Chang, M. et al. (Eds.) (2019). Proceedings of the 27th International Conference on Computers in Education. Taiwan: Asia-Pacific Society for Computers in Education

Supporting Job-hunting Students to Learn Job-hunting Related Terms with SCROLL eBook and InCircle

Noriko UOSAKI[a*], Kousuke MOURI[b] , Takahiro YONEKAWA[c], Chengjiu Yin[d], & Hiroaki Ogata[e]

[a]*Osaka University, Japan*
[b]*Tokyo University of Agriculture and Technology, Japan*
[c]*Brain Signal, Inc., Japan*
[d]*Kobe University, Japan*
[e]*Kyoto University, Japan*
*n.uosaki@gmail.com

Abstract: In this paper, we describe the support system for job-hunting students to learn job-hunting related terms using an eBook and a chat system. Job-hunting process is very unique and complicated in Japan. Job-hunting students face difficulties in many phases. Some job-hunting related terms are not used in daily conversation and very new to them. Therefore, it is necessary to support them. In fact, many universities in Japan have started providing their students with career education. The objective of this study is to examine whether or not the use of our chat system was effective in learning job-hunting related terms. The result of the evaluation showed there was no statistically significant difference. However the highest score was given when they were asked it's helpfulness.

Keywords: Career education, career support, chat tool, digital textbook, eBook, InCircle, job-hunting, SCROLL

1. Introduction

Job-hunting process is complicated in Japan. It imposes a heavy workload on their academic lives. Students start job-hunting more than one year before graduation. They start with writing CVs (curriculum vitae) and entry sheets, taking exams, written or web-based, such as general knowledge tests, aptitude tests, and personality tests, participating group discussion observed by recruiters, and receiving group interviews and individual interviews at the final stage until they finally obtain official job offers. There are many terms used in job-hunting processes, which are rarely used in daily conversation. The objective in this study is to propose an effective job-hunting related term learning system to facilitate their job hunting in Japan. The system seamlessly supports individual learning and collaborative learning with SCROLLeBook and a chat system called InCircle. The results of our previous study (Uosaki et al, 2019) showed some superiority of SCROLLeBook-based learning to the Blogger-based learning though there was no statistically significant difference. However the effectiveness of InCircle was not confirmed. Our research question in this study is: (1) whether or not the use of our chat system was effective in learning job-hunting related terms. The rest of this paper is constructed as follows. Section 2 describes related researches to clearly identifying the difference between related works and our research. Section 3 describes the design of SCROLL eBook and InCircle. Section 4 describes the evaluation and Section 5, discussion and our conclusions.

2. Related Researches

2.1 Technology enhanced career education

The emergence of IT technologies such as multimedia technologies, Internet technology, ubiquitous and mobile technologies provoked new learning concepts such as WBL (web-based learning), CSCL (computer supported collaborative learning), and MAL (mobile assisted learning) (Ogata & Uosaki, 2012). Besides, various kinds of learning supports have been made into reality by accessing resources of web sites, or by linking learners and numbers of learning objects (Inoue et al. 2014). However career education using information technologies is still in the stage of emergence. There are some reports on ICT implementation to career education such as portal sites for students' career support (Calitz et al., 2015), the use of ePortfolio in career education (Arame et al., 2013), e-Learning in career development for university students (Teshima et al., 200), and e-mentoring for career development (Headlam-Wells et al., 2005). But no such learning system using seamless mobile learning technologies to enhance career education has been developed yet.

3. System Designs

3.1 SCROLL eBook

SCROLL stands for System for Capturing and Reusing Of Learning Log, which has been developed since 2010 (Ogata et al. 2014). SCROLL supports learners to record what they have learned in both informal and formal settings as a log using a web browser and a mobile device and to share them with other learners anytime and anywhere beyond the limits of time and space. This on-going project is still in progress with new functions being added to the system one after the other. SCROLL eBook is one of the functions of SCROLL developed based on EPUB format.

Teachers create e-book contents using PowerPoint or Keynote prior to class and use them in their courses. The uploaded e-book contents are converted to EPUB format and it is supported to access the contents by using smartphones and PCs. Figure 1 (left) shows digital textbooks uploaded by the teachers.

Figure 2 shows the eBook viewer interface and its functions. When a learner clicks the highlight button, he/she can highlight the word. he/she can find the page number corresponding to the target word in the e-book by clicking the search button. When a learner clicks the memo button on the digital textbook viewer system, he/she can write a description concerning the target words.

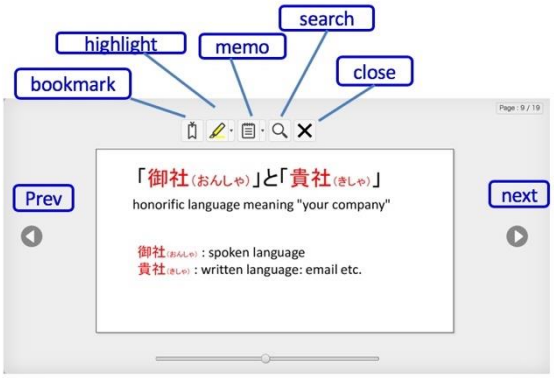

Figure 1. SCROLL eBook contents. *Figure 2.* SCROLL eBook viewer interface

3.2 InCircle

InCircle is a product developed by AOS Mobile Inc., Tokyo, Japan with our third author joining this project as a chief software architect. It is a client-server application. The server side runs on Linux OS and Windows Server. The client side is working on iOS, Android, and PC Web browser. Chat messages are transmitted and received through the network (Figure 3).

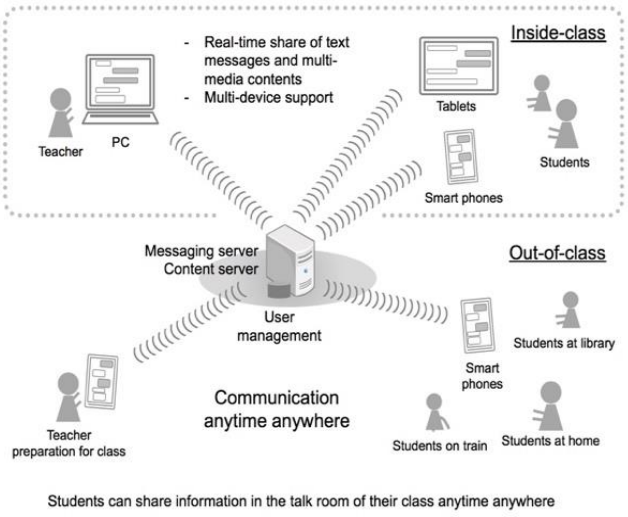

Figure 3. InCircle system configuration

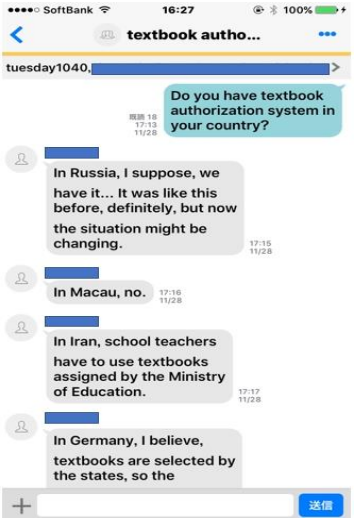

Figure 4. InCircle chat room interface on mobile

The system allows users to create groups. Group members are able to send and receive messages and multimedia files in their chat room with an easy operation. Chat messages are synchronized in real-time to realize smooth communication. Figure 4 shows a chat room interface when the instructor posted an interrogative sentence: "Do you have textbook authorization system in your country?" since interrogative sentences trigger active interaction among learners which leads to mutual cross-cultural understanding.

3.3 SCROLLeBook & InCircle combined learning

In this study, the learning scenario was designed to combine self-learning with group learning. Figure 5 shows SCROLLeBook & InCircle combined learning. Students learn career-related terms with SCROLLeBook alone and interact with other classmates and the teacher at the same time. In order to encourage students to collaborate during the task, the teacher posted a topic which would be helpful to learn career-related terms via InCircle. Students were encouraged to interact via InCircle by telling them the number of InCircle posts will affect their grades.

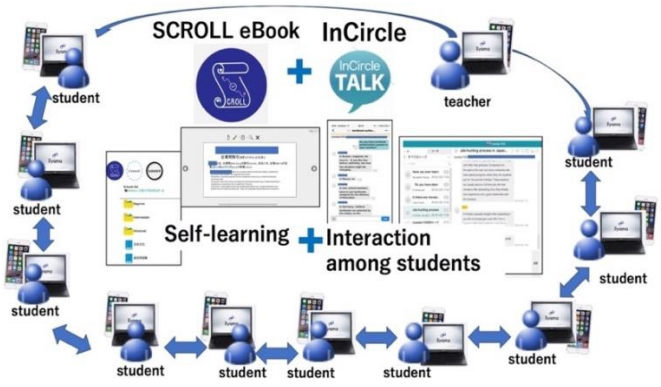

Figure 5. InCircle chat room interface on mobile

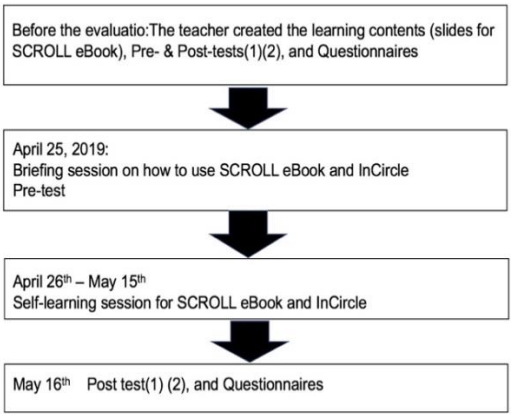

Figure 6. Evaluation Procedures

4. Evaluation

4.1 The target class

Nine graduate students (6 Japanese, 2 Chinese, 1 Brazilian), who were taking class called Career Design and Business Communication at the University in the western part of Japan participated in the evaluation experiments. The target class was held on a once-a-week-basis during the spring semester, 2019. Each student had a laptop PC in class. The objective of the target class was to develop one's self-concept during preparation for job hunting, and to develop the skills of problem finding and solving, and cross-cultural communication in a diversity of workplace environments. The evaluation was conducted during April 25th to May 16th as an out-of-class activity.

4.2 Procedures

Figure 6 shows the learning scenario. The teacher created 20 contents for SCROLL eBook of career related terms such as "分離礼(bunrirei)"(bow after words), "PREP法"(PREP method). The objective of the contents was to learn useful terms in terms of job-hunting. At the beginning of the session (Day 1), the participants received a briefing session to learn how to use SCROLLeBook and InCircle and took the pre-test to examine whether they know the meanings of 20 target terms. They were assigned to learn the target terms on a self-learning basis using SCROLLeBook. Then the teacher delivered 10 learning contents via InCircle. In order to examine the effectiveness of InCircle, the comparison was made between with and without InCircle delivery. In order to give an equal opportunity of education using the cutting-edge technology, there was no control group created. Therefore the whole class experienced both with and without InCircle delivery. During the evaluation session, students were free to use InCircle on PC to communicate with other classmates and the teacher. After the evaluation, Post-tests (1) & (2) were taken by the participants and the questionnaire was conducted.

4.3 Results

Table 1 shows the result of the Pre- and Post-test (1) and (2). Pre- and Post-test (1) were identical to ask them the meaning of 10 Japanese career-related terms to be taught via eBook with InCircle delivery. Pre- and Post-test (2) were also identical to ask them the meaning of 10 career-related terms to be taught via eBook without InCircle delivery. The full mark was 10 points for Pre- and Post-test (1) and Pre- and Post-test (2). The mean scores of the Pre-test (1) and (2) were 3.66 and 3.33 with the standard deviation (SD) of 1.12 and 1.22. The result of Post-test (1) was 9.55 with the standard deviation of 1.33, while that of Post-test (2) was 9.33 with the standard deviation of 2.00. T value shows that there is no statistically significant difference between them. As Figure 9 shows, there was no significant difference in the mean score increase in both medias.

Table 1

An The result of Pre- and Post-tests

	Pre-test (1) (full mark 10)	Post-test (1) after eBook and InCircle learning (full mark 10)	t-value of Pre-&Post test difference of with/without InCircle delivery
Mean	3.66	9.55	0.68 ($p < 0.05$)
SD	1.12	1.33	
	Pre-test (2) (full mark 10)	Post-test(1) after eBook learning without InCircle (full mark 10)	
Mean	3.33	9.33	
SD	1.22	2.00	

Figure 9. Comparison between eBook learning with InCircle without InCircle in terms of the means of Pre- and Post-tests

5. Discussion and Conclusion

5.1 Discussion

At the end of the evaluation, they were asked to answer the five-point-scale-questionnaire as shown in Table 2. Q1and Q6 were created to examine the fun factor of SCROLLeBook and InCircle. Q2 and Q5 were created based on the technology acceptance model proposed by Davis (1989). Q3 and Q7 were created to examine the user acceptance of its interface. The highest score, 4.88 was given when they were asked about the helpfulness of InCircle (Q.4). Even though there was no statistically significant difference between with and without InCircle delivery, they regarded it as helpful. It implies that InCircle contributed to effectiveness of learning job-hunting related terms. However the lowest score, 4.22 was given when they were asked about rating the interface of InCircle (Q.7). Since its interface is just like other chat tools, they seem to regard it as nothing new.

Table 2

The results of the 5-point-scale questionnaire

	Questions	Mean	SD
Q.1	Was it fun to learn career related terms with SCROLL eBook contents	4.56	0.53
Q.2	Was it easy for you to handle SCROLL eBook?	4.44	0.53
Q.3	Please rate its interface of SCROLLeBook	4.22	0.83
Q.4	You also learned career related terms via InCircle. Was it helpful?	4.88	0.35
Q.5	Was it easy for you to handle InCircle?	4.56	0.53
Q.6	Was it fun to learn career related terms via InCircle ?	4.75	0.46
Q.7	Please rate its interface of InCircle.	4.22	0.97

Table 3

The students' impressions of the eBook and InCircle combined learning

	Comments
#1	It was useful to learn career-related terms
#2	The contents were well-organized and easy to learn
#3	There were many abbreviated terms which I did not know
#4	Difficult
#5	Interface looks old. I prefer other free apps.
#6	It was difficult to adjust the slide size

Table 3 shows the participants' free comments on the eBook and InCircle combined learning. Comments #1, 2, 3 are positive ones, but they referred to the contents not mentioning the system itself.

As for Comment #4, it is not clear what was difficult in what way. Comments #5 and #6, which turned out that they referred to SCROLL, were rather negative. SCROLL was renewed right after this evaluation. The feedback will be expected better in our next evaluation. As the comment #6 pointed out, some students had some difficulty to enlarge the slide on smartphone, but it was solved after it renewal.

5.2 Conclusions

In this study, we describe facilitating the learning of job-hunting related terms using SROLLeBook and InCircle. Our research question was (1) whether or not the use of our chat system was effective in learning job-hunting related terms. Our hypotheses that InCircle content delivery system contributes to their learning job-hunting related terms could not be proved since there was no statistically significant difference between with and without InCircle delivery in terms of Pre- and Post-test improvement. It is among our future works to improve learning scenarios to prove the effectiveness of our system.

Acknowledgements

Part of this research work was supported by the Grant-in-Aid for Scientific Research No.18K02820, No.17K12947, No.16H06304 and 16H03078 from the Ministry of Education, Culture, Sports, Science and Technology (MEXT) in Japan.

References

AOS Mobile Inc., Tokyo, Japan: http://www.aosmobile.com/ (last access: January 29th, 2019).

Arame M., Naganuma S., Kobayashi M., Komatsu M. & Tamaki K.: Consideration about how to use the e Portfolio in career education (Japanese) *IPSJ Transactions on Computers and Education (Kenkyu Houkoku:Computer to Kyouiku)* 2013-CE-120(3), 1-8 (2013).

Calitz, A., Evert, C., & Cullen, M.: Promoting ICT careers using a South African ICT career portal. *The African Journal of Information Systems*, 7(2), Article 1 (2015).

Davis, F. D.: Perceived usefulness, perceived ease of use, and user acceptance of information technology, *MIS Quarterly*, 13 (3), 319–339 (1989).

Headlam-Wells J, Gosland J, & Craig J.: "There's magic in the web":e-mentoring for women's career development. *Career Development International*, 10 (6/7), 444 - 459 (2005).

InCircle: https://www.incircle.jp/ (last access: January 29th, 2019).

Inoue, G., Uosaki, N., Ogata, H., & Mouri, K.: Enhancing Outside-class Learning Us-ing Online Tools: A Review Work, *Proceedings of LTLE2014, 332-337 (2014).*

Japan Student Services Organization (JASSO) https://www.jasso.go.jp/sp/about/statistics/intl_student_e/2018/index.html (last ac-cess: April 30th, 2019).

Japan Revitalization Strategy 2016 https://www.kantei.go.jp/jp/singi/keizaisaisei/pdf/hombun1_160602_en.pdf (last access: April 30th, 2019).

Ogata, H., & Uosaki, N.: A new trend of mobile and ubiquitous learning research: to-wards enhancing ubiquitous learning experiences. *International Journal of Mobile and Learning Organization*, 6(1), 64-78 (2012).

Ogata, H., Hou, B., Li, M., Uosaki, N. Mouri, K. & Liu, S.: Ubiquitous learning project using life-logging technology in Japan, *Educational Technology and Society Journal*, 17(2), 85-100 (2014).

SCROLL: https://scroll.let.media.kyoto-u.ac.jp/learninglog/signin(last access: May 14th, 2019).

Teshima H., Kawasaki C., and Komatsu Y., Integrated Program of the Academic Skills and the Career Development for University Freshers : A Report on the Course "Skills for Self Establishing" at Osaka Jogakuin College (Japanese) *Bulletin of Osaka Jogakuin College* 5, 119-144, (2008).

Uosaki, N., Mouri, K., Yin C., & Ogata, H. How We Can Sup-port International Students' Job Hunting in Japan Seamlessly, *Proceedings of Inter-national Conference on Computer in Education, November 26-30, Philippines,* 527-529 (2018). http://icce2018.ateneo.edu/wp-content/uploads/2018/12/C4-26.pdf