Key Factors in the Success of Self - directed Learning of Military Personnel - Taking Smartphone as an Example

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ABSTRACT

With the change of times and the competition of the society, on-the-job training is already one of many things that modern people will practice for self-enrichment, competitiveness enhancement, and better future career opportunities. Recently, the working environment for military officers has been changing based on the government's policies toward the aspect of increasing working quality and reducing manpower. Meanwhile, with the explosive improvement in communication devices, the military is gradually allowing officers to use smartphones. With access to technologies, military officers are more likely to utilize smartphones for trainings aiming to stay connected with the society. Therefore, this research aims to study the success factor of the usage of smartphones as the on-the-job training devices for military officers.

Based on the research motive, this study uses AHP to analyze the success factor between the utilization of smartphones for on-the-job trainings of military officers and their employment competence after retirement. There are two research purposes: to study the self-directed learning phenomenon of military officers and the key factors of utilizing smartphones for self-directed learning of military officers. The analysis of this study is based on the content of the literature, and the results show a number of key factors. There are four key factors in the second layer: "network functionality", "site architecture preferences", "mobile usage for self-learning", and "learning needs." The third level consists of 4-5 key factors extended from the second layer. The initial questionnaire was designed under the guidance of experts; a total of 25 questionnaires were obtained, including 4 invalid and 21 effective copies. In addition, hierarchical analysis method was used to discuss the weighted relationship between the military personnel and the key factors of the self-directed learning on smartphones.

The study found that "learning" is the largest weight, which resulted from the situation that military life circle and working environment is very different from the public. If the military officers can acquire knowledge from the self-directed learning on smartphones to stay connected with the society, it would be more encouraging to the officers as they would have the ability to enhance their competence and plan their future career.

Keywords: On-the-job Training, Self-directed Learning

INTRODUCTION

In the constant changing environment of the 21st century, organizations must readjust the strategies of human resources management. In the future, human resources management must create new models and procedures to maintain the agility, efficiency, and competitiveness of the organization. (Lai, 2002) Michael Porter (1996) believes that human resource is one of the influential key factors of the industry's competitiveness. Johnston and Packer (1987) indicated that educational training is the main function to preserve and increase human resources of the nation. Therefore, the investments of human resources should start with educational trainings.

The society has entered an era of globalization and knowledge economy with the rapid growth of technology. As knowledge expands and outdates rapidly, the education received in schools is insufficient to last a lifetime. Hence, the individuals could only satisfy the needs of life and work though constant practicing self-learning.

Nowadays, with the development of technology, cellphones are more than just a device for communication; smartphones have become indispensable tools in daily lives. According to National Communications Commission in Taiwan, the statistics show the data transmission volume has increased from 61,859.5 Tbytes in 2015 to 694,117.9 Tbytes in 2016. The Republic of China Armed Forces has allowed the usage of smartphones for military officers since 2015. Military officers could use their smartphones to communicate, enhance their language ability through APPs, and prepare for certification qualification exams.

Research Motives and Aims

There has been a wave of educational revolution around the world in recent years, spawning many novel teaching modules such as flipped learning. According to Ramsey Musallam, the definition of flipped learning is "to change the teaching module from unidirectional teaching in a fixed environment to reciprocal learning in a personal space, whereas the group space becomes a classroom for interactive and dynamic teaching/learning environment." The teacher guides students to utilize the concepts and show their creativities in various subjects outside the traditional framework of education. By integrating educational technology and active learning, a flipped classroom emphasizes the importance of the learner's preparation of self-learning with course-related materials before the class. The Khan Academy, established by Sal Khan in 2010, exercised the concept of flipped learning and transformed the traditional educational module.

New technology influences learning motives. Since the introduction of iPhone in 2007 and iPad in 2010, smartphones and tablets are increasingly popular worldwide. The study by Kim (2014) indicates that 1. Accessibility, practicality, and entertainment have positive influence on the attitude of individuals using smartphones. 2. There is a positive relation between attitudes and cellphone usage behaviors. 3.

Accessibility has positive impact on practicality, and practicality has positive impact on smartphone usage.

Rochester Institute of Technology (2000) found that the motivation for adults to receive education is mainly to acquire certifications or improve their current living situation. Therefore, adults are more motivated to continue learning, and they tend to 1. Practice self-learning as the main form of education. 2. Emphasize on efficiency and practicality since their time is limited. Hence, it is important for military officers to pursue further education in order to enter the workforce after retiring from the military. By practicing self-learning through smartphones, military officers could acquire knowledge they need for certifications without the limitations of time and space. The importance of military officers utilizing smartphones to connect with the work force outside the military is the research motive of this study.

Based on the research motive, this study conducts Analytic Hierarchy Process (AHP) to analyze the key factors between military officers practicing self-learning on smartphones and their ability to connect with the work force after retiring from the military.

There are two research motives:

1. Study the self-learning phenomenon of military officers.
2. Study the key factor of military officers practicing self-learning on smartphones.

LITERATURE REVIEW

Smartphone

A smartphone is a handheld personal device with a mobile operating system. Its functions are increasable through downloading various programs. The latest generation of smartphones is equipped with high-resolution touch screen and web browsers, and allows users to operate standard or mobile-friendly websites. In addition, smartphones also serves as the database by saving information either on the device or in the Clouds through Wi-Fi and Data. Smartphones have become the main communication tool for the public with the evolution of internet services in recent years. The survey conducted by Institute for Information Industry in Taiwan showed the percentage of smartphone users in Taiwan increased 7% within the year of 2014, reaching 65.4%.

On-the-job Trainings for Military Officers

The Republic of China Armed Forces provides courses for military officers, and the courses include basic education, continue education, and postgraduate education. The goal of the courses is to cultivate the officers' leadership ability and judgment in the battlefield. Thus, the courses are further divided into trainings for officers or sergeants along with employment counseling. Employment counseling is organized by The Retirement Counseling Committee, and there are three channels of counseling – trainings provided by the army, professional organization, and collaborating industries. Military officers choose the channel based on their retirement schedule to obtain the greatest benefits.

Self-Directed Learning

Self-directed learning is a method for individuals to set learning goals based on their own needs, choose the most suitable learning materials, and conduct self-evaluation on the end result. Recently, many scholars have various definitions of self-directed learning. Rogers (1983) considers the learning process as a changing course of how to learn, how to change, and how to adapt; Bruner (1966) emphasizes on the learner being self-sufficient; Kidd (1973) suggests that education should allow the learner to be inner-directed and self-operated toward the learning goals. Some scholars believe self-directed learning is a process of learning independently; however, the learner should not be disconnected with the society. Instead, the learner should utilize the accessible materials as learning aids to enrich the learning process.

The research conducted by Merriam and Caffarella (1999) clearly shows the three main objectives of self-directed learning: increase the learner's self-directed ability in learning, then transform learning to become the focus of self-directed learning, and lastly emancipate learning and social action as a part of self-directed learning. Candy (1991) further elaborated that social action is a form of learning, and the individuals must be closely integrated with the group to learn. Grow (1994) believes every individual has the ability for self-directed learning, and the learners with low self-directed learning ability could develop toward higher ability. Deng (2000) believes self-directed learning is when the learner chooses the learning method deliberately and effectively converting the environment as learning resources to maximize the learning result.

The theory of self-directed learning originated from Maslow's self-actualization (1954) and Rogers' experiential learning theory (1969). Maslow believes the process of self-actualization leads to self-realization; Rogers further elaborated Maslow's theory. He believes that self is the motivation of behavior, the creativity of individuals, and the core of the formation of characteristics.

RESEARCH DESIGN AND ANALYSIS

Analytic Hierarchy Process (AHP)

The Analytic Hierarchy Process (AHP) was developed in 1971 by Thomas L. Saaty, and the technique is used mainly to organize and analyze complex decisions. The purpose of AHP is to systemize difficult problems by providing comprehensive and rational framework. In addition, when practicing AHP, the elements are quantified and related to overall goals in order to evaluate the alternative solutions. The evaluation criteria for AHP are divided into five sections: equal strong, weak strong, strong, very strong, and absolution.

AHP is an organized structure that can be used to provide effective strategies for complex problems. Basically, the function of AHP is to simplify complicated and non-structural situations into several components. By arranging these components into different levels based on the range of the variables, it is facile to understand which factor is the priority. Hence, every component must be given a numerical value in order to exert the significant effect of AHP.

However, AHP has both merits and shortcomings that affect the results of the research.

1. Pros
   - I. Flexibility - When a part of the data is missing, it is easy to offset the gap by expanding or altering the data through the hierarchical structural mode.
   - II. Structure- The hierarchical structure allows the relations and influences between variables to be visible. Hence, this feature of AHP can be utilized to integrate or categorize different components.
   - III. Logicality – The structure is organized based on the level of variables with the aim to simplify complicated problems. Thus, the decision maker can interpret the different relations and logic between quantified factors to reach a positive decision.
2. Cons

I. Depending on the researcher's categorization, the structure could be oversimplified and important decision factors could be omitted in the process.
II. The variables used to categorize the factors do not represent statistical research data; thus, the data presented could only be used as references.
III. The main limitation to AHP is the candidates of scholars and the number of scholars involved in the process; any significant difference in the selection criterion can affect the result.
IV. The decision maker only decides after the solutions are determined by the scholars and does not participate in the process. The lack of participation will become the hindrance of the case.
V. Scholars from different academic backgrounds are bound to have different opinions, resulting in different outcomes.

There are two research hypotheses for this study:

1. Self-directed learning is essential to military officers.
2. Utilizing smartphones for self-directed learning is important.

Research Target

The participants of this study are all active military officers. The targets were randomly selected in different occupational specialties; all the participants are smartphone users. The surveys were handed out to 25 participants, and 21 surveys were effective. The gender ratio for male and female is 47:52. The study is focused on the evaluation of the important variables of military officers' self-directed learning and the usage of smartphones as learning tools. The evaluation is mainly structured with AHP analysis and the results are concluded with literature reviews.

RESEARCH ANALYSIS AND DISCUSSION

The participants of this study are all active military officers in high-level positions, and the literature reviews are conducted as the foundation of AHP questionnaires after discussions with scholars. AHP analysis is further performed to analyze the importance of each human resource management activity that is evaluated in the study.

Key Factors Analysis

Through analyzing the questionnaires with AHP, the factors are divided into four levels with the variables acquired, which are further categorized into two sectors.

1. Based on the variables, the top two key factors are "Learning Needs" and "Internet Functionality."
2. "Learning is to connect with the society" is the top factor under the level of "Learning Needs." This corresponds to the previous hypothesis that "Self-directed learning is essential to military officers."
3. "Using communication software" is the top factor under the level of "Internet Functionality;" the second factor is "Using internet resources." This shows that it is important for military officers to acquire information on the internet and communications software on smartphones. This corresponds to the previous hypothesis that "Utilizing smartphones for self-directed learning is important."

The key factors of military officers using smartphones for self-directed learning

I. Internet Functionality (0.256)
   i. Using Emails (0.103)
   ii. Using Internet Forums (0.130)
   iii. Using Communication Software (**0.302**)
   iv. Using Online Database (0.165)
   v. Using Internet Resources (0.299)
II. Website Preferences (0.174)
   i. Website With Only Texts (0.098)
   ii. Website With Only Pictures (0.119)
   iii. Website With Texts and Pictures (0.236)
   iv. Website With Texts and Animations (0.263)
   v. Website With Texts and Sounds (**0.284**)
III. Self-directed Learning on Smartphones (0.123)
   i. Learning On Smartphones To Develop Potential (0.110)
   ii. Using Smartphones To Assist Learnings In Class or Work (0.203)
   iii. Using Smartphones To Acquire Information Not Accessible In Class Or At Work (**0.250**)
   iv. Using Smartphones To Learn Continuously (0.227)
   v. Using Smartphones To Design Learning Progress (0.210)
IV. Learning Needs (**0.447**)
   i. Learning Is To Gain Knowledge (0.234)
   ii. Learning Is To Cultivate Technical Specialty (0.227)
   iii. Learning Is To Enhance Professional Skills That Can Lead To Promotion (0.210)
   iv. Learning Is To Connect With The Society (**0.329**)

CONCLUSION AND IMPLEMENTATION

The result of this study shows that there are three key factors in the usage of smartphones for self-directed learning for military officers: learning to connect with the society, learning to acquire abundant knowledge, and learning to develop skills. These three key factors are all indications of the need to learn. Thus, it is obvious that the need to learn is important for military officers.

1. Learning to connect with the society

Before the ban against smartphones in the military was lifted, military officers often faced the difficulty of staying connected with the society as they did not have the access to vast information on the internet as timely as the others did. Therefore, military officers were often considered to be disconnected and unresponsive. Thus, absorbing information on timely bases to stay up-to-date is a major motive for active military officers to use smartphones as a learning tool.

With the aim to connect the officers with the society, the researcher suggested the military agency could build an online platform which could be easy accessed from personal smartphones to provide some actual cases to military officers.

2. Learning to acquire abundant knowledge

Most military officers do not have the time to attend advance trainings to develop their abilities. Therefore, the usage of smartphones allows them to learn during their free time and acquire knowledge that is not provided in the military. This increases the chances for the military officers to stay connected with the society and enhance their ability for future career opportunities.

3. Learning to develop skills

Many current military officers prefer using smartphones to acquire the latest information for certain certifications in order to develop professional skills. The goal for the officers is to decide their future career path before retirement, and self-directed learning with smartphones allows them to be prepared for the certification exams.

According to the result of the key factors analysis，the researcher found the factor with the highest scale is Learning is to connect with the society (0.329) under Learning Needs (0.447).

LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

Limitations

1. The research participants are all active military officers. However, due to the constraints of time and budget, the interview of the military officers in the highest level could not be conducted. Therefore, the results of this study should only be used as a reference.
2. This study uses AHP analysis to analyze the importance of using smartphones as the learning tool for self-directed learning. However, due to the limitations of the sample size, the results of the key factors could be biased.

Recommendations for future research

1. This research focused on active military officers in high-level positions. If the sample could include all levels of military officers, the results should be more practical and applicable.
2. The study is focused on high-level positions with the goal to improve the current status of the military officers in the army.

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