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Corporate Employees' Acceptance of Mobile Learning in Workplaces in Taiwan

Ming-Hsin LU [a], Weijane LIN [b*] & Hsiu-Ping YUEH [a]
[a] *Department of Bio-Industry Communication and Development, National Taiwan University, Taiwan*
[b] *Department of Library and Information Science, National Taiwan University, Taiwan*
*vjlin@ntu.edu.tw

Abstract: This study aimed to explore the recent m-learning status in workplace in Taiwan, and the association between usability and acceptance of m-learning. The results showed: (1) M-learning was currently not fully undertaken by employees, but they perceived tablets as more useful mobile devices than smartphones for m-learning. (2) Perceived ease of use was positively associated with frequency of use, and (3) the perceived ease of use is positively associated with the perceived usefulness of using smartphone for m-learning. Finally, the associations between frequency and perceived usefulness were different in using smartphones and tablets for m-learning.

Keywords: m-learning, usability, acceptance

1. Introduction

Organizations started adopting mobile learning to create a flexible learning and training environment in workplaces. Many studies have shown benefits of using m-learning in workplaces. M-learning is convinced to facilitate learning efficiency for employees, as Beutner and Pechuel (2012) proposed that employees learn anytime and anywhere and obtain and share necessary information easily by m-learning. Also m-learning allows more individual content for learners. Clough's study (2010) supported that mobile learning makes employees access information relevant to the location where there are working. Mobile learning in workplace was also proved to increase cost efficiency for enterprises. With mobile learning, enterprises distributed information easily and quickly, and saved budgets of hard-copy learning materials (Kahle-Piasecki, Miao, & Ariss, 2012).

In spite of many proven benefits of m-learning for workplace, the acceptance of employees remained a critical issue in terms of the efficiency of m-learning. Kok (2013) found that the employees' acceptance of m-learning is one major problems that companies encountered when they implementing m-learning. In addition, mediating factors including usability of systems and tools affected employees' willingness of undertaking e-learning (Yueh, Liu, Chen, and Chen, 2010). Chen, Shang, and Liu (2010) also verified that employees' computer experiences of PCs promoted perceived ease of use of mobile and electronic technologies.

Considering the worldwide trends of mobile learning in global companies, and the important issues of employees' acceptance of m-learning, This study aimed to explore the recent m-learning status in workplace in Taiwan, and the association between usability and acceptance of m-learning. Specifically, this study addresses the following questions: (1) How do employees use m-learning? (2) How does perceived ease of use of mobiles influences employees' acceptance of m-learning?

2. Methodology

This exploratory research adopted survey method to collect data from 548 employees from Taiwanese corporates from June to September in 2014. The questionnaire contains 30 questions that inquire participants' demographic information, their actual experiences and uses, as well as their perceived usability and usefulness of various mobile devices for m-learning. This study aimed to explore the current status of m-learning acceptance, and how the usability of mobile devices influences the acceptance of m-learning.

For data analysis, descriptive statistical analysis was applied to report the overall status of m-learning acceptance of employees. In addition, path analysis was used to verify whether the perceived ease of use is positively associated with frequency of undertaking m-learning (H1), whether

the perceived ease of use is positively associated with perceived usefulness of m-learning (H2), and whether the frequency of undertaking m-learning is positively associated with perceived usefulness of m-learning (H3). Finally, cross group analysis was adopted to verify if users' demographics and experiences moderated the influences of mobile devices on the frequency and perceived usefulness of m-learning (H4).

3. Results

3.1 Demographics and the user experiences of mobiles

The samples were composed of 61.6% females and 38.4% males, and nearly 70% samples' age were under 35. The participants were from various industries including service (47%), manufacturing (28%) and finance sectors (19%). Most participants have worked in the recent companies more than one year (82.4%).

Almost all employees have smartphones (99%), among them 7% have more than one smartphones. The proportion of operating system run on the mobile devices is iOS:Android=1:2. Compared to the possession rate of smartphone, among the 548 participants only 71% of them have tablets, and half of them were iPad. Most employees responded they have adopted mobiles over 2 years (69.3%) and used them over twice a day (89.8%). Most of the employees bought their own mobiles personally (90.4%) rather than obtain premium or allotment of mobiles from the companies.

3.2 Acceptance of M-learning in Enterprises

The respondents considered mobile devices as easy to use (M=5.03, SD=1.138) but they seldom used smartphones (M=1.35, SD=1.366) or tablets (M=1.15, SD=1.468) to read learning materials in workplace. Further analysis for the respondents who are experienced in using mobile devices to read workplace learning materials showed that the perceived usefulness of using tablets (M=2.68, SD=1.145) to reading learning materials was higher than using smartphones (M=2.40, SD=1.149).

Regarding the preferred reading materials on mobile devices, employees preferred hard-copy learning materials than digital formats in general. Nevertheless, for online apps (40.7%) and voluminous materials such as legislation manuals (40.3%), participants preferred digital formats than printed ones. As for the screen size, employees preferred 7-inch screen (83.2%) the most. Several participants also reported that their accesses to m-learning materials were restricted to enterprise network. Hence they usually downloaded and accessed the learning materials by workplace computers (48.1%).

3.3 Hypothesis testing

There are two saturated models show the results of H1, H2 and H3 for smartphones and tablets. When employees used smartphones for m-learning, the H1 and H2 were supported, but there was a negative association between frequency and perceived usefulness of using m-learning (Fig.1). When employees used tablets to m-learning, only H3 was supported (Fig.2).

Multi group analysis was applied to examine the effects of gender, the starting time of using mobiles and age on the moderator. The result showed only gender moderates the positive association between perceived ease of use of tablets and frequency of using tablets for m-learning ($\chi 2$ = 25.9487, df = 7, $p < .005$, CFI= .8543, RMSEA = .1445, NFI=.8093). This result presented when males perceived the ease use of tablets, they would use tablets to m-learning more frequently than females (Fig.3).

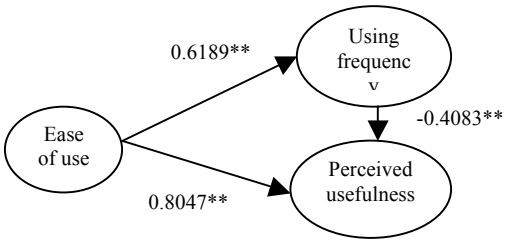

Fig1. The Path Analysis Model of Smartphones

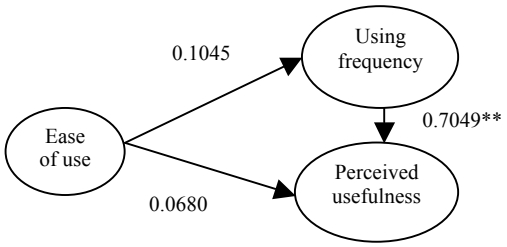

Fig2. The Path Analysis Model of Tablets

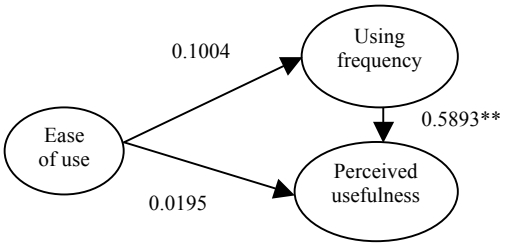

Fig3. The Path Analysis Model Through Gender as A Moderator of Influential Variables and Acceptance of M-Learning

p*<.05, p**<.001

4. Conclusion

The participants of this study were relatively younger generation who are familiar with digital information technology. They generally perceived mobile devices as highly easy to use but they rarely adopted mobile devices in workplace. The findings suggested that enterprise network regulation might hinder the accessibility of m-learning. The results also showed that employees' perceived ease of using mobile devices was positively associated with employees' acceptance only when using smartphone for m-learning. This result may due to the different using scenarios of different mobile devices, so the suitability and usefulness of learning content is more important the usability when using tablets for m-learning. Generally tablets were considered as more useful than smartphone when reading workplace learning materials. In the case of using tablet for m-learning, the frequency of accessing mobile learning is positively associated with perceived usefulness of mobile learning. However, the association was negative in using smartphones. The opposite association may come from that most participants preferred 7-inch and larger screen when reading m-learning materials.

According to the findings, it was suggested that companies could pay more attention to content formats and adaptability for mobile devices to facilitate employees' acceptance of m-learning. Furthermore, for future studies, enterprises features, cultures and using scenarios could also be factors in the analysis to understand employees' needs of mobile learning more profoundly.

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