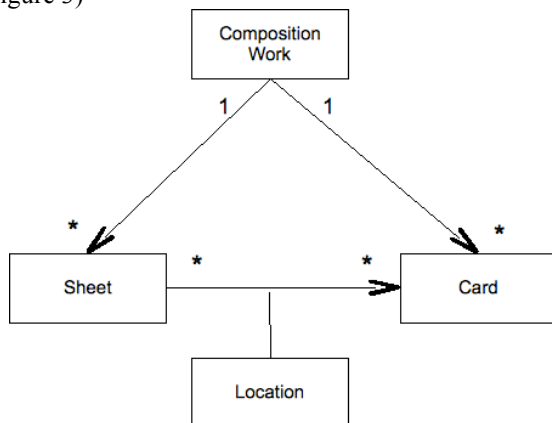


Figure 3: Schema of Data Structure

Card

This tool makes card-type objects from digitized photos or pictures. The user then manipulates these cards to create a variety of compositions of their location on the screen, using a pointing device.

Each card has a detail view. The detail view displays the contents of the card as a large-size image. The user opens the detail view by double-clicking the card.

Sheet

A “sheet” is a display object used as the ground for a composition of cards. We designed this feature to enable the cards to be placed on a map or to be classified by an arbitrary position on the ground. In other words, a sheet is a context for the meaning of a composition of cards.

The user creates a “composition” by laying cards upon the sheet. The composition is recorded in the sheet at the time when the sheet is closed. The recorded composition is reproduced when the sheet is opened again. A card has different locations on each sheet and only one sheet can be opened at one time. Therefore, the cards move around according to which sheet is opened. (Figure 4)

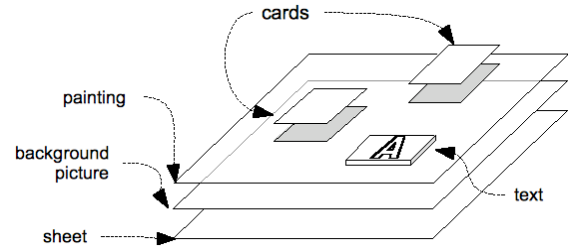


Figure 4: Relation of objects

Each card moves slowly to enable the user to follow its movement with his/her eyes. We designed this feature so that the user could visually experience the changing of the composition by watching the movement of the cards.

The sheet has a background picture. The user sets the picture by dropping an image file from the OS file system onto the sheet icon.

Users can paint on the surface of a sheet using a paint tool. The painting is displayed on the front layer of the background picture of the sheet.

Text is an object that is placed on the surface of a sheet. A text object can be placed anywhere on a sheet.

Although these cards are located upon a sheet, they are not embedded. Thus, a sheet is exported separately from the cards and then imported into other works.

4.3 Exchanging of Sheets

Users make different compositions and paintings on each sheet. A sheet can be exported as a data file (using Morphic file-out mechanism) and imported into other works.

The exchanging of sheets is the exchanging of the context of expression and analysis. When the user set up a location map as the background of a sheet and arranged cards on it, this map became the context of these cards. If the sheet is imported into another work, the cards of the new “work” will be composed according to the location of the map. In this case, the exchanged sheet represents the ‘location of map’ context of the cards which has been exchanged between these works.

The user selects a sheet to be exported and then drags it to an export folder in Zuzie2. When a sheet is dropped onto the folder, this sheet is exported as a data file to an operating system directory. An exported sheet contains the background picture, the painting, and the text. It does not contain the cards and their composition. (Figure 5)

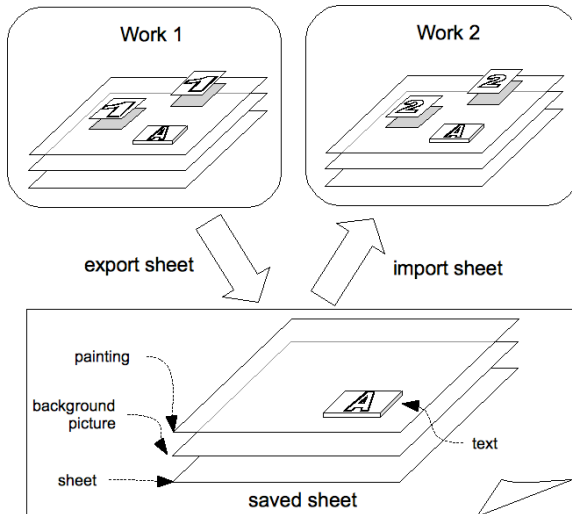


Figure 5: Sheet exchanging

The exported sheet is imported by dropping it onto an already existing “work”. The imported sheet is a new sheet, which already has a background, a painting, and text on it. The user makes a new composition with his/her own cards on the imported sheet.

5 Experimental Workshop

5.1 Workshop

We held an experimental workshop using Zuzie2. In this workshop, participants made “works” and then exchanged sheets with other “works”.

The workshop was held as an Information Design class project for students of the graduate school of Social Informatics at a university in September 2009. The purpose of the workshop was to have the students appreciate their own activities in everyday life by observing and visually expressing their experiences. The objective of the workshop was to discover the essentials of the activity of eating. We put together five teams, each with 2-4 persons per team. This workshop consisted of three stages.

- 1) “Observation”
The participants had lunch with the other members of their team and took photographs of their eating activities.
- 2) “Expression-I”
Each team put together a “work” consisting of three or four sheets. They composed the photographs of their eating activities as cards and drew paintings on the sheets to explain

them. They then presented their “work” to the other teams.

- 3) “Expression-II”

At this stage, the participants were told for the first time that their sheets can be exchanged each other. Each team imported one or two sheets from the other “works” and then recomposed their own “work”.

5.2 Results of the Experiment

(1) Expression with Zuzie2

The teams explained their eating activities through original stories on their “works”. There were a variety of stories. One of these, “View of a Creature from Outer Space”, is the story of a creature that came to Earth from outer space and watched the eating activities of human beings (Figure 6). The creature classified these cards representing the activities into the three categories of ‘Habitat’, ‘Organic matter’, and ‘Inorganic matter’.



Figure 6: The original sheet of three categories

(2) Exchanging of Viewpoints

After their Expression-I presentations, we directed the participants to import one or two sheets from other “works” into their own “work”. It is important that they did not be informed exchanging of their sheets until their “work” was finished. They made their “work” without consideration for the structure of context and contents. Although they did not expect the exchanging of sheets, each team imported the sheets that they were interested in combining with their “works” and then created new compositions naturally with the materials made by other participants.

The “View of a Creature from Outer Space” sheet was imported by two teams. One team imported this

sheet and did not change anything on the original (Figure 7). They only changed the theme to “Shapes of human hands” and placed their own cards on the three areas of the categories (Figure 8, 9).



Figure 7: Derived sheet by team B

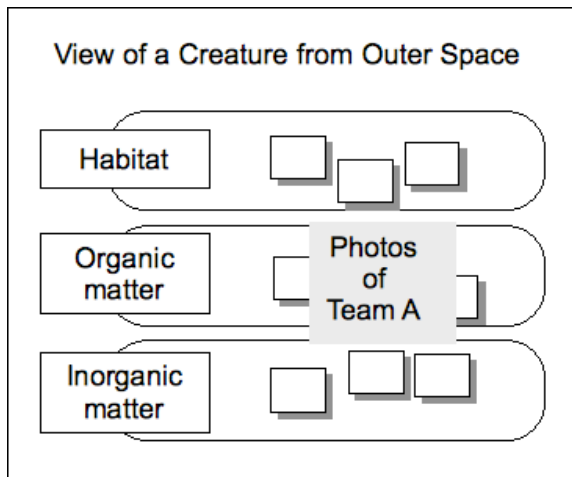


Figure 8: The original sheet structure of three categories

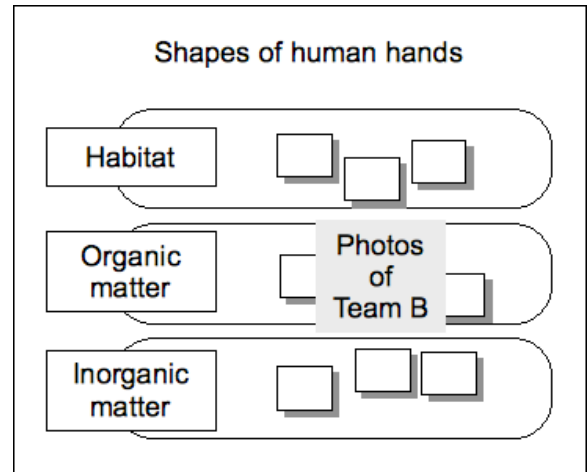


Figure 9: The sheet of three categories with the theme changed

The other team also changed the painting and replaced the descriptive text used for the three categories with ‘Hearty’, ‘Happy’, and ‘Tasty’. These three categories better match the content of their photographs and the story of their “work”. (Figure 10, 11)



Figure 10: Derived sheet by team C

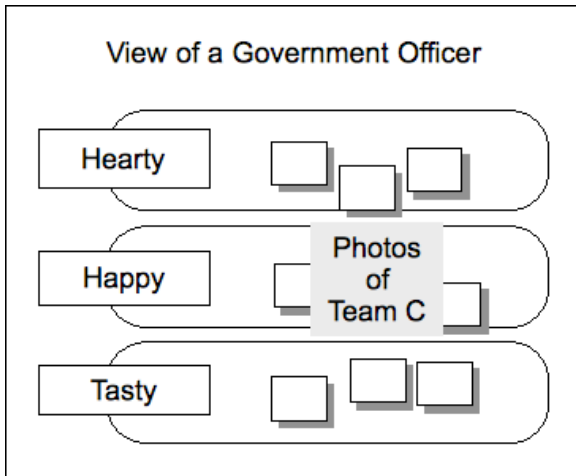


Figure 11: The sheet of three categories with the theme and labels changed

6 Conclusions

First of all, we created a tool to integrate the activities of expression and analysis. Although these activities seem different, a person performs them simultaneously for the same objects at a time. The card-type standardization in Zuzie2 is a way of enabling users to handle a variety of things as objects for expression and analysis simultaneously. Through composing a same set of the cards of activities in daily life on a number of sheets, the user realizes the multifacetedness of the activities.

Next, we added a sheet export/import function to enable users to exchange context and analysis viewpoints. The design of structure with sheet and card separates users' expression into context and content naturally. The result of the design makes the user have broader outlook using the function of exchanging sheets. The users found that there was a difference in viewpoints through appreciating other users' "works" on the same subject of eating activities. Each user then imported a sheet from one of the other users and placed his/her own cards on the new sheet. This means that the viewpoint represented on the sheet has been imported into the user's frame of thinking. As a result, the user interprets his/her activities as different meanings with a different viewpoint.

7 Future Work

We are interested in the effect of exchanging the structure of viewpoints to encourage the users'

creativity. We would like to examine the inheritance relationship of the sheets and what the effects are of displaying this relationship to users.

The users painted areas of categories with colors as conceptual objects and added text such as names or the meanings of the cards to the area. We are designing a user interface to apply attributes to a group of objects according to this behavior. We will then present a study of the manipulation of meaning with this UI.

Acknowledgements

This paper is partly supported by the Core Research for Evolutional Science and Technology (CREST) of the Japan Science and Technology Agency. We appreciate. And we acknowledge Aoyama Gakuin University Graduate School of Social Informatics.

The Zuzie2 would not exist without all the efforts of the Squeak Etoys community.

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