

The Site-Specific Learning Model on Mobile Phones Using Zeigarnik Effect

Designing Collaboration Tool for Outdoor Studying

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Abstract. What is the best way to feel the spirit of the location? In Japan, junior high school students go to several day school trip with classmates. This differs from ordinary sightseeing tours, as its purpose is to encourage students to learn about history and nature in a proactive way. After studying about the area in the school, students walk around there by themselves in small groups. Such on-site outdoor activities are very precious, however, they cannot recognize the artistic points and understand that meaning and value if they just look at the objects or scenery. To solve this problem, we have developed a new learning model for outdoor studies using Zeigarnik effects.

1 Introduction

In Japan, students go to several day school trips with classmates to visit famous places to learn histories. For that purpose, 87.3 % of junior high schools allow students to walk around the area by themselves in small groups [1]. Such site-specific outdoor studies are very precious [2], however, they cannot recognize the artistic points and understand that meaning and value if they just look at the objects or scenery. To solve this problem, we developed a new learning model for outdoor studies using Zeigarnik effects [3]; human beings feel some interesting in object unfinished. This paper examines our learning model for outdoor study and our original application. In addition we will mention the results of the research using our application on September, 2013.

2 Our Methods for Students to Be Interested in Objects

2.1 Using Cognitive Model for Out Door Study

We, human beings do not recognize what we are looking at. For example some like a game named photo hunt. If we can recognize all the things our eyes catch, photo hunt would not be a game. We sometimes do not find the differences between

two resemble photos. However, once we have caught the object, we cannot help looking at that particular one. If students walk around the area without any marks, their memory would become ambiguous. We utilize this special quality of human beings and use a quiz as the trigger to focus on the object from whole scenery in front of them. Then they would feel the special point of the object deeply. The quizzes are triggers to accept objects positively.

In addition we treat the class in which student prepare to outdoor study as an incomplete experience. Before the trip students have learned history and specific arts in the area and they made some quizzes for other classmates by making use of the preparation. They do not know what kinds of quizzes are preparing for them each other. Such an incomplete experience rouses human beings interest in the object. On the basis of a version of the Zeigarnik tasks that have been completed are recalled less well than tasks that have not been completed. Nowadays some engineers have created detailed navigation systems for trips, however, we create the incomplete experience by design based on the Zeigarnik effects for students.

2.2 Related Works

For the Zeigarnik effects, a study done by Greist-Bousquet and Schiffman 1992 [4] provided evidence. There are several related works about Environmental psychology and tourism. Pearce and Stringer 1991 [5] studied from the view point of physiology, cognition and individual variation etc. Fridgen 1984[6], van Raaij 1996 [7], Toshiji Sasaki also studied about this field. T.Sasaki told that we can part into 3 scenes in a trip: before the trip, during the trip and after the trip. And it is important for travelers to be impressed in each part [8]. As we will mention on chapter 4, we focus this three points and have made our application.

3 Designing Quizzes for Site-Specific Learning

3.1 Using Zeigarnik Effects

The tendency of leaning evaluation is changing from input knowledge to Learning outcomes recently. On our methods students learn about the area (input the knowledge). Then they make Quizzes by preparation of the trip (Learning outcomes). Students learned new knowledge about the area: famous persons, arts, architecture etc. They make quizzes about the objects they are interested in and then they study more. For, if they want to win the game, they should remember many kinds of things about the area. They do not know the quizzes they will answer and they do not know their course to walk exactly till the trip. Teachers make the courses and choose quizzes. In such an incomplete situation students go to the trip and then they will complete their study on the trip.

3.2 Site-Specific Learning

We also consider the trip as a site-specific learning. Using the quizzes, we make some special points to keep students eyes on. This is an example.

Quiz :Do all dragons have wings on their back?

1. Yes, all dragons have wings
2. No, dragons dont have wings.
3. Though eastern dragons have wings, Japanese dragons dont have wings.
4. There are several kinds of dragons in Japan. Some have wings and some dont have wings.

Right answer is 4.

Explanation:There are several kinds of dragons in Japanese legend. Some belong to water and some belong to sky. A dragon of the sky, called TENRYU, has wings. Lets go to the temple and look at the sculpture of a flying dragon. After answering this quiz, students looked at the sculpture with more interest.

4 Outline of Our System

In our model, students walk around the assigned area with smart phone. On the screen, quizzes relating to that area are displayed by using GPS. The quizzes are triggers to accept objects positively. Figure 1 shows the outline of implementation of our learning model. The behavior of this system is as follows.

Scene 1. Preparation: Students make quizzes and set up walking routes before going to outdoor studying. Teachers check routes and quizzes. ((1) and (2) in Figure 1)Students use PC at this step.

Scene 2. During the outdoor study: When a group of students visit the places, they should answer a quiz and find the next place of visiting as orienteering game. They also can see the status, such as points and location, of other

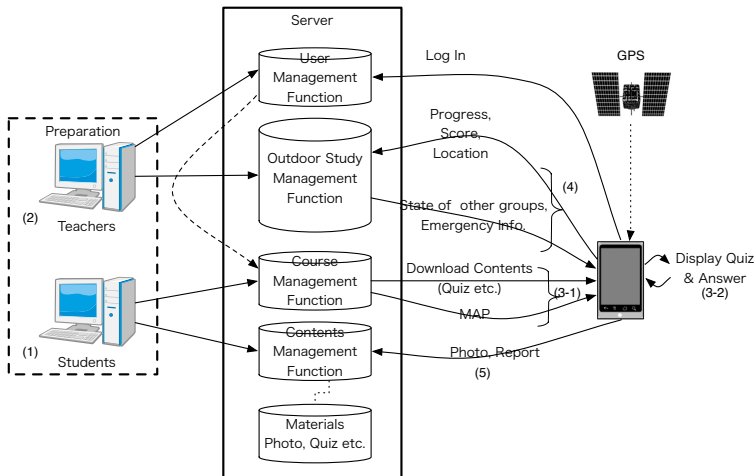


Fig. 1. Outline of implementation of our site-specific learning model

groups. Teachers can get the same information. They may upload photos and comments. ((3)(4)(5) in Figure 1) Students use mobile phones

Scene 3. After the trip:After the trip, the first prize becomes open to everybody at the goal. In addition students have a file of photos that they have taken each point of quiz on the way to the goal. It will be a memorial album for them. Students can look at the file both at PC s and at mobile phones.

5 The Results of a Trial

5.1 Outline of the Trial

We had a trail on September, 2012 around Tokyo Sky Tree. Tokyo Sky Tree is the tallest tower in the world, is the new symbol of Tokyo, but also that area was a downtown of Edo. Traditional culture is remaining and there are many historical Japanese temples, gardens and architecture in that area. Summary of the trial is as follows. 30 persons, inclosing high school students, university students and adults, made 8 groups (3 or 4 persons per group). Each group has a smart phone with our site-specific learning application, named Stasta Eye. They walked using this application. 10 quizzes were prepared for one group. We assigned different route to each group and we set average trip time about 2 hours. After they answered one quiz, then the next point was shown. They could look at the map around the point on smart phone. In addition they could telephone to the curator any time from the application at the emergency situation. Also, the curator used PC in which the places, telephone numbers and the records of the quizzes of all groups were indicated.

5.2 Evaluation Based on Questionnaires

The results of questionnaires show us that people were strongly interested in objects and nature they saw by answering quizzes (Figure 2). We had high valuation about the planning and our methods of learning. In Figure 3, we would like to show the evaluation of planning and operation. The average point of the planning was 4.50 and that of operation was 3.65. People who joined this trial were interested in this kind of study (planning), but the evaluation of operation

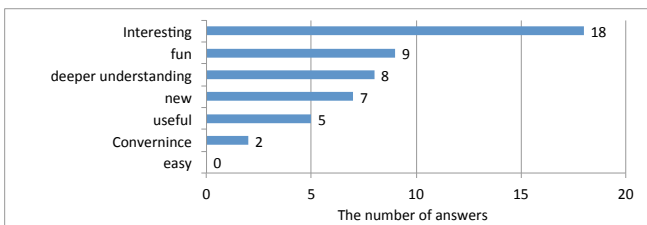


Fig. 2. Impresion of using Stasta Eye (multiple answer)

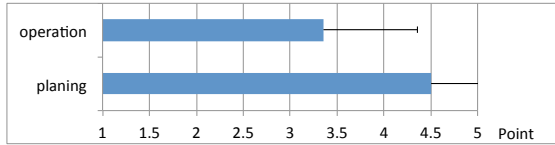


Fig. 3. Evaluation about the planning and the operation Likert scale

was lower than planning. In this trial, who joined this research was high school students, professors of universities and engineers. So that, We think that the evaluation of UI might be divorced and the average score was not so good.

6 Conclusion

We proposed a new idea of site-specific learning using Zeigarnik effect to make school trip more valuable and developed a trial system for evaluation. Smart phone is a useful devise that connects classroom study and outdoor study. It is small and light to bring with. Of course it is not the main object. Smart phone is a subordinating tool to know about the area, in another word, spirit of the place. The site-specific learning could make chances for students to feel and know about the objects in the location. We will continue this research based on experiment, making quizzes and enjoy sightseeing, as educational activities.

Acknowledgment. We would like to thank Prof. Watanabe, Prof. Fujii and Mr.Ogawara of Utsunomiya University who implemented this system. We also thank all volunteer who joined the evaluation and member of Study Group on School Trips [9].

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