

Designing Overseas Fieldwork Using a Mobile Device for Enhancing Students' Reflective Learning

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Abstract: In this research, the authors attempted to clarify how mobile devices are best utilized in overseas fieldwork in higher education to enhance reflective learning, especially in developing countries where wireless connectivity is NOT stable. Mobile devices can be used to promote reflective learning in fieldwork from the following two aspects, (1) to promote personalized and collaborative reflective learning and (2) to help students create conceptual perspectives based on the data collected from various resources such as field notes. However, in many cases, students do fieldwork where wireless connectivity is NOT stable. Students may develop skills to use mobile devices effectively to reflect upon their learning and develop conceptual perspectives about another culture.

Keywords: Overseas fieldwork, iPod touch, Mobile Devices, Reflective Learning

1. Introduction

Overseas fieldwork in higher education has become popular in Japan under the aim of nurturing global citizenship. Universities encourage students to work with people overseas collaboratively and to learn how to live and work in a global society. In addition, overseas fieldwork enables students to learn by bringing them into contact with other societies and cultures.

From an educational perspective, the benefits of overseas fieldwork can be directly linked to Dewey's (1961) assertions. Dewey argued that education should not be merely the "subject matter of schools", isolated from the subject matter of life experiences. In overseas fieldwork, students can situate themselves in authentic environments and become global citizens through "reflective learning". Reflective learning is "the process of internally examining and exploring an issue of concern, triggered by an experience, which creates and clarifies meaning in terms of self, and which results in a changed conceptual perspective" according to Boyd & Fales (1983). It is, however, reported that overseas fieldwork itself does not promote "reflective learning" (Kawai 2013).

Reflection is an active process to explore one's own experiences in greater depth. This can be done during an activity or as an activity in itself. The important point of reflection is to learn by taking into perspective one's own actions and experiences. To promote reflective learning in the fieldwork, the authors focused to using mobile devices. Educational practitioners pay more attention to mobile devices because the increasing popularity of mobile devices and recent advances in wireless networking technologies. Although mobile devices face temporary and unannounced loss of network connectivity (Capra et al. 2002), especially in the fieldwork in developing countries, mobile devices can be used to promote reflective learning in fieldwork from the following two aspects; (1) to promote personalized and collaborative reflective learning and (2) to help students create conceptual perspectives based on the data collected from various resources such as field notes.

The first purpose of using mobile devices in the fieldwork is to promote personalized and collaborative reflective learning. Students in the fieldwork learn 'anywhere, anytime' both personally and collaboratively. Mobile devices deliver 'just-in-time' and 'just-for-me' information to learners (Shih, Chang, Chen, & Wang 2005). Thereby the students will be able to explore their own experiences in greater depth by accessing learning resources and asking others through the Internet

whenever they have questions during their fieldwork. In general, when faced with an abundance of unfamiliar situations and when they have questions during fieldwork, students would not explore them because there is not enough available information to help them understand matters. Mobile devices enable students explore their question and obtain answers through their own initiative.

The second purpose was for field notes. In fieldwork, students take “field notes”. The term ‘field notes’ is used to cover a wide range of types of information including text, image and sound data that might be collected in the field, created or modified in the field, or consulted and analyzed after returning from the field. These notes might be merely recorded descriptions. Individual notes rarely stand-alone. The iPod touch enables students to integrate, interrelate, and arrange notes in sequences.

2. Research objective

Despite the advantage of using mobile devices for fieldwork in developing countries, there are problems that interfere with its effective use. In general, the most powerful aspect of using a mobile device is the ability to use a wireless network. Research on mobile learning illustrates the usefulness of the portability of mobile devices coupled with wireless connectivity. However, in many cases, students do fieldwork where wireless connectivity is NOT stable. Therefore, students do not always obtain ‘just in time’ and ‘just-for-me’ information whenever they need to access learning resources. In spite of the lack of network connectivity, mobile devices are useful in fieldwork with respect to asynchronous discussion tools, where the format of interaction facilitates contributions in a student’s own time and at their own pace (Salmon, 2004) and aspires egalitarianism (Bender, 2003).

Therefore, in this research, the authors attempted to clarify how mobile devices are best utilized in overseas fieldwork to enhance reflective learning, especially in developing countries where wireless connectivity is unstable.

3. Outline of the case study

Overseas fieldwork was conducted in India by a university in Kyoto in February 2012 for 19 days in Bodh Gaya, India. Seven students went to rural areas in India for fieldwork with an instructor. Respective students individually investigated their research topics working collaboratively with local people using an iPod touch, as a mobile device. Students worked mainly in village sites where network coverage was poor. Consequently, students used their iPod touch’s offline during the activity and returned daily to the city to use the Internet.

The objective of the fieldwork is to develop context-awareness of the local NGO, named Niranjana Public Welfare School in Bodh Gaya, by addressing local issues, concerning education, medical care, orphans, social work, etc. The ‘context awareness’ indicates that students understand the real situation of people living and working in the NGO, based on data collected from various resources throughout their fieldwork experience.

Respective student had her own research topics, for example, students A researched on “Life of Indian girls living in rural villages” and students B researched on “Farming for sustainable development”. After orientation, students individually conducted fieldwork using the iPod touch with people in places related to their research topics. For instant, ST (A) studied “the life of Indian girls living in a rural village”. She visited Indian girls at the age of 10-15 in a rural village and interviewed them, their family and the NGO staff, who support them. ST(D) studied a medical care for rural people that NGO regularly provides. She followed a medical doctor, who worked in an NGO clinic whenever and wherever he went, even for medical treatment tours to rural villages. She also interviewed patients who came to the clinic from rural villages.

After their fieldwork, respective students personally uploaded their reflection about their own research to a Wordpress blog at an Internet café in the nearest city. At the same time, students gathered together daily in the evening for at least two hours to reflect collaboratively and discuss their personal reflections.

Before the fieldwork, prior and subsequent learning activities were conducted. In the prior learning activities, the students studied about India and local issues by communicating using SNS

(Facebook) and a video conferencing system (Skype) with students of Gaya Collage, Gaya, who were collaborators of the fieldwork. In addition, students prepared iPod touches by installing useful applications such as Wordpress for use as an e-portfolio, Facebook and Twitter for communicating with their friends and family, Dropbox for sharing data, Decopic for decorating pictures with colored pen and iBooks with necessary information scanned from guide books about India. Other applications were installed during the fieldwork according to need. In the subsequent learning activities, students developed e-book and documentary videos based on the data collected in the fieldwork.

4. Research methodology

The authors employed qualitative research methods. The data was collected from seven students who participate in the fieldwork as shown in Table 1.

Table 1: Target Students (on Feb 2012)

	Major	Year	Sex	Overseas fieldwork experience
ST(A)	English	2 nd	F	None
ST(B)	German	2 nd	F	None
ST(C)	Global Affairs	2 nd	F	Yes
ST(D)	English	3 rd	F	Yes
ST(E)	English	3 rd	F	Yes
ST(F)	English	3 rd	F	Yes
ST(G)	English	4 th	F	Yes

First, the authors collected information through a questionnaire containing the following questions; kinds of applications they used, the purpose of using your iPod touch, When iPod touch was used, its' advantage and issues of using iPod touch for fieldwork.

Second, after analysis of the questionnaire results, the authors employed semi-structured interviews with student participants in groups based on the results of the questionnaire including (1) how iPod touch helps their reflective learning and (2) how they reflected their experiences using iPod touch.

In a stage of analysis, applications that the students used were categorized according to their purpose of using the iPod touch. The authors discussed the data with the students in order to clarify its advantages and disadvantages and categorized like Table 2.

The interview data was data was processed in for phases. First, the transcript was reduced to information relevant to the research topics. Second, the authors did open coding phase-by-phase. Third, the coded data was analyzed according to a table made by analyzing the questionnaire data. Fourth, the authors discussed how mobile devices enhanced students' reflective learning.

Table 2: Applications and methods of iPod touch use in fieldwork

Purpose	Applications	How to use	Advantages	Disadvantages
For survey	Evernote	To sort out and integrate various audio-visual data into one application.	Can combine various audio-visual data into one.	None
	Camera / Video camera	To take photos and movies connecting what students think and feel.	Can take photos and movies anytime and anywhere because of its portability	Camera doesn't have focus system.
	Memo	To take notes of whatever students think and feel anytime and	No need to bring pen and notebook. Just jot down notes by hand or with touch pen.	Hard to type on the small keypad.

		anywhere.		
	Voice Recorder	To record interviews and local songs.	Easy to set up recording. Can share data immediately.	Difficult to find data later.
	iBooks	To refer to information about India. PDF files were saved in advance.	No need carry any books. Save only necessary data into iBooks.	Additional information cannot be added without computers.
	GPS Map	To identify geographical location.	Can make an original map by connecting with photos.	Results were influenced a great deal by the Internet environment.

5. Findings and Discussion

5.1 *The method of iPod touch use in fieldwork*

After analyzing the data, the authors found that the students used the iPod touch mainly for three purposes. Firstly, the iPod touch was used to conduct surveys. In fieldwork, students collected various types of data including sounds and images such as photos, movies, and geographical maps, interviews and information from books and the Internet. Features such as camera, video camera, voice recorder, GPS map and iBooks were used to collect data. This data was stored in Evernote in order to classify and integrate the different types of data. This enabled students to examine the collected data comprehensively.

Secondly, the iPod touch was used for communicating with local people as well as family and friends of students. To communicate with local people, photos and movies were used to facilitate communication that was at times problematic due to language barriers. Although they spoke in English, miscommunication could and did occur because they did not share a common native language. To update and keep in touch with their friends and family, students used Facebook and Twitter daily. Students were encouraged to learn from their fieldwork by obtaining feedback from their friends and families in Japan.

Thirdly, the data collected was used for reflection. Dropbox was used to share ideas and images with other students. Respective students obtained different viewpoints and findings by referring to other students' data. Through viewing the visual and audio data shared in Dropbox, students were able to reflect from different viewpoints. Wordpress was well used for an e-portfolio. By writing portfolios, students were able to reflect about they did, what they could not do and what they will do the next day. In addition, students responded more critically to comments and questions received from others in Japan on the Wordpress blog posts. Multimedia data such as photo, movie and sound data were useful in assisting students to reflect on what they thought and how they felt. Furthermore, students repeatedly listened to the sound data of interviews until they understood them clearly. This practiced helped them become accustomed to listening to English spoken with a local accent and helped students to communicate with Indian people.

5.2 *Discussion from the perspective of reflective Learning*

The authors will discuss how the iPod touch enhanced students' reflective learning by quoting students interview data. Six features of using iPod touch to enhance reflective learning are clarified.

(a) Multiple type of data collection

Multiple type of data collection helped students to reflect on their experience. ST (D) said, "When I saw something interesting, I took photos. When I heard something interesting, I recorded sound by voice recorder. When I find something interesting, I took memos. I mostly did not miss what I want to explored during the fieldwork by using iPod touch". ST(C) said, "I used Evernote to integrate multiple type of data to reflect comprehensively my experience." In the fieldwork, students recorded by photos, sounds and memos that they were interest in and asked local people what they were.

At the time, local inhabitants answered in English with a strong Hindi accent, so students did not understand the answer clearly. So students recorded the data and asked someone at the hotel to explain what was said.

(b) Spot records of new findings and questions and reflection

Students recorded on their iPod touch whatever, whenever and wherever they found something interesting and something they questioned. In fieldwork, unexpected matters occur daily. The students continuously encountered new experiences. Therefore, it was difficult for students to annotate interesting events they encountered on the spot. The iPod touch helped students to record their findings and questions on the spot and reflect on it after the activity. ST (G) said, "I faced something interested in any time, but I would not know what it was at the time because I did not understand Hindi although I asked about it to local people. Then usually I would give up exploring them. But by using the iPod touch, I could bring my interest and questions to my Indian friends who speak English in order to ask them what they were." Thus, the iPod touch helped students to explore their experiences over time and place through the utilization of recorded data.

(c) Improvised communications

The iPod touch connected students to local people. The students create opportunities to communicate with local people using the iPod touch. For example, they took photos and videos and showed them to local people. The local people enjoyed watching them and became more interested in communicating with the students. Thus, students were able to obtain a wider range and greater detailed data by communication with local people. ST (E) said, "I played with children using Decopic. First, I took photos of kids and decorated them with stamp and pen on the iPod touch. The kids enjoyed a lot playing with it. Then, the kids opened their heart to me. So I made good friends with them and started understanding more deeply and clearly their life and sense of value. So I decided to research on their life and sense of value." Improvised communication helped students to access and research the life of local people.

(d) Connection with prior and subsequent learning

Students were able to connect their experience during the fieldwork with prior and subsequent learning. Before the fieldwork, they studied about India as a prior learning activity. They saved useful data such as map of field site, basic information on money exchange, treatment of sick, manner, religion etc. Students referred to this data when they needed information to better understand their experiences. In the field site, wireless connectivity is unstable, so the students could not connect to the Internet whenever and wherever as in ubiquitous learning. Therefore, they saved the necessary information in advance into the iPod touch and referred to them whenever they needed. When students needed additional information during their fieldwork, they downloaded and saved information to their iPod touch at a local Internet cafe.

In addition, students collected data related to subsequent learning used when developing documentary videos. They intentionally collected data that they needed for develop documentary videos into iPod touch. ST (A) said, "I collected data based on my question about the life of Indian girls." Actually there were many interesting things during the fieldwork, but I focused on life of Indian girls because I wanted to develop documentary of it. In spite of that want to learn more about India beyond her questions, but could focus on her research because other students shared their finding. They were collecting data that explored other areas." Having a goal of developing documentary videos encouraged students to experience and reflect with specific question and deepen their understanding on their research topic.

(e) Mental and cognitive support from people in Japan

Students received feedback from friends, parents, staff and teachers at their university in Japan using Wordpress and Facebook. Connecting with people in Japan helped students mentally and cognitively.

From mental viewpoints, the students were motivated by obtaining feedback from people in Japan and wrote more frequently and concretely their reflection on the e-portfolio. ST(E) said, "I am happy to received comments from my parents that they were surprised to read my daily on the Wordpress and that they admired me".

From cognitive viewpoints, the students had other perspectives based on their questions that they could research. ST (C) said, "Questions on my reflection from my friends (in Japan) made me to have different perspectives to think on my question."

The students went daily to the Internet café in the city to upload their reflections on Wordpress and Facebook as a portfolio and received message from people in Japan.

(f) Gathering of personalized and collaborative reflections

During the fieldwork, students first reflected on their personal experience and shared their reflections collaboratively. During fieldwork, respective students conducted their research related questions individually or in groups. After collecting data, they reflected and recorded their findings in the memo of the iPod touch offline. At evening, they went to the Internet café to upload the data to Wordpress and/or Facebook. At night, all students gathered to share their reflections for 1-2 hours based on their personal annotations. Collaborative reflection influenced student attitudes and behaviors the next day. ST (F) said, "Discussion with other students helped me to think about my questions from multiple viewpoints. I researched on medical care for rural people. Firstly, I just followed doctor, nurse and patients to understand how a medical care center run. Through discussion, I paid more attention to audio-visual media that was discussed in collaborative reflection. The rural people do not have literacy, so it is important to use audio-visual media as well as oral and written explanation. Through this finding, I could have question how the doctor and nurse communicate with rural people when they gave care. "That became my question", ST (B) said, "collaborative reflection was very beneficial for me. It was first time for me to go to developing countries, so I did not know how to behave. But I gradually understand what I had to do, what I had to think about, and how I had to behave by listening and exchanging ideas with other students."

6. Conclusions and future direction

In this paper, the authors clarified how mobile devices are best utilized in overseas fieldwork to enhance reflective learning, especially in developing countries where wireless connectivity is unstable. The authors described how students used mobile devices for three purposes: survey, communication and reflections. In addition, the authors identified the advantages and disadvantages of using the mobile devices in the field site where the network is not stable. The results showed that the mobile devices enhanced students' reflective learning in the following ways: (a) multiple type of data collection, (b) spot records of new finding and questions and reflection, (c) improvised communications, (d) connection with prior and subsequent learning, (e) mental and cognitive support from people in Japan and (f) gathering of personalized and collaborative reflection.

As a future direction, the authors will research the outcomes of reflective learning in overseas fieldwork. In their reflective learning, students are expected to apply their learning to other context such as daily life and/or studies at university.

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