

маркерів упевненості; позитивним ставленням до загальної теми спілкування; дотриманням соціальних схем і норм; відсутністю вираженої боротьби за роль комунікативного лідера; здатністю змінювати установку під впливом аргументації; підтриманням усіх принципів кооперації.

**Конфліктний тип.** Йому властива грубо-статична установка, імпульсивність, бажання лідерства у спілкуванні, егоцентричність мовлення, порушення когерентності теми розмови; відхід від соціальних норм і схем; домінування модальних маркерів зі значенням непевності, наявність іронії, сарказму, конфліктне зіткнення інтенцій.

**Імпульсивний тип.** Це “раб” ситуації спілкування. Характеризується бажанням отримати лідерство у спілкуванні, порушенням соціальних норм і схем, швидкою зміною точок зору на одне і те ж саме явище; схильністю до негативної оцінки соціальних чинників, швидкої зміни тем спілкування. Партнери спілкування можуть легко впливати на нього.

Отже, поняттям мовної особистості цікавилися багато вчених, проте вітчизняна лінгвістика тісно пов'язана з ім'ям Ю. Караулова. Мовна особистість – це сукупність здібностей та характеристик людини, які зумовлюють створення нею мовних творів(текстів), які розрізняються ступенем структурно-мовної складності, глибиною і точністю відображення дійсності, визначеною мовною спрямованістю. Зростаючий інтерес до мовної особистості обумовлений глобальною комунікацією, та вільним доступом до інформації, можливості людини все більше розширюються.

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## Generating Scenarios in the Arts: Capitalizing on Polysemy

### Abstract

We developed a new environmental system to generate scenarios in the fine arts by appealing to the polysemy of words. This system relies on a Web-based application and unique rules to structure play with word cards. Verbalizations of ideas related to the fine arts are the key input to this system, which grew from an experiment in which painters used a few clusters of words describing their intentions to comment on their creation.

During the aforementioned experiment, new scenarios were generated by re-clustering the words in ways that could not have been imagined at the beginning of the process. This implies that some of the words were abstract (e.g., respect, challenge) and may have inspired participants

to transform the original context into a new one.

The new environmental system constitutes one approach to generating new scenarios in the fine arts.

**Keywords:** *fine arts, semantic polysemy, clustering, scenario generating*

## 1. Introduction

Awareness of new ideas or things sometimes stimulates analogical thinking (Holyoak and Thagard 1995). This research applied this analogical function to the process by which people would generate new concepts related to the fine arts and to the development of a new environmental system to facilitate such awareness by using word cards to stimulate analogical thinking.

This system supports a learning process whereby players generate various scenarios and enables them to restructure clusters of words that refer to intentions related to the fine arts.

This paper reports on the results of this experiment, which led to the creation of new scenarios that differed from existing concepts in the fine arts despite their reliance on the same words.

## 2. Related work and significance of study

### 2.1. Related work

An individual's understanding of words varies depending on context (e.g., *sushi* can remind individuals of traditional Japanese raw food or, if they work for a global trading company, of expanding to overseas markets). With this in mind, the authors developed an environmental system that facilitates awareness of new things.

Attempts to regroup word cards (e.g., *sushi, Mt. Fuji, Kyoto, and mathematics*) may lead to the inclusion of some (e.g., *sushi, Mt. Fuji, and Kyoto* as related to "Japan") and not others (e.g., *mathematics*). Individuals asked to use all the word cards in a set (e.g., including *mathematics* in the example above) wonder how to deal with the remaining word. At this point, concentration increases, and new meanings for the words are found by transforming extant meanings and generating higher-order concepts that act as bridges among words (Nakamura and Ohsawa, 2009).

The importance of the meaning of words has already been discussed in relation to the design process (Nakakoji and Yamamoto, 2010). We used applied research in a real-world setting to evaluate the application of an environmental system developed to capitalize on the key role played by words to the fine arts.

### 2.2. Significance of the Study

The purpose of this research was to generate scenarios in the fine arts and, in particular,

to explore the potential of humans to make meaning. As this rests on a deeper understanding of the arts (Blida, Edmonds & Candy 2008), the authors explored methods to help experts express those heartfelt experiences that are outside of their own consciousness.

On the other hand, these scenarios must appeal to consumers even if they are banal in the eyes of experts. In this sense, the elements in the scenarios must draw on and integrate events in the daily lives of customers so that they can understand them. This method, known as bricolage (Lévi-Strauss 2011), is the principal basis of our

experimental design.

The authors believe that analysis of how new scenarios are developed in the context of a given environmental system will enhance our understanding of the cognitive processes underlying work in the Humanities.

### 3. Learning environment and experiment

#### 3.1. Development of the system

Two key foundations undergirded the development and operation of the aforementioned system.

The first is daring to utilize unique interpretations of words. Players are asked to re-cluster elements of concepts that were formed by others by combining several words. For example, others may have grouped *service* and *remedy* under “business” and *baseball* and *barbecue* under “group work.” Players would be asked to regroup all of these four words under the heading of “compassionate,” resulting in the generation of a new concept.

It is vital that players have different experiences, knowledge bases, and memories related to the same word so that their associations will differ. This implies players’ becoming aware of cognitive differences between themselves and others, which may stimulate the generation of new ideas.

The second foundation is the rule that as few words as possible are excluded from the new clusters. Words may be left aside when individuals arrange them into groups created based on individual preferences. In this environment, however, players are required to use all the word cards, which increases their cognitive load. However, this extra pressure stimulates the production of new ideas.

#### 3.2. Environmental system

##### 3.2.1. Experimental process

First, a painter is asked to provide a painting along with several clusters of four or five words (i.e., a total of 20) that express his or her intentions (Fig. 1-A). Second, these data are input to develop an application using word cards (Fig. 1-B). Third, players, including non-artists, are asked to regroup as many of the 20 word cards as possible, which is expected to generate new concepts associated with the new clusters (Figs. 1-B, 1-C, and 1-D). Fourth, players are asked to name the clusters and to use a pencil to draw images that represent them (Fig. 1-E).

Finally, players provided feedback about how a given painting has been transformed into a new one. The environmental system discussed in this paper involves an application that structures the aforementioned process.

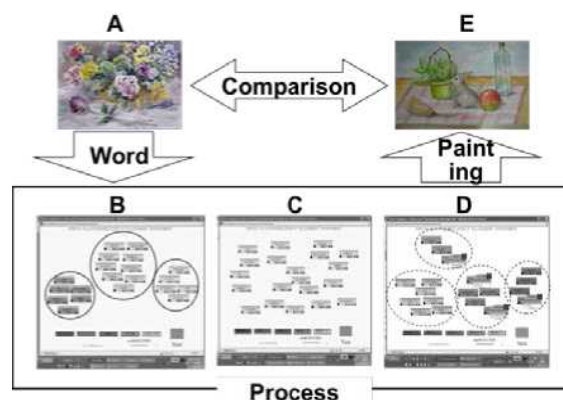


Figure 1 Concept-generation process

### 3.2.2. The application

The application we developed presents three images on a screen to represent the transition from the beginning to the end of the process (Figs. 1-B, 1-C and 1-D). The 20 word cards are presented on the screen, and players are allowed to drag them anywhere. Players use colors to group words into appropriate clusters and then input the name of each cluster on the lower portion of the screen.

The following data are stored automatically:

- (1) Movements of word cards
- (2) Color codes for word cards
- (3) Time in seconds for the above steps
- (4) Names of clusters

### 3.3. Preparation of experiment

Fourteen undergraduate and graduate students from the Tokyo National University of Fine Arts and Music (three men; 11 women), who were experts in Japanese or Western painting, were divided into four groups such that each group had at least one member with each expertise.

A painting created by a member of each group was given to his/her group, and the group members proceed in accordance with the process outlined above.

Table 1 Results by team

	A team	B team	C team	D team
Number of Participants	5	2	3	4
Type of original painting	Japan	Europe	Block print	Europe
Initial number of clusters	5	3	5	5
Average number of generated clusters	4,8	4,5	4,3	4,8
Average time required (min)	17.3	16.2	17.9	21.0

## 4. Experimental results

The results of the experiment are shown in Table 1. The process from D to E depicted in

Figure 1 required no more than 20 minutes.

We collected data related to combinations of word cards, scenarios that were generated, transformations in context, the role of words that refer to abstractions (e.g., love, respect), and feedback about participants' experiences.

In terms of general trends, 10 of the 14 participants were unable to group one word card into a cluster. Additionally, third parties evaluated the outcomes of this process as more creative and less pragmatic.

The following section presents a case study of one participant who exemplified the features of most of the participants. The quantitative analyses rely on data from all participants.

### 4.1. Case study: Clusters of word cards

The case introduced here relied on a painting of the plant *Solidago Canadensis*, an *Asteraceae* and herbaceous perennial (Fig. 2).

The painter selected 20 words representing the *Solidago Canadensis* and grouped them into four clusters;

“{ }” indicates clusters, and “( )” indicates word cards.

(plant, spider, *Solidago Canadensis*) = {drawing objects}, (foil, palette, chalk) = {material}, (tree agenda, cold, diversion, oxidizing, black and white) = {fact}, (respect, fact, cool, challenge, desire, greed, world, time) = {intention}, (incompleteness) = {task}

This player considered whether (incompleteness) should be placed in the same cluster as (free agenda) given that the latter does not have a clear objective referent, resulting in (incompleteness). Otherwise, (incompleteness) should be categorized into the cluster including (world) because the painting seems endless (world), which means (incompleteness).

Additionally, this player wondered whether (time) should be categorized with (fact) because Japanese painting involves punctuality. Otherwise, (time) should be categorized as pleasant (time) to represent the experience of drawing in the Japanese style.

By the middle of the experiment, both (incompleteness) and (time) had been moved more frequently than other word cards.

The following clusters emerged from this process:

(plant, *Solidago Canadensis*, oxidizing, foil, chalk, black and white, palate) = {material}.

(diversion, respect) = {emotional involvement with other paintings},

(spiders) = {dislike}, (time, fact, incompleteness) = {hardship}, (free agenda, cold, desire, greed, challenge, cool, world) = {what willing to do}

The original and newly created paintings, clusters, and titles are shown in Figure 3.

#### 4.2. Generation of scenarios

A Japanese painting was presented at the beginning of the experiment. *Solidago Canadensis* was drawn as faithfully and naturally as possible with many spidery branches and leaves intended to represent its “noisy” character, which was its title, as shown in Section 4.1.

During the course of the experiment, the player gradually came to think of



Figure 2 *Solidago Canadensis*

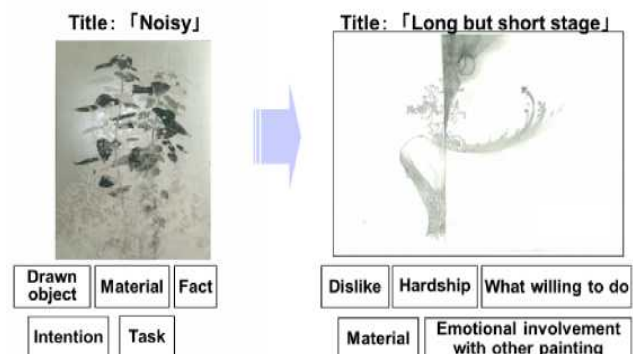


Figure 3 Before and after paintings and word clusters

him/herself as a professional expert on Japanese painting, resulting in an increasing focus on the *negative* side of the piece, to represent the austere side of being an independent Japanese painter, as well as on its *positive* side, which represents a desire to become a painter. Additionally, feedback from the player indicated that the life of a Japanese painter is experienced as both “longer” and “shorter.” This notion of the “life of a Japanese painter” could not be expressed in words because the insight it contains is beyond the capacity of verbal expression. This result implies that the environmental system enabled the player to generate a new scenario that differed from the original intention of the painting (i.e., the initial context had been transformed from a view of nature into a perspective on professional life).

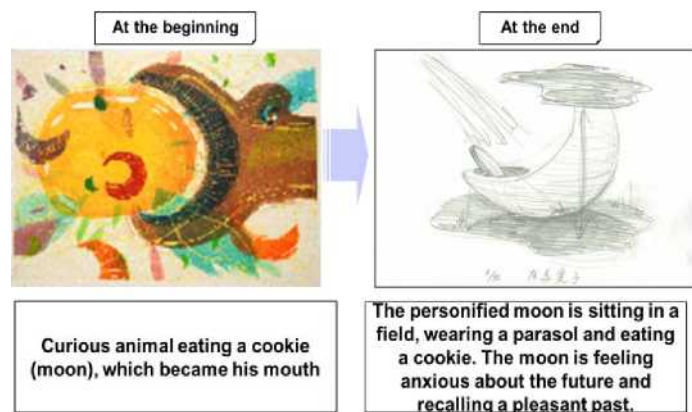


Figure 4 “From curious animal to individual”

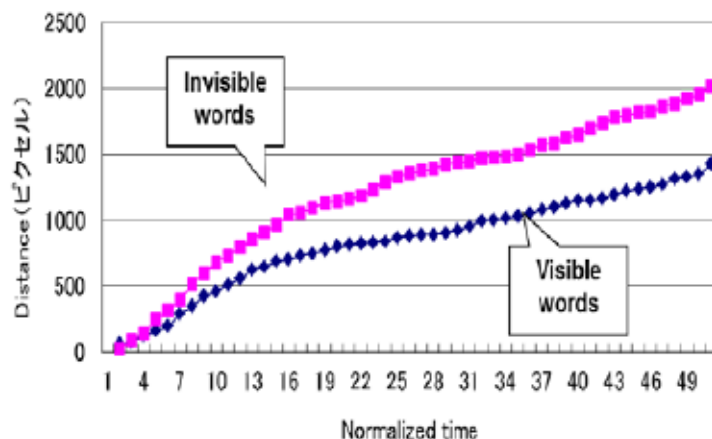
Another case involved an original painting of a curious animal with a crescent mouth and a satisfied expression eating cookies (Fig. 4). During the experiment, the original context was transformed into a scenario in which an individual was enjoying the sun and eating cookies; due to the sunshine, you can see both light and shadows. According to the participant, the light signified a pleasant childhood memory, and shadow signified anxiety about the future. This example illustrates the transformation of the context from one in which an animal is enjoying eating cookies to one in which an individual personifies both memories of the past and anxiety about the future.

### 4.3. Role of words in the description of abstractions

As explained in Section 3.2, the environmental system stores the movements of word cards along the x- and y-axes. Words were divided into two types for this purpose: those that referred to a visible object or feature (e.g., palette, black, and white), which we called “visible words,” and those that referred to invisible phenomena (e.g., respect, collaboration, and time), which we called “invisible” words. The average Euclidean distance through which each player moved both visible and invisible word cards as well as the rate at which the cards were moved can be automatically calculated when word cards were being scrolled or moved on the screen. Figure 5 shows the distance on the y-axis as a function of a normalized time with 50, which is shown on the x-axis.

Figure 5 shows that invisible words were moved farther during the experiment than were visible words, which implies that players were wondering how to construct new concepts by recombining clusters into novel groups. It seems they used invisible words as lubricants to facilitate transitions among clusters or used a trial-and-error approach to explore relationships between invisible words and clusters by considering possible consistent meanings.

In the first case, individual words such as (incompleteness) and (time) were moved frequently. This shows the player was wondering which clusters should include (incompleteness) and (time), which depended on whether he/she thought of him/herself as living in a severe or pleasant world as a professional Japanese painter. At this point, the initial realistic painting of *Solidago Canadensis* faded from awareness, and focus was directed to the player's career path as a Japanese painter, which generated new scenarios. In fact, the participant created a severe depiction of life as a Japanese painter derived from (incompleteness). Thus, the realistic rendering of the plant was transformed into a conceptualization of the career of a Japanese painter.



Figur 5. Accumulated distance

Furthermore, the concept of constraint was conceived from (free agenda) and (time), which are both related to constraints. Next, the concept of delight emerged from (challenge) and (desire), which were both interpreted as pleasurable. This synthesis created a new scenario rather than a shift in the meaning of words.

The timing of the player's awareness of the new scenario is illustrated in Figure 6, which depicts the time just after the halfway point of the entire experiment, following which, scrolling actions decreased.

During the second half of the experiment, the movement of invisible words reflected greater cognitive activity than did that of visible words, as depicted in Figure 6. The invisible words in this example were (free agenda), (challenge), and (desire). The cognitive activity in question involved higher-order cognitions contrasting positive factors (pleased to become a professional Japanese painter or develop a reputation as a popular painter) with negative factors (hardships

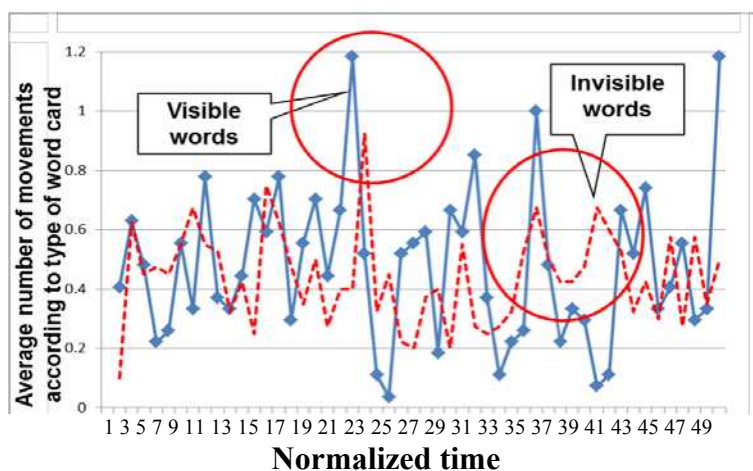


Figure 6 Number of movements of word cards

as a professional painter); an invisible word contributed to the process of creating new meaning prior to the end of the experiment.

This implies that the abstract words (invisible words) were characterized by semantic polysemy such that their meaning varied according to the context of visible objects (as described by visible words). Hence, the semantic polysemy of invisible words reminded participants of personal experiences, knowledge, and memories, which influenced the generation of scenarios.

#### **4.4. Feedback from Participants**

The following feedback was offered by participants:

- I felt freed from the constraints of materials, observers, technology, and time during the experiment. The plant was faithfully depicted in the initial painting and was naturally sketched. In contrast, the newly drawn painting seems to represent an individual's cognition.

- The scale used to capture my image became much bigger than before. Usually I depict realistic space; thanks to the system, I could draw fantasy space, such as in the new painting.

The above feedback supports the discussion of generating scenarios in Section 4.2, above.

### **5. Conclusion**

This paper attempted to show an environmental system that supports the generation of new scenarios by stimulating subjects to view a given painting from a different perspective.

Our application provides an approach to generating new scenarios in various domains (e.g., using an existing book to develop new ideas for writing, using existing music to develop new ideas for compositions). The facilitation of particular cognitive processes, rather than only semantic interpretations of words, enabled the synthesis of different interpretations of different words to create new contexts.

Finally, the environment we developed would not necessarily have been as effective in generating scenarios related to all of the fine arts. Thus, additional case studies are needed to explore the effectiveness of this system in other areas. The way in which the new painting should be evaluated should also be addressed in the near future. Overall, this paper demonstrates one approach to generating new scenarios in the fine arts.

### **Remarks**

This paper presents the results of an experiment conducted when the authors were at the University of Tokyo and is an amended, altered, and edited version of an oral presentation given at the Japanese Society for Information and Systems in Education in 2009.

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### **Інформаційна картина світу майбутніх журналістів**

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### **Informational Representation of the World of Future Journalists**

#### **Abstract**

The article studies the peculiarities of developing future journalists' informational representation of the world. The ideas of media competence and critical thinking development are highlighted. The author claims that the high level of media competence is impossible without developed critical thinking. It is a skill which helps a person act sensibly, evaluate other people's thoughts and formulate his/her own independent judgments. Critical thinking is developed in a relevant activity due to such cognitive operations as analysis, synthesis, induction, deduction, inference, comparison, generalization, etc.

**Keywords:** *information society, informational representation of the world, media competence, media literacy, media culture, critical thinking, cognitive operations*

Нині роль інформації в сучасному світі настільки велика, що фахівці ввели в науковий обіг поняття “інформаційне суспільство” [18, с. 66]. Це, власне, історична фаза можливого еволюційного розвитку цивілізації, в якій інформація і знання як головні продукти інформаційного суспільства примножуються в єдиному інформаційному просторі [20; 19; 23; 17].

На думку У. Мартіна, відмінними *рисами* інформаційного суспільства є [8, с. 116]:

- збільшення ролі інформації, знань та інформаційних технологій у житті суспільства;
- зростання числа людей, зайнятих інформаційними технологіями, комунікаціями й виробництвом інформаційних продуктів і послуг;
- зростаюча інформатизація суспільства з використанням телефонії, радіо, телебачення, мережі Інтернет, а також традиційних і електронних ЗМІ;