Development of iPad-based learning materials about media production

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ABSTRACT

We developed learning materials about media production for the iPad for elementary students. The materials focus on making presentation slides, newspapers, leaflets and videos. Each material includes six points, which help students to reflect on their own activities. The points consist of a four-scaled rubric, samples of each description of the rubric, and explanation movies of the samples. In this paper, we describe the development process of these learning materials. In addition, we analyze a practice of social studies in the 5th grade where the students used the materials on iPads. It is confirmed that their products actually improved considering the points in the materials.

Keywords: Media Production, Tablet, Elementary school, Learning materials, Information Literacy

INTRODUCTION

Tablet computers like the iPad are rapidly spreading in classrooms around the world. In Thailand, the government decided to distribute one million tablets to students nationwide in May, 2012 (Economist, 2012). In the U.S., the district of San Diego distributed around 25,700 iPads to fifth and eighth grade classes (UT San Diego, 2012). By 2015, all paper textbooks in South Korea will have gone and been converted to digital versions on smart phones, tablets and smart televisions (The Korea Herald, 2011). Preceding the introduction of tablets, laptops have also been distributed to classrooms. The One Laptop per Child project (OLPC) delivered over 2.4 million laptops to children mostly in developing countries (One Laptop per Child, 2012). Penuel (2006) synthesized findings from studies about effects of one-to-one initiatives and reported positive effects on technology use, technology literacy, and writing skills.

In Japan, the Ministry of Internal Affairs and Communications started “The Future School Project” in 2010. To study the feasibility of one to one learning environments and effects of using ICT for learner centered collaborative learning, all students were provided with a tablet PC and every classroom was provided with an interactive white board. 10 elementary schools were selected as pilot schools for the project and 8 junior high schools and 2 special needs education school also participated. Inagaki et al. (2011) categorized lesson plans in the future schools and found six types of utilization of interactive white boards and tablet PCs. In addition, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) announced its “Informationization vision of education” in 2011. According to the announcement, all students in Japan will bring their own tablet with digital textbooks by 2020. Consequently, hundreds of schools and education boards are conducting pilot projects about students using tablets in the classroom.

At the same time, a new course of study started in April 2011 and all textbooks were revised

considering ICT use and linguistic activities of students. In this curriculum, information education is regarded as important for fostering information literacy, which is the ability to acquire, evaluate and use information. However, learning contents about information literacy is separately embedded into existing subjects. There are two difficulties for teachers to foster information literacy in the current curriculum. The first is a lack of a systematic curriculum of information literacy. Although MEXT proposed three major categories and eight learning objectives about information literacy, these objectives are not related closely with textbooks of existing subjects. Consequently, it depends on a decision of each teacher as to when and what kind of information literacy is taught in the curriculum for the year. The second is a problem of textbooks. As we mentioned above, textbooks treat information skills separately. Then, even if a devoted teacher wants to teach information literacy, the contents of the textbooks are too fragmented.

PURPOSE

In this research, we developed learning materials for students in elementary schools to foster information literacy focusing on media production. Reflecting the current ICT installation, the material is developed on the Web and it works on iPads, PCs and interactive white boards. Considering the above two difficulties of fostering information literacy in elementary schools, we supposed the following design of the material would support teachers and students to confront the difficulties.

Rubric based material: we defined points and rubrics on media production activities. It supports teachers to consider a sequence of information literacy connected with concrete learning activities. It also supports students to be aware of information literacy and to improve their work through use of the materials.

Samples and explanations are installed: every standard has a sample, which visualizes the statements of the rubric. In addition, every sample has an explanation. Therefore, teachers could explain information literacy visually and students could easily understand what the rubric means.

In this paper, we described the development process of these learning materials. In addition, we analyze a practice of social studies in the 5th grade where the students used the materials on the iPad.

DEVELOPMENT OF THE LEARNING MATERIAL

Figure 1 is the top page of the material. It targets four types of media production: presentation slides, newspapers, leaflets and videos. Each material includes six points, which help students to reflect on their own activities. The points consist of a four-scaled rubric, samples of each description of the rubric, and explanation movies of the samples. Taken together, 96 samples and explanations are available.

Figure 1. The top page of the material

We organized a team for this research project. Four researchers and five teachers were

involved. Each researcher and his or her students developed one of the four kinds of media production materials. Four teachers focused on one kind of material each and the fifth teacher supervised them and used all kinds of materials in one unit among integrated studies before the other teachers used them.

The process of developing the materials was composed of five steps: brainstorming, clarifying points, making rubrics, making samples and making explanations of the samples.

Brainstorming

A kick off meeting was held in May, 2011. At the meeting, all members discussed teaching points of all media production activities. Including four researchers, five teachers and ten students, 19 participants put points of teaching on sticky notes. This resulted in 252 points, consisting of 53 for newspapers, 68 for presentations, 60 for video and 71 for leaflets were collected.

Clarifying Points

Each researcher categorized the above sticky notes and found several points. There were six points in each media production activity and they were separated into two aspects: information creating and delivering it. 24 points were found in total (table 1). In addition, illustrations about the points were drawn to catch the eye. ※make the materials more eye-catching

Table 1. Points of media production activities

Media	Phase of creating information	Phase of delivering information
Presentation	Order of slides, volume of the content, characters, figures and pictures	Talking and answering questions
Newspaper	Collecting materials, writing an article, reflecting on the article	Headline, layout of articles, figures and pictures
Video	Subject, camera, microphone	Editing, narration, effects
Leaflet	Information, composition, text	Appeal, figures and pictures, design

Creating Rubrics

Considering subjects and units where the teachers used the materials, each researcher prepared statements of the rubric. The rubric consists of four levels: excellent, good, adequate and poor. Table 2 shows a sample of the rubric, figures and pictures in making presentation slides. All descriptions were assumed that fourth grade students could understand. Figure 2 is an interface for the rubric. Each description has two buttons: “sample” (to watch the sample) and “explanation” (to see explanation of the sample).

Table 2. Sample of rubric

Criteria	Description
S: excellent	Figures and pictures are good. Size and explanations are considered.
A: good	Used figures and pictures are appropriate for the content.
B: adequate	Several figures and pictures are used, but they are not related to the content.
C: poor	There are few figures and pictures.

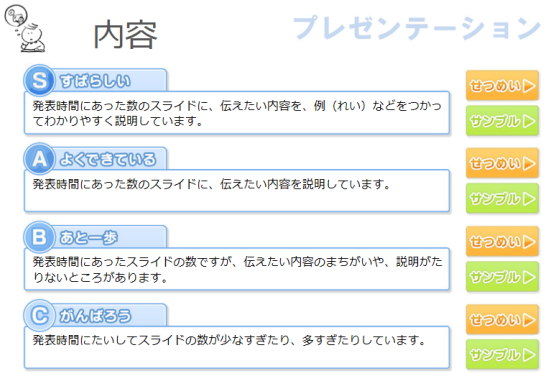

Figure 2 A rubric interface

Making Samples

We prepared concrete sample images or movies for each description of the rubric. Figure 3 is a sample of criterion “A” about figures and pictures in presentations. To avoid overlapping with the work of students, themes of all samples were different from any subjects and curriculum or used imaginary settings. The movies were under 30 seconds long, as students easily understand the point.

Figure 3. Sample of the description on a rubric

Making explanations of the samples

Explanations of the samples are movies, which include annotations by subtitles and animations. In addition, to let students understand points of the explanation, a summary of the explanation was shown at the end of the movie. Figure 4 shows a scene of the explanation movie about the same sample in figure 3.

Figure 4. Explanation movie of the sample in figure 3

LEARNING ENVIRONMENTS

Five elementary school teachers started using the materials in September 2011. Japanese, social studies, living environment studies and integrated studies were chosen by the teachers to implement the materials in their lessons. Seven iPads were provided for each class. Therefore, students formed groups and used the materials collaboratively. All materials were built on a remote Web server with Joomla, a content management system. By changing style sheets, teachers and students could switch between three types of interface and layouts of the materials: PCs, interactive whiteboards and iPads.

Most of the lessons when the teachers and their students used the materials were carried out in a normal classroom. The students used the iPads mainly for watching the materials only. Their products –newspapers and leaflets- were created on papers. Concerning video production, iPads were used for recording videos at a normal classroom. A computer laboratory was used for creating presentation slides.

PRACTICE

Besides the five teachers, a few of their colleagues also used the materials. Finally, by March 2012, 12 classrooms used the materials in a total of 33 lessons among seven different units. Here is an example of the materials being used in a 5th grade social studies lesson. Students formed groups and created presentation slides about the automotive industry. In the middle of the unit, they used the materials for a self-evaluation activity. The teacher handed the students worksheets for entering the score of their self-evaluation and writing plans for improving their products (Figure 5). Like self-regulated learning (Zimmerman, 1990), the students evaluated their products with metacognition triggered by the materials.

Figure 5. Self-evaluation after watching the materials

To analyze this practice, we compared the initial presentations before the improvement and the final presentations after that (figure 6). It is confirmed that all groups' products actually improved considering the points in the materials. In addition, the teacher pointed out several advantages of the material. First, using the materials, she could minimize her instructions. Therefore, time spent supporting each individual student reduced and she could support all students more frequently. Second, the teacher could focus on the learning objectives of the unit. This lesson was not how to make a presentation. Their products were to include what they learned as social studies. Her advice was mainly about contents and the materials gave advice about design of presentations.

DISCUSSION

We developed learning materials about media production for elementary students. The process of developing the materials was composed of five steps: brainstorming, clarifying points, making rubrics, making samples and making explanations of the samples. The materials consisted of 24 points, a four-scaled rubric with samples and explanations about the descriptions of the rubric. 96 samples and explanations were available.

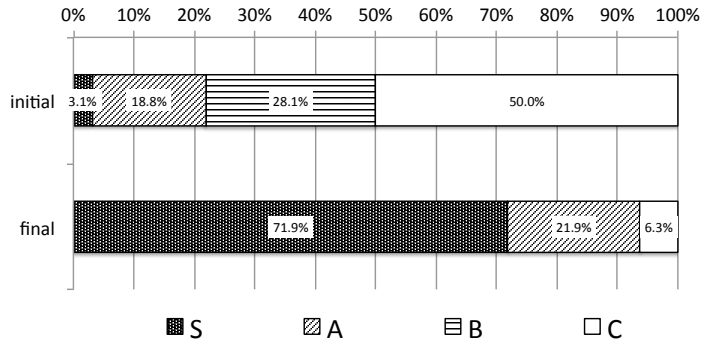

Figure 6. Evaluation of presentation slides

Teachers and students could use the materials on PCs, interactive whiteboards and iPads. 12 classrooms used the materials in a total of 33 lessons among seven different units. From the case study of the 5th grade students in social studies, it was confirmed that the materials on iPads could support students to create their products by self-evaluation based on the rubrics and samples.

There remain several future tasks. The first is about curriculum development. The rubrics would be a basis of designing a systematic curriculum about information literacy. However, these materials target only media production activities. We are now preparing additional materials which focus on information acquiring activities. The second is about learning environment. The students used the materials on iPads in groups. Besides the one tablet per group situation, one per pair and one per student learning environments might support their reflection more individually. Teaching strategies using the materials in various learning environments should be defined.

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