Creating Digital "Mottainai" Stories by Future Teachers to learn about Sustainable Development

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Abstract
We have focused on creating 90-second digital stories on the theme "Mottainai" in Susono's Educational Technology classes for future teachers. More and more people in Japan are interested in this Japanese word "Mottainai" which captures the spirit of making full use of resources. The college students were able to learn a lot of things concerning "Mottainai" by creating stories and showing them to the classmates. Creating digital "Mottainai" stories led to learning about Sustainable Development.

1. Introduction
Susono teaches educational technology to the college students at Mie University and Kogakkan University in Japan. Most of them want to be K-12 teachers in future. In the classes the future teachers have created three types of stories for a few years. One of the methods to create them is "Video Close-up System" using a video camera, a video recorder, and a photography stand developed by Oda (1986). The second one is "Kamishibai" which is a storytelling performance with larger picture cards. And the third one is "Digital Storytelling" which they produce with a computer and software for producing movies.

We have focused on that the future teachers create their stories concerning "Mottainai" which captures the spirit of making full use of resources.

2. Creating Digital and Analog Stories in the "Educational Technology" classes
In Susono's two "Educational Technology 2006" classes at Kogakkan University, each group of 3 to 5 college students chose one of the three methods 1) Video-camera 2) Kami-shibai 3) Digital and produced a story within 90 seconds. The two themes of storytelling were set by the teacher. They were "Mottainai" and "Our University". Moreover, the time of storytelling must be within 90 seconds, in contrast the students in 2005 were able to create them freely and without time restrictions.

And in Susono's "Educational Technology 2007" class at Mie University, each college student created a digital story on the theme "Mottainai" within 90 seconds.

3. "Mottainai" and Storytelling
Although the word "Mottainai" in Japanese is frequently used by Japanese people in their lives, it is somewhat difficult to translate "Mottainai" into English and other languages.

According to the Wikipedia, Mottainai is explained as follows; Mottainai is a Japanese term. In Japanese ancient writing, "Mottainai" has had various meanings, including, "it was inconvenient" and "modest as it is more than my
situation, graciously”. Today its meaning roughly translated as "it is so wasteful that things are not made full use of their value.” This term is frequently used when something useful (e.g. food, time, etc.) is wasted.

In 2005 a Kenyan environmentalist, Wangari Maathai, who was awarded the Nobel Peace Prize in 2004, noticed this Japanese word and started using it as a catchphrase to promote "Reduce, Reuse, Recycle", when she visited Japan for an event related to the Kyoto Protocol in 2005.

In order to spread the "Mottainai” spirit, various activities and learning are necessary in schools. One of the good ways to do it is that the students create stories concerning "Mottainai” and sent their messages and the works to many people in the world.

4. Creating Digital “Mottainai” stories in "Educational Technology 2007” class at Mie University

Each college student was able to use a computer (Windows XP) in the lab in "Educational Technology 2007” class at Mie University, and created a digital story on the theme "Mottainai" within 90 seconds. They used “Sound Recorder” for recording voice and “Movie Maker” for editing and composing their digital stories.

Before the class Susono set the following learning aims to create digital stories in this class.
1) to enhance media/computer literacy, especially to know how to create a movie with a computer
2) to think about his/her own story and to construct the story using still pictures
3) to learn a lot concerning the theme “Mottainai” through constructing the story
4) to learn collaboratively while creating the story and seeing the classmates’ stories on the website
5) to know what and how to introduce storytelling to K-12 students in future

Each student produced a digital story as follows.
1) The teacher explained how to create a digital story using the Movie Maker.
2) Each student wrote a scenario for the digital story.
3) Some still images (digital & printed photos) were gathered. Some pictures were drawn and colored on paper or with computers. Image scanners, digital cameras, and mobile phones with small cameras were used to take analog printed photos and hand-drawn pictures.
4) Narration for the digital story was recorded with “Sound Recorder”, and some background music was prepared.
5) The student composed the digital story with “Movie maker”

After saving the movie, each student uploaded the digital story on a forum in the moodle used for Mie University regular courses. So the forum in the moodle enabled the students to see the classmates’ stories on the web and exchange some comments about them on the forum. Actually at the last time of the storytelling class, all the digital stories were presented and the students wrote a lot of messages on the webforum to each presenter.

When the students created digital stories, a manual and a scenario sheet for creating digital stories were prepared by the teaching assistant (Ai Kagami). Moreover the students was able to view a webpage for Japanese inservice teachers titled “How to create a digital story” by Eri Ono (2006).
5. Results

(1) The storytelling works by the college students

In the 2006 Classes at Kogakkan University they produced 67 storytelling works in total. As the 2 themes of storytelling were set, 50 "Mottainai" stories (75%) were created by the students. And in the 2007 class at Mie University they produced 64 "Mottainai" stories. This year only one theme "Mottainai" was set.

Here are some titles of storytelling that they created.

1) Let's reduce garbage.
2) Try not to buy everything you want.
3) Stop a leftover food.
4) You can eat everything.
5) To use more electricity is Mottainai
6) Let's recycle what we can reuse
7) Mottainai? or Diet?
8) Tears are Mottainai (Stop the war)
9) Time is Mottainai (Time is Money)

Figure 3,4,5 and 6 are some title pages of the works. And Figure 7 is a series of the pictures drawn and colored for a digital story for kindergarteners.

Fig. 3 DST “Mottainai-boo”
Fig. 4 DST “Mottainai”
Fig. 5 DST “Stop a waste of electric”
Fig. 6 DST “Stop wasteful water”
The target audiences to which the college students want to show storytelling were from smaller children to adults. As the students want to be K-12 teachers in future, most of the storytelling works were for K-12 students. Especially at the Mie University class a lot of digital stories for kindergartner were produced because there are more college students who take kindergarten teacher education courses.

(2) What and how did the students learn through storytelling?

At the first stage of digital storytelling, each group or each student had to think about the content of the story concerning the theme and decide what and how to create the story. The still pictures were very useful to construct the story. It was important what and how the students prepare the still images and arrange them. Next the students had to write a scenario and to draw and color some pictures or to gather and select photos. Moreover they had to record their narration with the computers. In the process of producing storytelling, they acquired how to use the software for recording, the software for producing movies, and other media.
Digital storytelling is one of the best methods for K-12 students as well as college students to summarize the learning products and show them to many people. In Susono’s Educational Technology classes the future teachers had nice experiences of creating digital stories as a K-12 student or for K-12 students, and got to know how to introduce storytelling in K-12 classes.

In Kogakkan University 2006 classes, the students made a group of 3-5. In order to create a story in each group, every student shared each role and more collaboration was required. As for Mie University students in 2007, every student created a story one by one in the class. So advice and support by the teacher, the teaching assistant, and other classmates were more necessary needed for the students to collaborate with each other. Moodle at Mie University was one of the effective tools to communicate with the classmates and exchange their comments concerning their storytelling works. They were looking forward to writing some messages and getting more feedback.

(3) What did the students learn concerning “Mottainai”?

All the “Mottainai” storytelling works created by the students were not concerned with Sustainability or Sustainable Development. However approximately the two thirds of the works were concerned about environmental problems and future lives. And creating digital stories led to learning about Sustainability or Sustainable Development.

The students wrote a lot of messages concerning “Mottainai” on the reflection sheet and “Daifuku-cho” (2005, a comment card for a student and a teacher). These are typical comments the students wrote;
1) I thought and thought about Mottainai in my life when I constructed my digital story. There are various Mottainai things around us.
2) There are a lot of Mottainai things in our college lives. For example, much food to eat, wasteful water, too much garbage. Also it is mottainai that we sleep in our classes or we don’t use the textbooks we bought for studying.
3) It was somewhat difficult to construct a story concerning Mottainai, but I was able to look for a good topic for creating the story in our lives.
4) Many digital stories by the classmates enabled me to think about Mottainai more.
5) I want to live more ecologically and keep Mottainai spirits in my mind.
6) I hope that more people overseas will know about Mottainai. I wish Mottainai would be an international word everyone knows in the world.

5. Conclusion

The students were able to learn a lot of things concerning "Mottainai" through creating digital stories. It is very important that the students approach environmental problems by producing storytelling and learn how to solve them.

Mottainai is one of the best themes that both college and K-12 students create a digital story to think about Sustainability. We hope that many students in the world should think about Mottainai and Sustainable Development and create digital stories to learn about them. We also hope that we will assist storytelling activities in many languages by Asian students in near future.

References