

# How to Use the Digital Encyclopedia with Elementary School Students

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**Abstract:** This research paper will show how to use the digital encyclopedia with elementary school students. This study uses an encyclopedia called the "Gakken New Wide". The subjects of this study were elementary school students (31 people). They freely used the digital encyclopedia during their school life for two months. However, the teacher gave them a few rules (i.e. when the teacher is speaking, students don't use the digital encyclopedia. Don't use it during long breaks and lunch breaks.) This research uses data on logs of students using digital an encyclopedia and fieldwork and a questionnaire of elementary students. The reason, the data practice using digital encyclopedia by students. The analysis of the data showed that using the digital encyclopedia changed students style on class lessons.

**Keywords:** *Digital encyclopedia, Empirical Study, Elementary school*

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## **Introduction**

In Japan, the Ministry of Education started the policy of "Introduction of the device of one to one student of digital textbooks " (the Ministry of Education 2009), and began the development of digital textbooks. The course of study of elementary school started in 2011, when textbook companies began to market digital textbooks to teachers (Takahashi et.al 2012). Digital textbook for these teachers were obtained by digitizing the information that is published in the textbook. However, there was digital information that could not be put in the textbook.

Japan, so far has been focusing on the development of digital textbook for teachers. In recent years, however, researchers and developers began to focus on the development of digital textbooks for learners. In fact, many reports at conferences on education and media features found the focus of digital textbooks on learning from around 2011.

It is believed that functionality for supporting learner was required for digital textbooks learners. Digital textbooks leaders proposed the form of using the layout and content of textbooks (Horita, Takahashi 2007; Horita et al 2008). Therefore, the Japanese digital textbook for teachers needed a lot of content in order to provide the basic foundation for children (Taizan 2012). To be specific, there needed to be audio, audio playback function and stroke order of character support function. These features are needed to teach students who use digital textbooks.

On the other hand, children and teachers in South Korea have their own digital textbook. Digital textbooks contained the search function and dictionary function to support the learning of children. These features are essential to support student learning with digital textbooks in the future.

Digital textbooks in Korea have search and dictionary features to help students personalize their learning. If these functions are included in digital textbooks, students will understand how to use these features in the classroom. Previous studies show how lending equipment to students can help students learn. For example, Ishizuka (2007), used mobile phones to help students learn about aquariums. In addition, Kubota (2012) conducted a safety study of the region by giving iPads to students. In these studies, specific uses for children were found. However, how children might use this equipment in their everyday life has not been examined.

This study focuses on the ability to support learning of individual children with digital textbook functions using the digital dictionary and digital encyclopedia features. This research aims to clarify how to use the digital encyclopedia with elementary school children

## **Purpose**

The purpose of this paper is to show how to use the digital encyclopedia in elementary schools. In the future, the digital textbook for the learner will be developed by company of textbooks. This study made use of the NEW WIDE a digital encyclopedia by the Gakken.

The list of vocabulary in the NEW WIDE digital encyclopedia and book encyclopedia is exactly the same, as are listed contents.

## **Method**

### **Target class**

The target group of children focuses on second grade children at Kansai University Elementary School. Thirty-one students people students continued to use the digital encyclopedia for about two month (The end of October from early September 2012). In this experiment a tablet device was distributed to each student.

The research group asked three questions to the target class (i.e. Do you feel interested in taking advantage of the dictionary. ii. Do you feel the dictionary is useful, iii. Do you want to look into using the dictionary). In the target class 28 out of 31 students were interested in taking advantage of the dictionary, Question i. All target class children felt that the dictionary was useful, Question ii. Also in the target class 28 children wanted to look into using the dictionary from Question iii. Thus, it can be concluded from positive comments that the target group was accustomed to using the digital encyclopedia.

This research chose second grade students at Kansai University Elementary. The reason is because most students are accustomed to utilizing the dictionary. In other words, they are familiar with how to use a dictionary. For example, if there is a word that they do not know in class, they have the habit to look it up in the dictionary. They used the digital encyclopedia when at school and during breaks between classes. However they could not use the Digital encyclopedia on the playground, because the digital encyclopedia must be connected to the network.

Table 1 :Use schedule in this study

Introduction time	Approach
September 21 <sup>th</sup> ~ 26 <sup>th</sup>	<p>Training period: Students do exercise to use digital encyclopedia in class lesson.</p> <ul style="list-style-type: none"> <li>• To training of operation iPad. Students use computer as usually. Because students can use keyboard.</li> <li>• To search for one word.</li> <li>• To use rule of iPad during class lesson. <ul style="list-style-type: none"> <li>• If teacher talk about lesson, students must not use iPad.</li> <li>• If students do not understand using iPad, when they can ask for help.</li> </ul> </li> <li>• To understand the difference between digital encyclopedia and Internet. <ul style="list-style-type: none"> <li>• To search of keyword.</li> <li>• To search of how to find out about things</li> </ul> </li> </ul>
September 27 <sup>th</sup> ~ October 30 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Students used the digital encyclopedia when at school and during breaks between classes.</li> </ul>

### Object: The Digital encyclopedia “Gakken NEW WIDE”

The NEW WIDE has a lot of features (i.e. Language dictionary, English-Japanese dictionary, and it is possible to look up the meaning by the hyperlink). The list of vocabulary in the NEW WIDE digital encyclopedia and book encyclopedia is exactly the same, and listed contents are same. However NEW WIDE has a lot of movie and audio data

### Analysis of this study

#### 1) Questionnaire

In order to understand how students used the digital dictionary, a survey was given on the digital encyclopedia use on 30th October 2012. The item of survey consisted of the following questions: “Do you want to try using the digital encyclopedia?” “Was it good to try using the digital dictionary?” “Do you want to use the digital encyclopedia again?”

#### 2) The access log

This research used data from logs of students using digital an encyclopedia and fieldwork, and questionnaire of elementary students. This study treated it as analysis data. This study focuses on the ability to support learning of individual children with digital textbook functions using the digital dictionary and digital encyclopedia features. In order to show to how to use the digital encyclopedia, this research found out when to use the digital encyclopedia. Incidentally, access log consisted of three parts.

Sample of Access Log:

User ID [Date and time] Information of the access log  
gakken\_nw [22/Aug/2012:14:01:16 +0900] "GET  
/newwide\_1g/search?keyword=%E3%81%8F%E3%81%BE&cond=prefix&dic=nw"

### Result of this study

#### 1) Comparison of perceptions about the dictionary: Results of questionnaires

The following are results from a survey given to measure student impressions after utilizing the digital encyclopedia for two months.

First of all, about 90% students answered that they enjoyed learning that utilized the digital encyclopedia (I think fun: 27 students; I think a little fun: 2 students; I do not think a little fun 2 students; I do not think fun at all: 0 students). The reasons are "Because I can find out that it was worrisome in class" and "I can examine the words that

can not be my own understanding in class”.

Second, about 90% of the students answered digital encyclopedia was good to use. In addition, other reasons that children answered with agreement were "I can examine words that I do not know in the class lesson. However if I do it, I cannot listen to what the teacher is saying." In fact, this student used the encyclopedia in situations when the teacher was giving instruction.

Last of all, all students answered “I want to learn by using again the NW.” The reasons are "I can find out easily by iPad that is in my desk." And "I can share it with my friends”. Many students were satisfied with using an electronic encyclopedia. Also all students would like to use it again. Students appeared to have found the value of utilizing an electronic encyclopedia.

## 2) Students how to use NW

A result of examining the usage scene in schools and access logs, frequency of use is as follows. Use of in the middle of a class: 88%; Use of vacation time: 2%; after class or before class: 10%.

The reason why the use of rest time is less, because there was a rule “students must go to Athletic Field in rest time. However, teachers allowed a few students to remain in the classroom to complete classroom responsibilities. (i.e. person in charge was responsible for problems with the school lunch, or the person in charge of making a quiz.).

When using digital textbooks before the start of class, 1) students investigate the words of news they saw in the morning, 2) Children found out about the book they are reading, 3) students found out about the animal that interested them. For example, at a time when news was about the civil war in Syrian Arab Republic in about October, student checked up on "Syria" before class started. Another student looked up "Columbus" while reading Columbus' biography. Frequently they saw pictures and videos of animals on digital encyclopedia. Sometimes, they raised these animals like the crayfish in their classroom. Therefore they were Interested in using the digital encyclopedia to learn about the crayfish

## Conclusion

This study showed how students could freely use the digital encyclopedia in elementary schools. Students use digital encyclopedia when they examine the words that they cannot understand in class. The results suggest that the students felt that the digital textbook was useful when utilized in activities.

In conclusion, students found the value of utilizing the digital encyclopedia for learning

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