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A Study of Mobile-assisted Photo-taking for English Phrase Learning

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Abstract: Owing to the rapid advance of mobile technologies, numerous studies about the use of mobile phone in education have been reported. Although most mobile phones have photo-taking function, not many research have applied this function in language learning. The study aims to explore the influence of integrating MALL photo taking activity on the learner's English phrase learning performance. A total of 116 students enrolled in a college in central Taiwan participated in this study. Participants were divided randomly into two groups: control group and experimental group. The control group is assigned the traditional sentence making activity for phrase learning. The experimental group is assigned the activities of taking photos through participants' mobile phone for phrase learning. The study primarily connected to their daily encounter with newly acquired phrases by using mobile phone to take photos and associate to the sentences they made. The college students were assigned a one-to-one basis on taking photos in their daily encounter substance in order that construct sentences with newly acquired phrases. The results indicated that the experimental group had significant gigher scores than the control group on the post test and delayed post test.

Keywords: mobile-assisted language learning (MALL), English phrase learning, Photo-taking

Introduction

"Phrase is a group of words that are used together in fixed expression" (Macmillion, 2007, p.1119). Phrases can help writers illustrate their own ideas more clearly and enrich the meaning of the sentences, rather than creating word by words, and easier their writing task (Li & Schmitt, 2009). To help learners better comprehend and remember these lexical units of phrases, most teachers would ask students to make a meaningful sentence for memorizing the corresponding phrases and learn how to use phrases well in the sentence.

However, some learners make sentence through observing the sample sentences provided by instructors and then modeling what sample sentences do. Other learners may copy similar sentences from dictionaries or websites. These learners perform the desire task while modeling others do without creating association to their personal experience. As a result, the meaning of phrases do not fully comprehended and actively processed from sensory memory to long-term memory through the traditional sentence making activity. Therefore, effective memory strategies and tool are needed to improve phrases proficiency (sentences wrote by Liu, P. L., 2011/5/25).

Oxford (1990) provided three effective memory strategies for instructors to promote phrase learning: creating mental linkages (i.e., placing a new phrase in a meaningful sentence), employing action (i.e., physically acting out a meaningful relating expression), and applying images (i.e., relating new phrase by meaningful visual imagery in the mind or in actual drawing) (Oxford, p.39). However, the applying images strategy can be used through associating phrases with a visual symbol or picture of a concrete object, but drawing might be a frustrating aspect to learners who were not good at drawing and increase their cognitive load. To capture the physically acting features of phrases concretely and efficiently, plug-in

cameras of mobile phones can make learning more efficient to take photographs and further collect data for their retention. The researchers named the activity used plug-in camera of mobile phone as MALL (Mobile Assisted language learning) photo-taking.

For knowing the effect of using MALL photo taking on English phrase learning and sentence making performance, the researcher adopted Nation's (2001) learning general processes (noticing, retrieval, and generative use) as the base for designing the English phrases learning activities. The four activities includes: phrases learning instruction (Activity 1), MALL photo taking (Activity 2), sentence making (Activity 3), and online voting (Activity 4). Both control and experimental groups received Activity 1, 3, and 4. However, only the learners in the experimental group had the MALL photo taking activity (Activity 2) and needed to make sentences according to the photos they took (Activity 3) (sentences wrote by Liu, P. L., 2011/6/1).

The major purpose of this study was to investigate the application of Oxford's (1990) three effective memory strategies of using MALL photo taking activity to assist English phrase learning. The secondary purpose of this study was to investigate the difference of the learners' attitudes toward phrases learning activities whether they used the MALL photo taking or not. The following research questions were investigated:

RQ 1 What is the influence of integrating the MALL photo taking activity on the learner's English phrase performance?

RQ 2 What are the differences on learners' attitudes toward phrases learning activities?

Literature Review

One of the critical problems in traditional phrase learning instruction is that such instruction are fragmented, and tend to be teacher-centered and separated from the students' daily life and interests (Cullen, 1994; Wong & Looi, 2010). There is significant potential in the portability and versatility of mobile devices in promoting a pedagogical shift from instructor centered to learner-centered learning (Jeng, Wu, Huang, Tan, & Yang, 2010; Wong & Looi, 2010; Wong, Chin, Tan, & Liu, 2010) (sentences revised by Liu, P. L., 2011/6/3, 2011/6/6). Numerous studies about the use of mobile technology in education have been reported, in which these technology-enhanced learning approaches are referred to as mobile learning by the researchers (Hwang & Tsai, 2011).

In the past decade, various studies concerning mobile learning have been conducted in museums, classrooms or labs (i.e., Hwang & Chang, 2011; Reynolds, Walker, & Speight, 2010). In addition to these indoor activities, an increasing number of mobile learning activities have been conducted in the fields (i.e., Chu, Hwang, & Tsai, 2010; Hung, Lin, & Hwang). However, there are only few research focused on the applications of mobile photo taking function in language learning. The studies which applied the mobile photo taking can be categorized into two different categories by the learning focus of the study: vocabulary (Joseph, Bisted, & Suthers, 2005; Hasegawa, Ishikawa, Shinagawa, Kaneko, & Mikakoda's, 2008), and phrase (Pemberton, Winter, & Fallahkhair, 2009; Wong & Looi, 2010; Wong, Chin, Tan, & Liu, 2010) (sentences wrote by Liu, P. L., 2011/9/23).

Joseph et al. (2005) is focus on the word-image paired associated wired PhotoStudy system for learners to upload images from a shared database for viewing the learning content with related photos through context and photo viewing and reviewing multiple choice activities. In Hasegawa et al.'s (2008) study, learners can create their own learning materials register to the data base for sharing, and assessed to others' creating materials for vocabulary learning by using their favorite images or movies. The researchers compared the teacher-created and student-created learning materials by using PSI (Personal SuperImposer) system. The result indicated that memory retention of the participants who

learned through creating their own learning materials is much higher than who only used PSI system.

In Pemberton et al.'s (2009) study the learners learned the culture-related content in their daily life through sound, image, sound and videos. Learners also build up different scenarios to illustrate the phrases they don't know through combining the text, sound, image, and even a videos for providing in more interesting ways. Wong & Looi (2010) present two novel case studies of MALL that emphasize learner-created content. In learning English prepositions and Chinese idioms, respectively, the primary school students used the mobile devices assigned to them on a one-to-one basis to take photos in real-life contexts so as to construct sentences with the newly acquired prepositions or idioms. Subsequently, the learners were voraciously engaged in classroom or online discussion of their semantic constructions, thereby enhancing their understanding of the proper usage of the prepositions or idioms. The photo blogging project described by Wong et al. (2010) involved students using iPhones to take photos to illustrate Chinese idioms being studied and to share their photos and comments with the class through a wiki. Students were encouraged to take photos based on their daily lives using their immediate surroundings. This use of the student's actual environment improves upon similar projects that have used an artificial space such as a lab or a classroom (sentences wrote by Liu, P. L., 2011/9/23).

So far, no previous studies conducted MALL photo taking on English learning. Thus, this study complements previous studies in three ways:

(1) This study measure learners' English pareses and extended sentence making performance via MALL photo taking, whereas previous MALL photo taking studies only focus on Chinese learning performance (sentences wrote by Liu, P. L., 2011/5/26).

(2) Learning gains were measured by means of a pre-test and a post-test while previous studies only had one post-test.

(3) Quasi-experimental design was used for comparing the effects of Phrase learning MALL photo taking, while previous studies usually used observation and survey (sentences wrote by Liu, P. L., 2011/6/2).

Method

Participants

The participants were 116 English as second language (EFL) students in a university in central Taiwan (68 females and 48 males). The participants were from two intact classes enrolling in General English classes. The average age of the participants is 20. The length of participants' English learning experience ranged from six to eight years, from middle school to high school. The English proficiency level of participants was intermediate level, which is regarded as a person who was able to read short stories, private letters, or fax mails. The total number of already-learned word for participants can be reached to 7000 (sentences revised by Liu, P. L., 2011/5/3).

The experiment of this study was a quasi-experimental study. The participants from two intact classes were divided randomly into the control group (CG: N=48) and the experimental group (EG: N=68). The researcher further paired participants into small groups according to participants' willing for English phases learning activities. There were 24 pairs in the control group and 32 pairs in the experimental group.

Instrument

English phrase preliminary test

The English phrase preliminary test consisted of 35 fill-in items which where delivered from Common American Phrases in Everyday Contexts: A Detailed Guide to Real-Life Conversation and Small Talk (Spears, 2002). Twenty English phrases were chosen by the correct rate of learner's answers.

English phrase learning activities

The English phrase learning activities were designed by Nation's (2001) three general learning process for remembering words: noticing, retrieval, and generative use. The processes of the activities are described below.

Activity 1 - Phrases learning instruction: It offered an aid for visually by explaining the meaning of the sentences, and instructor also asked learners orally repeating the sample sentence.

Activity 2 - MALL photo taking: It was an activity for experimental group. The EG learners worked as pairs and illustrated the 20 phrases with photo taking functions of their own mobile phones.

Activity 3 - Sentence making: All learners were worked in pairs to make new sentence for new learned phrases. The learners in the EG made sentences to describe the photos they took in Activity 2.

Activity 4 - Online voting: All the sentences were posted on the class website for voting the " top five excellent sentences".

Table 1 *General Process*

	Noticing		Retrieval		Generative use
	Activity 1 (week 2)	→	Activity 2 (week 3-4) →	Activity 3 (week 5) →	Activity 4 (week 6)
	Phrases learning instruction		MALL photo taking	Sentence making	Online voting
EG	○		○	○	○
CG	○		X	○	○

Note: Table 1 was designed by Liu, P. L.
Note: EG = Photo-taking group; CG = No photo-taking group.
Note: The CG searched three related phases while the EG did the Activity 2.

English phrases immediate and delay post tests

The content for the English phrases immediate and delay post tests were the same. The tests were containing three parts: translation (N = 20), fill-in blanks (N = 10), and multiple choices (N = 20). The purpose of the tests was designed to evaluate participants' recognition, comprehension, and application of target phrase. Specifically, the purpose of the English phrases immediate and delay post tests were to detect the participants' short-term memory and long-term memory of the phrase learning (wrote by Liu, P. L., 5/13/2011). English phrases immediate post test was conducted in week 7, and the English phrases delay post test was conducted four weeks later (week 11).

Translation (2 points): Participants were required to write down the English phrases according to the corresponding Chinese meaning, measuring the recognize ability to target phrases.

Fill-in blanks (2 points): Participants had to fill in 10 phrases in the blanks of each sentence to make the sentence completely, measuring the ability to comprehend the English phrases.

Multiple choices (2 points)*:* Participants were required to answer 10 items in the multiple choices parts. In the multiple choice part, each item included one correct answer with three distracters, measuring the ability to apply the English phrases to new language contexts.

Phrase learning survey

The survey was 9-item, five- point Likert-scale evaluation questionnaire; which elicited the concerning information about participants' motivation. This questionnaire (α = .85) was to evaluate learners' attitude toward three English phrases learning activities (*Activity 3: sentence making*, *Activity 4: online voting*). For example: Q1-Q3: I think that learning through *sentence making* /*online voting* promotes my phrase learning interests; Q4-Q6: I think that learning through *sentence making* /*online voting* increases my phrase learning opportunities; Q7-Q9: I think that learning through *sentence making* /*online voting* increases my discussion opportunities with peers.. The goal was to investigate learners' attitude about the effects toward four English phrases learning activities on their motivation, the learning opportunity increase, and the involvement of cooperative discussion (wrote by Liu, P. L., 5/18/2011).

Procedure

The whole experiment took place over 11 weeks, and the data sources included English phrase preliminary test, sentence making assignments, online voting , English phrases post-test, English phrases delayed post-test, and phrase learning survey.
The English phrase preliminary test was conducted in week 1. In week 2, all participants received the phrasing learning instruction regarding the 20 phrases. In the following two weeks (week 3-4), the EG learners had to do the assignment as MALL photo taking activity related to the sentence that they would made, and the CG learners tried to find three related phrases for each phrase with derived from the same verb by searching on the web. After completed their MALL photo taking activity or derived phrase searching assignment, all learners were asked to completed sentence making activity as class assignment in week 5.
In week 6, the on-line voting activity would be conducted. All learners then voted the top five excellent sentences for each phase from paired learners. In week 7 and 11, the English phases delayed post-test was used for testing their delayed memory of learned phrases.

Table 2 *Mall Photo-taking and Sentence Making Activities for the Experimental and Control Groups*

Experimental Group		Control Group
MALL photo taking	Sentences making	Sentences making
	The boy can sleep through fair and foul. 男孩可以在任何情況下睡著。	He never gives up through fair and foul. 在任何情況下他都不會放棄。
	He has passed on because he jumped from a floor. 他因為跳樓去世了。	I'm so sorry to hear the news that your father passed on. 我很抱歉聽到你父親去世的消息。

	He worked out a good answer. 他想出一個好答案。	Allen was beat up by the Ben because he kissed Ben's girlfriend. Allen 被 Ben 痛打,因為他親了 Ben 的女友

Result

The MALL photo-taking group had higher performance on the post and delayed post English phrases tests

Research question one asks if there is significant influence of integrating MALL photo taking activity on the learner's English phrase learning performance. The results of the *t*-test confirmed that there were no significant differences in the preliminary test of the two groups. (*t*= -1.15, *p*=.26). Students who received Mobile assisted photo-taking training and assignment gained significantly higher scores on post test (see Table 3) and delay post test (see Table 4).

According to the Independent *t*-test results shown in Table 3, there was no significant difference in the multiple choice section on the post-test. However, the experimental group performed better than the control group in the multiple choice part on the delayed post test. We may concluded that the experimental group performed better than the control group after the mobile-assisted photo-taking tasks in longer time rather than a short term period.

Table 3 English phrases post-test for the experimental and control groups

	Group	*N*	*M*	*SD*	*t*	*p*
Post-test	EG	68	73.72	23.70	1.86	.07
	CG	49	64.57	26.54		
Translation	EG	68	32.00	10.54	2.51	.01*
	CG	49	26.00	12.99		
Fill-in blank	EG	68	11.94	5.59	2.32	.02*
	CG	49	8.76	7.66		
Multiple choice	EG	68	29.78	10.393	-.01	.99
	CG	49	29.81	8.931		

Table 4 *English phrases delayed post test score for the experimental and control groups*

	Group	*N*	*M*	*SD*	*t*	*p*
Delayed Post-test	EG	68	57.71	25.33	2.51	.01*
	CG	49	46.06	23.80		
Translation	EG	68	38.88	28.47	4.20	.00*
	CG	49	22.53	12.61		
Fill-in blank	EG	68	16.60	14.51	4.29	.00*
	CG	49	8.20	5.73		
Multiple choice	EG	68	26.98	10.08	3.90	.00*
	CG	49	21.49	8.52		

The MALL photo-taking group had higher motivation on the phases learning survey

According to the Independent *t*-test results shown in Table 5, there was significant difference in the multiple choice section on the T-test result of English phrases. However, the experimental group performed better than the control group in the multiple choice part on the English phrases survey. We concluded that the experimental group performed better than the control group because experimental group motivated better than the control group.

Table 5 T-test result of English phrases survey for the experimental and control groups

	Group	*N*	*M*	*SD*	*t*	*p*
Motivation	Photo	29	3.86	0.41	11.94	.00*
	No photo	34	2.64	0.39		
Phrases learning	Photo	29	3.98	0.46	3.62	.06
	No photo	34	3.84	0.49		
Sentence making	Photo	29	3.86	0.57	2.05	.04*
	No photo	34	3.59	0.52		
Online voting	Photo	29	3.94	0.50	3.36	.00*
	No photo	34	3.45	0.64		

Discussion

This research conducted image and physically acting out a new expression for aiding learners recall and transform the phrases in long term memory. Mobile assisted photo-taking seems to be an effective way for learners to apply images which is more concretely and efficiently than drawing for a meaningful visual imagery. According to Oxford (1990) memory strategies for instructors to promote phrase learning includes creating mental linkages (with learner's personal meaning), applying images and sounds (linkage verbal material with image or sound), reviewing well (reviewing in intervals), employing action (linkage verbal material with motion or touch). Memory strategies are more effective as learners synchronously than using meta-cognitive strategies. On the other hand, mind storage capacity for visual material is better than verbal one, visual information is more effectively transformed to long term memory, and visual images aid recall of verbal material, and a great rate of learner prefer visual learning. The illustration explains the experimental group with mobile-assisted photo-taking tasks performed better than the control group in the translation. The fill-in blank sections need more memory loading to answer. In Chen, Hsieh, & Kinshunk (2008) study, the result describes learners with higher verbal and visual ability or lower verbal and visual ability learn easily by providing image annotation with written learning content through mobile language learning environment. The learners easy to create mental image by the meanings of the phrases turned phrases into photos. After the learners finished the photos and sentence making, they reviewed for online voting to enhance short term and long term memory. The lecture procedure design also followed Nation's (2001) three general learning process: noticing, retrieval, and generative use. The result shows that learner got better performance in experimental group because the delay post test and the mobile photo-taking task improved the learners English phrase ability even in a longer time period.

For further research, the application of mobile –assisted photo-taking may use for learning idioms, slangs, or sentences.

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