

# Persuasive Narrative via Digital Storytelling

Kaoru Sumi<sup>1</sup> and Mizue Nagata<sup>2</sup>

<sup>1</sup> Future University Hakodate,  
Department of Media Architecture  
041-8655 Hakodate, Japan  
kaoru.sumi@acm.org

<sup>2</sup> Jumonji University,  
Department of Child Education  
352-8610 Saitama, Japan

**Abstract.** This paper describes an experiment on conveying the messages of stories to users. We investigated what kind of story and what kind of character, in terms of the level of abstraction, should be applied to convey a story's message. The animated stories used in the experiment were created using WordsAnime, a software tool for creating animation content easily from an input scenario. The experiment was then conducted by showing subjects animated stories with varying levels of abstraction for the story and the central character.

**Keywords:** Persuasion, digital storytelling.

## 1 Introduction

Recently, storytelling has attracted much attention in a variety of areas. Among various benefits, stories have emotional appeal, generate deep understanding, shape the subconscious mind, and motivate action [1]. In particular, applications for marketing and management using storytelling have been an important research target. The medical field is developing the method of narrative therapy [2], in which patients receive psychological treatment by telling their own life stories. In the area of developmental psychology, studies on child development have examined the process by which children generate stories [3]. In social psychology, studies of people's life stories [4] have indicated the possibility of understanding human identity, life, and society by recording and analyzing such stories.

In all of these cases, the key requirement is that storytelling should make an impression on the target person and convey a message to him or her. Hence, in this paper, we describe an experiment investigating the conditions under which the message of a story is best conveyed to a user. We conducted the experiment by showing subjects animated stories that varied in the level of abstraction of both the story and the central character.

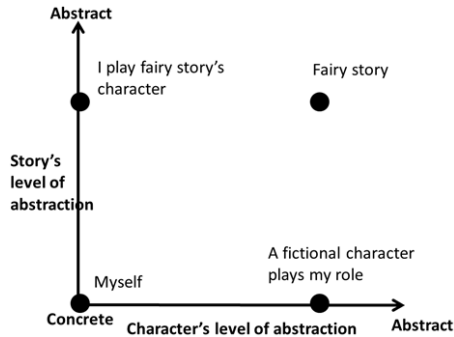


Fig. 1. Two axes of abstraction

## 2 Axes of the Abstraction

What is required for a storytelling system to convey the messages of stories to users? For the work described here, we considered four types of conditions based on two factors for a story and its central character. As Figure 1 shows, there are two axes corresponding to the two factors: the x-axis represents the central character's level of abstraction, while the y-axis represents the story's level of abstraction. For each axis, the level of abstraction ranges from abstract to concrete. The four conditions are thus as follows.

- **Myself:** This is a condition based on a user's real story. The main character is the user himself or herself. In this case, the story and character are both concrete.
- **Fairy tale:** This is a condition based on a traditional fairy tale. The story and character are both abstract.
- **I play a fairy tale character:** This is a condition based on a fairy tale but with the user playing the central character. Here, the story is abstract but the character is concrete.
- **A fictional character plays my role:** This is a condition based on a user's real story but with someone else playing the central character.

A storytelling system can change the central character's face to the user's face, his or her friend's face, or someone else's face according to the level of character abstraction. The user's face is very concrete, a friend's face is somewhat less concrete, but an unknown person's face is abstract. In this case, therefore, the story is concrete but the character is abstract.

We might use a storytelling system to persuade users via abstract stories with a message, or via concrete stories. We might also persuade via the story of a friend's failure. An experimental storytelling system should be able to change conditions as

described above. Hence, we devised an experiment using WordsAnime [5][6], a software tool that can create animation content easily from an input scenario. WordsAnime uses the animation database of Anime de Blog [7], in which animation data is linked to verbs or nouns.

### 3 Experiment

We conducted a comparative experiment to examine what kind of content is more persuasive [12] for a user, a concrete or an abstract story. In the experiment, subjects viewed concrete or abstract characters according to a character's level of abstraction, and concrete or abstract stories according to the story's level of abstraction.

#### *Experimental Method*

To perform this comparison between types of content, we varied two factors—the character condition (myself or someone else), and the story condition (realistic or fairy tale)—and showed corresponding animated content to each user. A total of 34 undergraduate student subjects were assigned each of the four condition combinations.

#### *Experimental Content*

##### *1. Content*

The animation content was created using WordsAnime. The subjects were shown Aesop's fable of "The Ant and the Grasshopper" for the fairy tale condition, or an original story called "Job Hunting" for the realistic condition. "The Ant and the Grasshopper" suggests the virtue of not being lazy, while "Job Hunting" gives the same message in a student's real world environment. In addition to the meaning, the number of scenes in each story was also the same.

For character condition, when the condition was "myself" the system showed a picture of the user's face on the face of the main character, and also the name of the main character in the sentence was changed to the user's name. When the condition was "someone else" the system showed the picture of an unknown person's face on the face of the main character (Figure 2), and also the name of the main character in the sentence was changed to the unknown person's name.

The two stories and the scenarios were as follows (Figure 3).

#### *The story of "The Ant and the Grasshopper":*

During the summer, the ant worked to store food for the winter.  
 On the other hand, grasshopper played his life away.  
 Winter came; the grasshopper had nothing to eat and was hungry.  
 The grasshopper asked the ant for food, but he refused.  
 The grasshopper died of hunger.



Fig. 2. “Someone else” face is pasted to the main character

The scenarios for “The Ant and the Grasshopper”:

1. The ant worked hard in the summer.
2. The grasshopper played a lot in the summer.
3. The grasshopper was hungry in the winter.
4. The grasshopper asked the ant for food, but the ant said “no”.
5. The grasshopper died.

The story of “Job Hunting”:

During the summer, my classmates worked hard at job hunting.

On the other hand, I played my life away with my friends during this time

Winter came; I panicked because I had no job offers, though my classmates had all found jobs.

I asked my father’s acquaintance for a job, but he refused.

I was very disappointed, because I could not find a job.

The scenarios for “Job hunting”:

1. My classmates worked hard in the summer.
2. I played a lot with my friends in the summer.
3. I panicked because I had no job offer in the winter.
4. I asked a businessperson for a job, but he said “no”.
5. I was very disappointed.

*Procedure*

The subjects followed the procedure below:

1. Submit user information and upload a picture.
2. Choose a friend’s face.
3. Choose an acquaintance’s face.
4. Respond to an initial questionnaire.
5. View the selected content.
6. Respond to a follow-up questionnaire.



Fig. 3. Stories of “The ants and the grasshoppers” and “Job hunting”

First, the subjects submitted their information and pictures of their faces. Next, they each selected a friend and an acquaintance. Depending on their answers to an initial questionnaire, the system chose their stories. As described above, we offered two stories with the same message. After viewing the selected content, the subjects answered a follow-up questionnaire.

The follow-up questionnaire contained the following questions:

*Question 1: Was the story impressive?*

*Question 2: Was the story interesting?*

*Question 3: Did you know the story?*

*Question 4: Did you understand the message of the story?*

*Question 5: Are you in the same situation as the person in the story?*

*Question 6: Is the story relevant to you? (i.e., could you learn from the message?)*

*Question 7: Did you learn a lesson from the story?*

*Question 8: Did you improve yourself by watching the story?*

We found the average evaluation values on a five-point scale for each of the eight questions. We then conducted a two-factor analysis of variation among the subjects, consisting of the central character (2: myself/someone else) and the story (2: concrete/abstract). The following questions were of particular interest.

- *Question 1:* This question reflected the trend of interaction between the central character and the story ( $F(1, 30)=3.65, p<.10$ ). Specifically, when the central character was another person, the realistic story was more impressive than the fairy tale. It also reflected the trend that when the story was a fairy tale, the central character as “myself” was more impressive than as “someone else”.
- *Question 3:* The main effect of the story was significant ( $F(1, 30)=88.24, p<.01$ ), confirming that a realistic story was more unfamiliar than a fairy tale. The main effect of the central character was also significant ( $F(1, 30)=3.57, p<.10$ ), confirming that the “myself” central character was more familiar than “someone else”. This question also reflected the trend of interaction between the central character and the story ( $F(1, 30)=3.53, p<.10$ ). Specifically, when the story was a fairy tale, the “myself” central character was more familiar than “someone else”.
- *Question 8:* The main effect of the story was significant ( $F(1, 30)=4.23, p<.05$ ), indicating that the fairy tale was more suggestive of self-improvement.

According to cross tabulation, when the story was a fairy tale, if the central character was “someone else”, subjects tended to think of improving themselves, whereas if the central character was “myself”, subjects tended to answer “no opinion”.

By analyzing the correlation factors of the questions, we obtained several findings.

- Typical positive correlation when the central character was “myself”:

When the subject associated the central character with himself or herself, the impression of the content was related to understanding its meaning, and the amusingness of

the content was related to whether it was helpful or not. If the subject considered the content relevant to himself or herself, then he or she considered self-improvement.

- Typical positive correlation when the story was “concrete”:

When the story was concrete, if the user understood the message, then he or she considered it a good lesson.

- Typical positive correlation when the central character was “someone else” (equivalent to the case when the central character was “myself” and the story was “abstract”):

It was difficult to understand the message and to learn from it.

- Typical positive correlation when the central character was “myself” and the story was “concrete”, or when the central character was “someone else” and the story was “abstract”:

Whether the condition that was realistic or had little relevance to the real world, it was interesting and provided a good lesson.

## 4 Discussion

In the experiment, we used two kinds of content and two conditions for the central character, according to the level of abstraction for both the story and the character. When the story was a fairy tale, the condition when the central character was “myself” was more impressive to the subjects than when the central character was “someone else”. Furthermore, in the case of a fairy tale, the subjects knew the story. In general, when the central character was “myself”, they knew the story better than when the central character was “someone else”, but this was especially so for the fairy tale case.

The experiment indicated that a fairy tale encouraged subjects to improve themselves more than a realistic story did. According to this result, when a subject was shown a fairy tale, if the central character was “someone else”, he or she tended to think about self-improvement; while if the central character was “myself”, the subject tended to answer “intermediate”.

As for the subjects’ impression of the story, a greater impression was created when the central character was “myself” than “someone else”. Moreover, the subjects thought more about improving themselves when the central character was “myself” than when it was “someone else”. According to this result, the combination of an abstract story and an abstract character was effective in prompting subjects to reflect on themselves.

Finally, we can summarize our statistically significant results as follows. First, regarding the ease of creating an impression through a story, if the central character is “someone else”, a realistic story is more impressive. This means that a real story with an unknown person as the central character would be impressive. Next, regarding

message transmission via a story, a fairy tale encourages people to be more careful than a realistic story does. This means that people simply accept the message of a fairy tale. This suggests that a game with sententious messages should consist of a fantasy story, like a role-playing fantasy adventure, rather than a realistic story.

Our experiment suggests that in the fairy tale case, if the central character is “someone else”, people take heed of the message; on the other hand, if the central character is “myself”, people do not apply the message to themselves. That is, a fairy tale better conveys its message when the central character is an unknown person, and the same consideration applies for such as fantasy role-playing games.

Note that in this experiment, the subjects were all freshmen and thus a few years from searching for work, so they did not take job hunting seriously. If we had used junior or senior students as subjects, the results might have been different.

Given that users have no idea of the conditions of their characters (e.g., honest/dishonest), we will have to investigate the effectiveness of persuasion on multiple personal characters and their conditions on a case-by-case basis.

## 5 Conclusion

In this paper, we have described an experiment investigating what factors in story content, as in role-playing games, are persuasive to people in the case of showing an animated story. The specific factors were the levels of abstraction for both the story and the character.

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