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The Effects of Self-efficacy, Personal Innovativeness and Career Related Learning of Individuals who experienced Change Jobs on Smart Learning Continuous Usage Intention

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Abstract

With the transformation of the entire industry through digital transformation, the birth of new jobs and the disappearance of existing jobs are foreseen. Labor market is expected to become more flexible in the future, and the demand for individual-level learning for turnover and career management, which is a transition to new jobs, is expected to increase. In modern society, the disappearance of lifelong work and a positive change in the perspective on workplace movements, as well as the volatility and uncertainty in the social environment, have increased the number of workers who are learning to respond more actively to the unpredictable future. Learning can be described as career learning, a formal and informal activity that is self-directed, planned, active, and ongoing for your own future and future career development.

Based on the expanded skill acceptance model, this study examines how the individual characteristics of the employee's self-efficacy and personal innovation affect the perceived usefulness and perceived usability, and the perceived usefulness and perceived ease of use. This study examined how it affects the continuous use of smart learning. The subjects of this study were 20-30 employees who experienced turnover, who experienced smart learning during the turnover process, and analyzed the frequency of surveys using the STATA / SE 12.0 program to analyze 332

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questionnaires. , Reliability analysis, descriptive statistical analysis, etc., and empirical analysis through Structural Equation Modeling (SEM). The research results from hypotheses, analysis and verification are as follows.

First, self-efficacy for smart learning has a significant effect on perceived usefulness and perceived usability. In other words, the higher the self-efficacy, the more statistically significant influence on the significance and ease of use. Second, personal innovation for smart learning has a significant effect on perceived usability, but does not have a significant effect on perceived usability. Third, perceived usefulness did not have a significant effect on career learning, but perceived usability had a significant effect on career learning. Fourth, career learning did not have a significant effect on the continuous use intention of smart learning. Fifth, perceived usefulness and perceived ease of use had a significant effect on sustained use intention. For learners who have a strong self-directed learning tendency, such as turnover, self-efficacy and personal innovation, which are personal characteristics, are important to the continuous use of smart learning and affect career learning. This study considers the differences according to the inclination and characteristics when establishing the learning strategy considering the inclination and characteristics of the learners, establishes the learning and career learning plan and the human resource development plan, designs the education service according to the characteristics of the users, and learns. It can be used to formulate a strategy.

Keyword: *Smart Learning, Self-efficacy, Personal Innovativeness, Career Related Learning, Continuous Usage Intention.*

I. Introduction

Digital transformation is the general influence of digitalization on individuals, organizations, and the whole society (Lee, 2017). With the advent of digital transformation, there has been active prediction and outlook of the jobs to be gone or created newly. Moon, et al. (2019) predicted that advanced technology would bring about new changes in the labor market, and argued that one of the changes would be the creation of new jobs and the disappearance of existing jobs. Bessen(2015) said, “Innovative technology is displacing workers to new jobs rather than replacing them entirely” (Lee, et al., 2016). Given that work conditions, jobs, and occupations will be changed in the future, it is very important to make the development of continuing vocational competency active and efficient and thereby achieve a strategic selection to prepare for the 4th industrial revolution (Yoo, 2017).

Today, turnover is already generalized. It includes the concepts of accession and separation in a broad sense (Bludedorn, 1978). According to the 2018 data of Korea Employment Information Service, young adult employees who had turnover in ten years accounted for 52.3%. As such, the turnover of young adults is a universal phenomenon in Korea (Segye Ilbo, May 23, 2018). With the disappearance of lifelong employment, the view of turnover, which was negative, now comes to be positive (Lee, & Lee, 2015). These days, the society has faced more complexity, variability, and uncertainty. As a result, there have been more saladents (the compound word of salary man and student) who are salarymen studying in order to actively respond to and prepare for changing job conditions. The increased number of saladents reflects the domestic situation where the concept of lifelong employment disappears (Kim, & Lee, 2009). Saladents' learning attitude can be explained with career-related learning which is "the formal and informal activity process of doing self-directed, planned, and active characteristics continuously with a lapse of time in order to apply and acquire the knowledge necessary for one's present and future career development"(London & Smither, 1999). Such learning is strongly done in a personal dimension. In the situation where there are more personal desires for career development and learning and turnover appears in more diverse forms (Choi, 2015), Career-related learning is important in order to keep personal employment and create profits continuously. With the development of technology and the combination of technology and education, a variety of learning methods to improve personal competency and value efficiently as well as career-related learning have been implemented. To respond to dynamically changing labor conditions, individuals need to use these learning methods actively.

In business environment where there has been more competition and uncertainty, it is important to manage human resources effective at securing competitiveness and such view is expanded (Bae, & Sa, 2003). In the US Association for Talent Development (ATD) and International Conference & Exposition (ICE), the keywords in 2018 are "the convergence of Human Value and Technology". Since such key messages as 'modern learner in the digital era, learning experience design, evolution of micro learning, change to 'Agile', millennial leader and coaching' were emerged, it has been emphasized to change the function of Human Resources Development (HRD) in line with leaners' changing needs in the digital era (Management Research Institute of KB Financial Group Inc., Jun. 17, 2018). It means that it is necessary to manage and develop more personalized human resources. Previous studies revealed that the higher education and training cost per person a company had, the more it had positive effects on sales per person, job competency improvement, and productivity improvement (Na, 2010; Noh, Chae, 2009; Lim, Lee , 2010; Kim, 2011). Along with the application of weekly 52-hour labor system in which education time is included in labor time, education and training is predicted to be performed less. Therefore, in order to meet a variety of individuals' learning needs and develop human resources efficiently in limited conditions, it is necessary to

change from traditional teacher-oriented learning to learner-oriented learning.

Smart Learning makes possible personalized, customized, and self-directed learning with the use of smart technology and devices, supports learning at the time and place that learners want, and helps individuals learn in their level. Therefore, it is the optimal learning method necessary for individuals who need continuous career-related learning in rapidly changing labor environment and for enterprises that need effective education and training of their organizational members (출처?).

The purpose of this study is to find how self-efficacy and personal innovation, the personal characteristics of turnover persons who have strong disposition of self-directed learning, influence their intention of using smart learning continuously and their career-related learning. It is expected that this study is helpful for individuals to improve their learning efficiency and for enterprises to establish alearning and training strategy in consideration of learners' characteristics.

II. Theory and Hypotheses

The concept of smart learning focus with of the smart age on the surface since 2008, a year in which smart devices started to spread. Kim (2013) defines the smart age as a period in which IT is used and reproduced and consequently, enhances the quality of humankind, and he also claims that it is important to pursue two kinds of technology innovation. The one is to develop an industry with value creation mechanism and the other is to enhance the quality of human kind by fully acknowledging the association between human kind and components of the IT industrial ecosystem, such as platform, contents, services, networks, devices, and others (Kang et al., 2006). Therefore, the concept of smart is differentiated from traditional education methods and such difference allows it to be a representative learning method of the smart age.

With the development of technologies, there have several attempts and developments in the field of education. In the mid-1990s, the concept of CAI(Computer Assisted Instruction) was introduced and then, due to the development of Internet, WBI(Web Based Instruction) was emerged. By Rosenberg(2001), the concept of WBI was further developed and expanded to the concept of E-learning (Electronic Learning) and started to be employed in traditional research institutes, such as colleges, and even a field of corporate education (Lee, 2002). Since then, M-Learning(Mobile Learning) made an appearance, and in the mid-2000s, the concept of U-learning(Ubiquitous Learning), which means that education in an ubiquitous environment, in which access cannot be limited by any kind of physical boundary, was introduced. However, M-Learning and U-Learning could not be settled in Korea. Then, with the advent of iPhone by Apple in 2008, smart devices have

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become an essential part of human race, opening up the smart age and now, the concept of smart is no longer strange.

Also, in the field of education, the concept of smart has been employed and smart learning has received a lot of attention since 2010, and recently, it has been expanded and developed to the concept of Edu-tech(Education Technology). Edu-tech can be defined as the merge of education with core technologies of the 4th industrial revolution, such as AI, IoT, augmented reality, virtual reality, and big data, and it has been widely developed, especially in the United Kingdom and the United States. Education technologies which can provide customized learning and adaptive learning in consideration of the tendency, academic achievement, and speed of understanding of each individual learner have been defined as Edu-tech, but its concept is very similar with of Smart Learning (Lee, 2016), and considering that the time of writing is a period in which advanced technologies of Edu-tech become more widely accepted and employed, the latest trend of education, pursuing technologies, is referred as Smart Learning in this study. In Korea, as for online-based learning, it has enacted the "E-Learning Industry Development and Promotion Act" from 2004, and it defines E-Learning as "Learning made by using electronic means, information communication, and radio wave/broadcasting technologies". In fact, smart learning, E-learning, M-learning, and U-learning have developed from the same foundation (Kim & Kim, 2013; Lee & Cho, 2013) made the comparison of online-based learning techniques, as shown in Table 1. As technologies and devices have developed, the methods and scope of utilization of such technologies and devices have been also expanded, so there have several attempts to define each type of online-based learning, and also in the field of smart learning.

<Table 1> Comparison of Online-Base Learning Methods

Classification	E-learning	Mobile Learning	Smart Learning
Characteristics	Off-line learning/ auxiliary method	E-learning Auxiliary method	Informal Learning Social Learning
Device Type	Desktop PC	Feature Phone, PDA, etc.	Smart Device

Network Infra	Wired Internet	Mobile (3G)	Broadband wireless internet, cloud
Strength	Reduced education expense, multimedia content	Mobility	Cooperation, situated learning

Source : Lee & Cho (2013)

The definition of smart learning could be approached from various aspects of smart learning, but usually it has been approached from two major aspects of smart learning. The one is that it uses smart devices, and the other one is that smart learning is learner-oriented, overcoming limitations of traditional education. Noh et al., (2011) defines Smart Learning as a learner-directed and human-oriented learning method that uses smart information and communication technologies for learning, allows easy access to learning information, supports an interaction among learner, learning, and teacher, and allows a leaner to design its own learning environment. Bang (2012) claims that smart learning is a method of learning that uses smart devices and technologies to provide the customized learning, and expands cognition and thinking abilities, and is optimized for learner-directed learning. Also, she adds that smart learning must be made with self-directed learning and it can enhance a learner's learning abilities to design, manage, operate, and reflect its own learning. In recent studies, smart learning is defined in consideration of the early definition of smart learning as well as empirical aspects of smart learning. Lee (2016) defined it as a series of learning activities to learn learner-oriented contents by using various networks, such as wired/wireless internet and Bluetooth, and devices, such as smart phones, smart pads, readers, and others, and considered it as the representative learning method in the smart age, from the facts that smart learning brings innovations in the field of education by integrating education with smart devices, and that it enhances the interaction between users, learning performance, and allows to provide education considering an individual's properties. Cho (2018) identified unique features of smart learning as follows: full utilization of smart devices and smart devices; maximizing the effect of learning through interactions rather than one-direction knowledge transfer; allowing the self-directed education design; incorporating an individual's non formal learning into the formal and official learning space, and allowing the learner and human-oriented learning by integrating information communication technology with constructive learning design models. Lee & Lee (2019) made the approach from

two perspectives: macro and micro. From the micro perspective, smart learning is education using smart devices, and from the macro perspective, it is an educational paradigm using smart learning and activates the interaction between educators and learners, in turn allowing the learners to learn in the self-directed manner beyond the scope of time and space. In this study, considering that smart learning uses smart devices as well as AI, big data, and various smart technologies to provide intelligent and customized services; various learning methods including micro learning and blended learning are available with smart learning; and smart learning can provide the optimized education services and enhance the learning efficiency, smart learning was defined as the "integrated form of various personalized and customized learner-oriented learning methods using smart devices, technologies, and advanced learning control systems for maximizing the efficiency of learning.'

The reason that smart learning has been accepted as a new paradigm for education is due to that in smart learning, advanced technologies and devices are used, so individuals can be provided with more customized learning programs, in turn raising the effect of learning. Unique properties of smart learning were organized by using the findings by Choi et al., (2013), as shown in Table 2. The main properties of smart learning, distinguished from the traditional learning, are that it uses smart technologies and devices, allows adoptive and customized learning, integrates various types of learning and enhances the degree of immersion in learning, and allows cooperative learning.

<Table 2>Properties of Smart Learning

Properties	Lee (2010)	Kim (2010a)	Kim (2010b)	Gwak (2011)	Chang (2011)	Noh (2011)	Minist. of Edu. (2011)	Kang et al., (2012)	Lim (2012)
Smart technology/ Device based learning	○	○		○		○	○	○	○
Overcoming limitations of e-learning		○							
Strengthened Virtual-	○							○	

reality									
Interactive-immersion	○	○		○			○		
Convergent learning by integrating, formal-informal learning	○				○	○		○	○
Problem based solving ability, learning for creativity	○			○			○		○
Intelligent, adoptive, customized learning,		○		○	○	○	○		○
Human/learner-oriented			○	○					
Social interaction and Cooperative learning				○		○		○	○
Utilization of various learning supports							○	○	
Supporting of self-directed learning.					○		○		

Source: Choi et al., (2013)

A number of previous studies on smart learning examined the effects of smart learning from the aspects of self-directed learning, learning transfer, and learning satisfaction. Shim and Lim (2013) surveyed 159 employees of large IT affiliates to examine the effectiveness of smart learning in corporate training and education, and validated the effectiveness of smart learning by examining the effects of the primary factors, including self-directiveness, content appropriateness, media

abundance, interaction, and learning transfer on learning transfer and learning satisfaction, and Hwang et al., (2018) examined 354 individuals, having an experience of smart learning, to identify service quality-related factors of smart learning service and examine who such factors influenced users' satisfaction and intention of re-use, and revealed that there was the strong relationship between users' satisfaction and intention of re-use.

Smart Learning has been fully adopted not only in corporates, but also in schools. In 2011, the Ministry of Education, Science, and Technology announced an implementation plan for smart education strategies and defined the concept of smart learning as self-directed, motivated, adaptive, resource enriched, and technology embedded and also provided various detailed assignments such as the development and adaptation of digital textbooks and activation of online class/evaluation (Ministry of Education, Science, and Technology, 2011). In addition, smart learning was started to become introduced in higher education. Since then, there have been numerous studies to explore the effect of smart learning. Lee & Kwon (2014) conducted the survey and in-depth interview with the teachers and students of the elementary school, which has been designated as a Smart Education Research School since 2011, in Busan, to examine the effect of smart learning.

The teachers said that smart learning would lead and promote self-directed learning in students and education with smart devices could be attractive and interesting to students, but added that such interest could be limited a smart device itself. They also said that if contents are abundant, it would be possible to provide students with customized learning. The students said that education using smart devices have a positive influence over self-directed learning and it is very interesting and fun and helps understanding. Han & Kim (2015) conducted an analysis of the effectiveness of learner competency by assessing the students of smart education research schools, and it was found that the students of the 2nd year recognized that their competences had been improved further than of the 1st year. In addition, it was also found that both students and teachers had very positive perception of smart learning for enhancing the competences of learners. Hong & Lim(2018) assessed 118 undergraduate students of the 1st year in Chemistry and Bio Engineering to evaluate the possibility of smart learning in mathematics. By having control groups and experimental groups, the experimental groups were required to use Geogebara, a smart-phone graphing calculator, for class and it was revealed that academic performance of the experimental group was generally outstanding in assignment performance, visual understanding, test, and class evaluation. Kim(2014) examined the influence of smart learning-based self-directed learning strategies on independent assignment accomplishment and assignment execution behaviors in students attending special elementary schools, and confirmed that these strategies enhanced assignment execution behaviors and assignment accomplishment while maintaining the rate of accomplishment. Findings of various studies have supported that smart learning has positive influences over learners, enhancing the

efficiency of learning.

2.1 Personal Characteristics

- **Self-efficacy**

Self-efficacy is a concept introduced by Bandura, a psychologist in Canada, and it refers to an individual's belief in its capacity to execute behaviors, including behavioral, cognitive, and emotional resources. The main motive for executing a behavior is a belief in its efficacy. Such efficacy includes a belief in its capacity, and actual skills, and when a behavior is executed with the belief a skill, its consequence is shown (Kim, 2014). It also refers to self-reference thinking as a motivator for meditating a relation between behavior and thought, and the decision about its capacity to operate and execute behaviors necessary to produce specific performance attainments (Hah & Cho, 2006). In general, self-efficacy is divided into educational self-efficacy, self-control efficacy, and self-efficacy for media (Bandura, 1997; Schunk, 2000; Hwang at al., 2018). From the perspective of social cognition, self-efficacy is the most essential factor of self-controlled learning and important variable for predicting the achievement of learning (Zimmerman, 1989; Zimmerman, 1990). In the case of online learning, learners are required to learn in the active manner, such as learning on its own and choosing the direction of learning on its own. In addition, in the online environment where autonomy is secured, the influence of motivation and belief in its own capacity on its satisfaction on learning is different from of offline education (Park, 2014). In recent studies on E-learning, Kim (2005) claims that E-learning self-efficacy influences the perceived convenience in use, and it uses the perceived convenience in use as a media to influence the intention of behavior and immersed learning. He also adds that E-learning self-efficacy represents an individual's belief that it can make a certain accomplishment on the Internet, and this belief and confidence influences the convenience in use on the Internet. Yu & Song (2013) examined the interaction of academic self-efficacy and independent influence in consideration of antecedent factors of the participation of learning and quantity of sustained learning for E-Learning in college, with 153 undergraduate students. In this study, it was revealed that a learner's perceived value of assignment and academic self-efficacy are directly related with its participation in learning, and academic self-efficacy is a decisive factor for the degree of participation in learning. In addition, it was shown that self-efficacy has a significance positive influence on the intention of learning persistence. Kim (2015) examined the influences of academic self-efficacy and perceived pleasure of M-learning users on the learning transition and its influence by having the degree of satisfaction and learning immersion, and confirmed that academic self-efficacy has a significant direct relationship with learning immersion. Especially, the higher the degree of the users' confidence and belief in M-Learning to achieve

academic goals, the more likely they can immerse in learning. Kim (2017) classified self-efficacy of learners in the E-learning environment into general self-efficacy and self-efficacy for certain domains, and identified their relationships with learning effects. In this study, self-efficacy was divided into general self-efficacy, computer self-efficacy, and internet self-efficacy, and it was found that internet efficacy had the highest influence on learning satisfaction.

- **Personal Innovativeness**

Personal innovativeness is defined as individuals' relative acceptance of certain technologies or systems than others (Rogers & Shoemaker, 1971). Rogers(2003) defines personal innovativeness as a personality trait of being early at adopting innovations. Users with the higher personal innovativeness are more open to new information technologies and vice versa. On the other hand, Midgley & Dowling(1978) is also defined as an individual's willingness to try out new innovations irrelevant with others' experiences. Frese et al.,(1997) claimed that personal innovativeness is constructed with the long-term perspective about use of new innovations, voluntary use of new innovations and devices for current tasks, and active attitude to handle issues arising out of use of innovations (Shin, 2018).

Personal innovativeness is the willingness of an individual to try out new products and services, and it is associated with its attitude towards new ideas and decisions irrelevant with others' experiences (Byeon, 2012), and has significant influences over perceived usefulness, perceived ease of use, and acceptability of new innovations (Agarwal & Prasad, 1998): many researchers have verified the acceptance of information technology innovations regarding IT technologies as an external variable.

Son & Kim (2018) examined, based on the innovation diffusion theory by Rogers, the influences of properties of innovation, including appropriateness, relative benefit, testability, complexity, and observability, on the intention of acceptance of smart devices in class and mediating effect of personal innovativeness in the professors and instructors attending the smart device utilized learning special lecture, held at the faculty learning support centers of 5 universities, and found that personal innovativeness has a significant mediating effect over relative benefits and complexity. Jung et al., (2018) reviewed the factors of smart device acceptance and market segmentation based on an integrated technology acceptance model, and confirmed that, along with personal innovativeness, performance expectation and effort expectation have significant influences over the intention of smart device acceptance. Park et al., (2019) examined the influences of user innovativeness on the intention of smart machine acceptance by using an expanded technology acceptance model, and confirmed that user innovativeness have significant influences over perceived ease of use and perceived usefulness.

2.2 Technology Acceptance Model

2.2.1 Comparison of TRA, TPB and TAM

With the development and sophistication of technologies, there have been many academic attempts to identify the factors of technology acceptance: Especially, such academic studies are based on theories of social psychology, addressing beliefs, attitudes, intention of behavior, acceptance behaviors, and others. The most representative theories of such are Theory of Reasoned Action (TRA), Theory of Planned Behavior (TPB), and Technology Acceptance Model (TAM) and especially, TAM is a model suitable for examining individuals' acceptance of latest technologies (Yuh & Park, 2010).

<Table 4> Comparison of TRA, TPB, and TAM

Theory	Description	Major Factor	Definition
(TRA)	A person's behavior is determined by attitude and its subjective norm under voluntary control.	Attitude	A person's emotion generated by executing a certain behavior
		Subjective Norm	A degree of personal awareness controlling a certain behavior
(TPB)	It started as the Theory of Reasoned Action to state the influences of external and internal control factors on an individual's behavior	Attitude	A person's emotion generated by executing a certain behavior
		Subjective Norm	A degree of personal awareness controlling a certain behavior
		Perceived Behavior Control	A perceived degree of difficulty or ease in executing of a certain behavior
(TAM)	It is a theory that models external factors, including perceived ease of use and perceived usefulness) of	Perceived Usefulness	A degree of belief in that use of a certain system can enhance performance

	acceptance and use of advanced technologies	Perceived Ease of Use	A degree of belief in that use of a certain system would be free from effort

Source. Lee (2011)

2.2.2 Technology Acceptance Model (TAM)

TAM, suggested by Davis (1989) was started to explain users' attitude and behavior in the use of information system. It is based on various theories in social psychology, such as TRA and TRB, and it is a very independent model in which modules of the model can be exchanged or deleted (Baek Sang-Yong, 2009). Major variables of TAM are perceived usefulness and perceived ease of use. Davis(1989) defined perceived usefulness as "the degree to which a person believes that using a particular system would enhance its job performance" and perceived ease of use as "the degree to which a person believes that using a particular system would be free from effort." Early TAM was not significantly different from TRA, but later, it was modified to delete one of its factors, attitude, since it was considered that attitude of use has a small influence and perceived usefulness (PU) and perceived ease of use (PEOU) have direct associations with intention of use (Venkatesh & Davis 1996).

Early studies on TAM either strongly supported TAM or focused on re-valuation of its variables with its measures (Park, 2016). Although TAM has been supported as the most simple and informative model of information technology acceptance, its variables are not sufficient enough to reflect the environment or special features of information technologies (Park, 2017). In addition, since TAM has only two variables, PU and PEOU, it cannot fully reflect various perspectives and the mediating role of attitude is not significant, so its power of information is somewhat limited. Venkatesh & Davis(2000), in their study of theoretical extension of TAM, added external variables and suggested Extended TAM (E-TAM) (Park & Kim, 2010). It was originally suggested by Agarwal & Karahanna(2000) and Sánchez & Hueros(2010), having individual factors and technological factors as variables of PU and PEOU, and Venkatesh & Davis(2000) suggested E-TAM by substituting users' attitude with subjective norms as its variable (Song, 2016).

2.2.3 Studies on Online-Based Learning and TAM

As shown in Table 5, there have been several studies on online-based learning by using various models such as TAM and E-TAM as well as various factors such as self-efficacy, personal

innovativeness, interactivity, economic feasibility, PU, PEOU, users' attitude of acceptance, intention of use, and intention of learning. Findings of these study, generally, support the positive influence of online-based learning.

<Table 5> Studies on Online-Based Learning and TAM

Research	variables	Statistically Significance
Shin & Kim (2011)	Self-Efficacy, Education Relevance, Subjective Norms, Perceived Ease of Use, Perceived Usefulness, Intention to Use	- Self-Efficacy → Perceived Ease of Use - Education Relevance →Perceived Ease of Use - Education Relevance → Perceived Usefulness - Subjective Norms →Perceived Usefulness - Perceived Ease of Use → Perceived Usefulness - Perceived Ease of Use→ Attitude Toward Using - Perceived Usefulness → Attitude Toward Using - Attitude Toward Using → Intention to Use
Chang and Kim (2011)	Organization's Support, Task-Technology Appropriateness, Network Formation - Strengthened Anticipation , Perceived Usefulness, Perceived Ease of Use.	- Perceived Usefulness→ Intention of Learning Using Smart Devices - Organization's Support→ Intention of Learning Using Smart Devices - Perceived Ease of Use → Intention of Learning Using Smart Devices - Task-Technology Appropriateness →Intention of Learning Using Smart Devices - Network Formation - Strengthened Anticipation → Intention of Learning Using Smart Devices

Lee and Cho (2013)	Interaction, Economic Feasibility, Perceived Usefulness, Perceived Ease of Use. Intention to Use, Corporate Innovativeness	- Interaction →Perceived Usefulness - Economic Feasibility →Perceived Usefulness - Economic Feasibility →Perceived Ease of Use - Interaction → Intention to Use - Economic Feasibility → Intention to Use - Perceived Ease of Use → Perceived Usefulness - Perceived Usefulness → Intention to Use - Perceived Ease of Use → Intention to Use - Corporate Innovativeness → Intention to Use
Park and Kim (2013)	Self-Efficacy, Personal Innovativeness, Perceived Usefulness, Perceived Ease of Use, Intention to Use, Learning Satisfaction	- Self-Efficacy→ Perceived Usefulness - Self-Efficacy → Perceived Ease of Use - Personal Innovativeness → Perceived Ease of Use - Perceived Usefulness → Intention to Use - Perceived Usefulness → Intention to Use - Intention to Use → Learning Satisfaction
Lee and Kim (2015)	Connectivity, Interactivity, Personal Customization, Economic Feasibility, Perceived Usefulness, Perceived Ease of Use, Intention to Use	- Connectivity → Perceived Usefulness - Interactivity → Perceived Usefulness - Personal Customization → Perceived Usefulness - Connectivity → Perceived Ease of Use - Personal Customization → Perceived Ease of Use - Connectivity → Economic Feasibility - Interactivity → Economic Feasibility - Personal Customization → Economic Feasibility - Perceived Usefulness → Intention to Use - Economic Feasibility → Intention to Use

		- Perceived Ease of Use → Perceived Usefulness - Economic Feasibility → Perceived Usefulness
Kim et al., (2016)	Smart Self-Efficacy, External Pressure, Perceived Usefulness, Perceived Ease of Use, Attitude Toward Using, Intention to Use, Actual(Smart learning)System Use	- Smart Self-Efficacy → Perceived Usefulness - External Pressure → Perceived Ease of Use - Smart Self-Efficacy → Perceived Usefulness - Perceived Usefulness → Attitude Toward Using - Perceived Ease of Use → Attitude Toward Using - Perceived Usefulness → Intention to Use - Attitude Toward Using → Intention to Use - Intention to Use → Actual(Smart learning)System Use
Park & Park (2016)	Perceived Usefulness, Perceived Ease of Use Self-Efficacy, Personal Innovativeness, Smart Learning Users' Attitude, Smart Learning Acceptance , Offline education satisfaction	- Smart Learning Users' Attitude → Smart Learning Acceptance - Smart Learning Acceptance → Offline education satisfaction -Smart Learning Users' Attitude → Offline education satisfaction
Park & Gu (2018)	Supports of Superiors and Colleagues, Supportive Organization Atmosphere. Perceived Usefulness , Perceived Ease of Use,	- Supports of Superiors and Colleagues → Learning Transfer - Supportive Organization Atmosphere → Learning Transfer - Perceived Usefulness → Learning Transfer

	Learning Transfer	- Perceived Ease of Use → Learning Transfer
Park & Cha (2018)	Personal Innovativeness, Academic Self-Relevancy, Perceived Usefulness, Academic Relevance, Intention of MOOC Use	- Perceived Usefulness → Intention of MOOC Use - Personal Innovativeness → Intention of MOOC Use - Academic Self-Relevancy → Intention of MOOC use - Personal Innovativeness → Perceived Usefulness - Personal Innovativeness → Academic Relevance

Shin & Kim (2011) examined the relationships between PU and PEOU of the information technology acceptance model and online class users' attitude of acceptance and intention of use of smart learning: In this study, self-efficacy, education relevance, and subjective norms were used as external variables, and PEOU, PU, attitude of acceptance, and subjective norms were used as measures. Jang & Kim (2011) examined the factors affecting the intention of learning using smart devices in adult learners based on TAM, by having task-technology appropriateness, network formation- strengthened anticipation, organization's support, PEOU, PU, and intention of learning using smart devices as variables. Lee & Cho (2013) analyzed corporate education instructors' intention of acceptance of smart learning based on TAM by having interaction and economic feasibility as smart learning promotion factors, and lack of presence and interrupted concentration as constraints, and PU and PEOU as predisposing factors for intention of smart learning acceptance. Corporate innovativeness was added as a variable of a corporate environment, examining its influence on the intention of acceptance. Park & Kim (2013) examined the relationship between learning satisfaction and use of smart phone in E-learning in undergraduate students of cyber colleges, by using TAM. In this study, self-efficacy and personal innovativeness were independent variables, PU and PEOU were parameters, and intention of use and learning satisfaction were dependent variables.

Lee & Kim (2015) analyzed intention of smart learning education in education instructors and general employees of SME, based on TAM. In this study, connectivity, interactivity, and personal customization were set as predisposing external factors, and PU, PEOU, and PCS (perceived cost saving) were as predisposing factors of intention of smart education acceptance. Kim et al., (2016) studied instructors' acceptance of smart learning based on TAM, and extended TAM by adding self-efficacy and external pressure. Park & Park (2016) measured the influence of blended learning using smart devices on learning satisfaction based on TAM, in IT service companies of Korea. In this

study, the relationships between PU, PEOU, self-efficacy, and personal innovativeness on smart learning users' attitude, between their degree of smart learning acceptance and offline education satisfaction, and between their attitude for smart learning and offline education satisfaction. Chu & Kim(2017) examined the relationships between influential variables for the act and intention of use of new technology, such as performance anticipation, effort anticipation, social influence, promotional environment, entertaining motivation, and habit, and satisfaction and intention of use in its study of identifying effective variables of satisfaction and intention of use of K-MOOC(Massive Open Online Course) based on Unified Theory of Acceptance and Use of Technology: UTAUT, a representative model used for online education environment for higher education. Park & Gu(2018) examined the learning transfer of E-learning education based on TAM by having PU, PEOU, supportive organization atmosphere, and supports of superiors and colleagues at work, and learning transfer as a dependent variable. Then, they were again compared among nation s and cultures, including region, evasion from uncertainty, power distance, individualism and collectivism, and male/female.

Park & Cha(2018) examined undergraduate students' intention of MOOC use. This study was based on TAM and had personal innovativeness and academic self-relevancy as exogenous potential variables, and PU, academic relevance, and intention of use as endogenous potential variables, and investigated their relationships. Based on the previous studies, considering the fact that displaced workers generally collect information required for career turnover and educate and prepare themselves from the personal perspective while preparing for career turnover, this study had self-efficacy, a major factor of self-controlled learning, and personal innovativeness, an active attitude for accepting new innovations, as independent variables to examine the relationship between career related learning and intention of continuous use of smart learning. In addition, PU and PEOU, suggested as critical variables of TAM and E-TAM developed by Davis, (1989) and Venkatesh, & Davis (2000), respectively, were set as parameters of this study to evaluate the effects of this study in depth.

2.3 Career Related Learning

Swanson (2010) defined career related learning as an individual's self-directed learning activities. It also refers to education made in a course of career development (Kang, 2015). Career development is a concept similar to an individual's consistent learning to accomplish its career goal (Ji, 2014), and it includes both development and education activities (Swanson & Holton, 2009). Learning is an individual's personal activity for enhancing its career competence, and it is executed continuously to obtain and maintain the career competence (Kang, 2015). Therefore, career related

learning can be defined as an individual's consistent personal activities for having a positive attitude towards its career and task, and enhancing its career competence and knowledge (Ji, 2014). The concept of career-related learning is organized by Kang (2015), as shown in Table 6.

<Table 6> Concept of Career Related Learning

Researcher	Concept and Definition
London & Smither (1999)	An individual's process of formal or informal activities that are continuously carried out over time to apply or obtain knowledge required for the development of its current or future career in the self-directed, pre-planned, and active manner.
Carbery & Garavan (2007)	Formal programs or programs supported by organization to increase a person's general competences that can be transferred to other contexts
Sim (2012)	Formal programs, executed in the process of career development, to acquire and understand work procedures, skills, and knowledge to improve a person's competence. It is generally offered in the form of OJT, and official training and education.
Ji (2014)	Individual's personal activities made consistently to enhance its career, career-related knowledge, and competence, and form a positive attitude.
Kang (2015)	A process in which a person enhances its competence and efficiency of its career through its self-directed education in the consistent manner. This concept can be applied to adult education and lifelong learning.

Source : Kang (2015)

McLagan(1989) defined human resource development as an activity that promotes the performance of individuals, groups, and organizations by integrating and utilizing personal development, career development, and organization development. Career development is about providing opportunities for employees to grow personally and professionally (Horwitz et al. 2003).

Hall & Morgan(1997) explained it as a person's processes of enhancing its career-related attitude, competence, and performance, and of planning its career history and accomplishing its personal goal as well as an organization's goal, based on the concept of career development defined as an individual's attitude and behavior regarding human resources obtained from its career-related experiences and activities (Min, 2018). Among all factors studied to assess their relationship to employees' retention(job satisfaction career development opportunities, organizational commitment and organizational reputation), career development is the most related to employees' retention decision(Hauskecht et al., 2009; Al-sharafi, Hassan, & Alam, 2018). Ji(2014) clarified the differences between career development and career-related learning, as shown in Table 7: It is revealed that, comparing to career development, career-related learning allows an individual to develop its competence further in the more self-directed manner.

<Table 7> Career Development Career Related Learning

Classification	Career Development	Career Related Learning
Definition	A process of learning a decision-making process for major technologies and career, made at the personal and/or organizational level	Comprehensive activities for enhancing an individual's competence and skill
Description	A process of expanding an individual's knowledge and competence, such as training, education, and development	A process of an individual's accomplishing its personal goal through training, information provision, and attitude formation
Goal	Individual's development by enhancing its personal knowledge and competence	Fulfilling an individual's self-fulfillment by enhancing its own competence and skill

Source: Ji Sung-Ho (2014) Re-cited

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2.4 Continuous Usage Intention

Continuous usage intention refers to the degree to which a user continuously uses a certain service or recommends it to others (Mcdougall & Levesque, 2000) and Yun and Kim (2006) defined as "the degree to which users like to use once-used products or services", and Gwon &Yun (2010) defined as "the degree to which users like to have the intention of continuously using once-used products or services.". Since the intention of consistent use of a certain technology can be considered the ultimate success for any technology (Bhattacherjee, 2001), consistent use can be significant in terms of the success of information systems (Nam, 2008). By assessing 210 undergraduate students, Lee & Kim (2015) revealed that learners have the higher continuous usage intention with the higher self-controlled learning competence, higher immersion in education using smart devices, and higher satisfaction in smart learning. Park et al., (2015) examined the relationship between smart learning used for acquiring national technology certificates and continuous usage intention, and revealed that interactivity, learning immersion, pleasure, and satisfaction influences continuous usage intention. Hamid et.al.(2016), revealed that perceived usefulness and perceived ease of use does predict the continuance intention of using the e-government services in Malaysia. These findings have also been proven in the results of Abbas & Hamdy(2015)'s research. Chu et al., (2014) assessed 279 students attending cyber colleges to identify factors of continuous usage intention for mobile learning, and found that system quality and personal innovativeness influence effort anticipation, and information quality, service quality, and personal innovativeness influence performance anticipation while effort anticipation and performance anticipation affect continuous usage intention. Jung et al.,(2011), in its study on factors of continuous usage intention for E-Learning service, found that PU and users' satisfaction have positive influences over continuous usage intention. As shown from above, there are various elements influencing continuous usage intention for online-based learning and in general, unique properties of online-based learning have positive influences over continuous usage intention. In this study, continuous usage intention is defined as the degree to which persons like to continuously use the smart learning that they have used while experiencing a career turnover.

III. Research Design

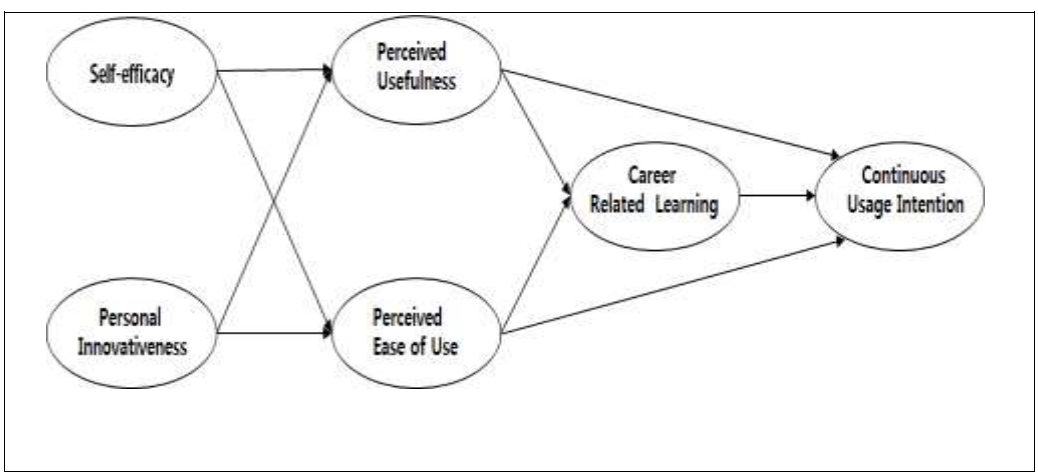
3.1 Research Model and Hypotheses

Salerdent (Salaryman + Student) is considered as a new word representing an adult's self-directed learning: Saladent is a composite word of salaryman and student, representing a salaryman studying for self-development (Kim & Lee, 2009; Goh & Yu, 2016). Recently, career turnover has become generalized, and in one survey in 2017, targeting people experiencing the first job at age of 15 to 29, it was found that 62.6% experienced a career turnover (Korea Labor Institute, 2016). In a

survey of 474 salarymen, conducted at one employment site, 72.8% responded that they would build up their specifications even after getting employed and a career turnover was the most frequently answered reason, by 61.2% (multiple responses) for such effort, higher than for raising a salary or promotion, by 40.9%. In addition, 53.7% answered that enhancement of its specification was the most helpful to change its job to a better working environment, and self-study(57.1%) and online education (55.4%) were answered to be the methods for enhancing specifications (Saramin, 2019.04.25). From these results, it could be seen that many office workers, preparing for a career turnover, personally engage in self-directed education, so in this study, workers experiencing or preparing a career turnover was defined as a learner with strong tendency for self-directed learning.

In this study, to investigate the relationship between career related learning and continuous usage intention for smart learning in workers experiencing a career turnover, a study model was developed based on the aforementioned theoretical background, and hypotheses were formulated to define the relationships among variables of the study model. Based on findings of the previous studies, variables were defined and detailed questionnaires for the variables were developed.

In the various previous TAMs, it was revealed that self-efficacy and personal innovativeness, which are users' personal traits, have direct relationships with technology acceptance attitudes through PU and PEOU (Park, 2017). In order to validate them with findings of this study, this study suggested the following study model, as shown in Fig. 6: It was developed to reveal the relationships between self-efficacy and personal innovativeness, and PU and PEOU, and the relationships between PU and PEOU, and continuous usage intention for smart learning and career-related learning in workers, experiencing a career turnover.



<Figure. 6> Research Model

Based on the study model, the following hypotheses were formulated:

H1. Learner's self-efficacy and personal innovativeness will affect perceived usefulness and perceived ease of use.

H1-1 : self-efficacy will affect perceived usefulness .

H1-2 : self-efficacy will affect perceived ease of use.

H1-3 : personal innovativeness will affect perceived usefulness.

H1-4 : personal innovativeness will affect perceived ease of use.

H2. Perceived usefulness and perceived ease of use will affect career-related learning and continuous usage intention.

H2-1 : Perceived usefulness will affect career-related learning.

H2-2 : Perceived usefulness will affect continuous usage intention.

H2-3 : perceived ease of use will affect career-related learning

H2-4 : perceived ease of use will affect continuous usage intention.

H3. Career related learning will affect continuous usage intention.

3.2. Operational Definitions and Measurement Tools

Self-Efficacy was defined as the 'degree of self-esteem to use and utilize smart learning services to raise an effect of learning' and for measurement of self-efficacy, the measurement tools developed by Kim (2010) and measurement tools by Lee (2013) were edited to five questions, in a 5-point Likert scale.

Personal Innovativeness was defined as a 'person's willingness to use smart learning' and 6 questions formulated by Park(2017) and had the value of Cronbach's Alpha of 0.909 or above were edited and used for this study.

Perceived Usefulness and Perceived Ease of Use Davis(1989) defined perceived usefulness as "the degree to which a person believes that using a particular system would enhance its job performance" and perceived ease of use as "the degree to which a person believes that using a particular system would be free from effort." Positive attitude is formed when PU and PEOU present. In TAM, such positive attitude influences intention of acceptance, and the intention of acceptance has a strong correlation with actual use (Lee & Gwon, 2016), in this study, PU was defined as the degree to which a person believes that using smart learning would enhance its productivity and PEOU as the degree to which an individual believes that using smart learning

would be free from effort., and PU and PEOU were measured with 7 questions, in a 5-point Likert scale, formulated by Kin after translating and correcting PU and PEOU by Davis (1989) and reviewed by education engineers and users of smart learning system, and obtained the value of Cronbach's Alpha of 0.909.

Career Realated Learning Kang(2015) defined career related learning as an individual's consistent activities to obtain and apply knowledge and skills in the self-directed manner to enhance its career efficiency, and it was measured with 10 questions, constructed with 3 questions for preliminary learning, 4 questions for main learning, and 3 questions for application, which were edited from the measurement tools developed by Shim(2012) for management consultant. The internal consistency coefficients of the measurement tools were 0.843, 0.717, and 0.740, respectively. This study used 10 questions of the career-related learning measurement tools by Kang(2015), in a 5-point Likert scale.

Continuous Usage Intention Continuous usage intention refers to the degree to which consumers like to use once-used products or services (Yun & Kim, 2006) and in this study, it was defined as the degree to which an individual likes to continuously use smart learning." The measurement was made with 3 questions in a 5-point Likert scale, developed by editing the measurement tool developed by Cho(2017) and Park (2017).

3.3 Measurement Tools

The measurement items used in this study were formulated by using findings of the previous studies. They are shown in Table 8.

<Table 8> Measurement Tools

Factors		Measurement	Citation
Self-efficacy	1	I am confident that I can get the expected education outcome with smart-learning based education service.	Kim (2010), Lee (2013)
	2	I tend to have a higher interest in new technologies and services.	
	3	I tend to know a lot about new technologies and services.	
	4	I do not hesitate to use new technologies and services.	

	5	I tend to use new technologies and services for various purposes than others.	
Personal Innovativenes	1	I tend to accept and use new technologies and services before others.	Park (2017)
	2	I tend to have a higher interest in new technologies and services.	
	3	I tend to know a lot about new technologies and services.	
	4	I do not hesitate to use new technologies and services.	
	5	I tend to use new technologies and services for various purposes than others.	
	6	I am willing to try new technologies and services when released.	
Perceived Usefulness	1	I think that smart learning-based education service is helpful to improve my competence required for a career turnover.	Davis (1989), Kim (2014)
	2	I can find education contents that I want quickly with smart learning-based education service.	
	3	I think that smart learning-based education service can help enhance my poor competence and/or skill.	
	4	I think that smart learning-based education service can help achieve my goal of education.	
	5	I think that smart learning-based education service enables learning of good quality.	
	6	I think that smart-learning based education service can enhance my competence along with others in the effective manner.	
	7	I think that smart learning-based education service is a useful service to enhance one's competence.	

Perceived Ease of Use	1	I think that smart learning-based education service is easy and convenient to use.	Davis (1989), Kim (2014)
	2	I think that learning becomes easier with smart learning-based education service.	
	3	Smart learning-based education service can be used without manual.	
	4	Smart learning-based education service makes easier to remember.	
	5	It is easier to complete an assignment by using smart learning-based education services.	
	6	Smart learning-based education service provides a guide for learning.	
	7	It is more convenient to interact by using smart learning-based education services.	
Career Related Learning	1	I establish a career development plan to improve my career	Kang (2015)
	2	I analyze what I need to improve my knowledge and skills related to my work and decide what to learn.	
	3	I establish a learning plan to obtain knowledge and skill required for the assigned duties.	
	4	I have an interest and continuously participated in the education and training programs of my company.	
	5	To obtain career-related knowledge, I search the Internet or engage in online-based learning activities.	
	6	Even without supports of my company, I engage in career-related learning to develop my career if necessary.	
	7	I search and read career related information and books to enhance my	

		career-related competence.	
	8	I apply new technologies and knowledge obtained by learning or experiences, onto assigned duties.	
	9	I take the ideas obtained and created while engaging in learning activities into practice.	
	10	I use newly obtained knowledge and skills to help others perform their assigned duties.	
Continuous Usage Intention	1	I am willing to use smart learning-based education services to enhance my competence.	Cho (2017), Park (2017)
	2	I am willing to consistently use smart learning-based education services to enhance my ability.	
	3	I am willing to recommend smart learning-based education services to others.	

IV. Results

4.1 Demographic Characteristics of Samples

In this study, subjects were limited to those who had experienced smart learning. Then, another screening was made to limit the subjects to persons who had experienced a career turnover. The survey was conducted online from April 17 to April 22, 2019, for 6 days, and among online panels of Macromill Embrain Co, Ltd, a research company, responses from a total of 332 respondents were collected and used for the study. STATA / SE 12.0 was used to analyze the reliability and validity of the collected data, and to perform descriptive statistics and evaluate the hypotheses. Empirical analysis was made by using structural equation modeling. To investigate the demographic characteristics of the subjects, sex, age, occupation, occupation field, position, turnover frequency, and frequency of smart learning use were examined. The demographic information for this study included gender, age, education level, job area, work year, times of turnover, annual income, work position. Demographic distribution of the collected data is shown in Table 9.

<Table 9> Demographic Distribution (Unit: N, %)

Categories		(N)	(%)	*Categories*		(N)	(%)
Gender	Male	82	24.70	Work Year	Less than 1 years	14	4.22
	Female	250	75.30		1-3 years	79	23.80
Age	20-29 years	104	31.33		3-5 years	68	20.48
	30-39 years	228	68.67		5-7 years	64	19.28
Education Level	High School	9	2.71		7-10 years	67	20.18
	Diploma	51	15.36		More than 10 years	40	12.05
	Degree	243	73.19	Times of Turnover	once	98	29.52
	Master, PhD	29	8.73		twice	111	33.43
Job Area	managers	152	45.78		3 times	65	19.58
	production operation	25	7.53		4 times	32	9.64
	professional	38	11.45		5 times	26	7.83

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	service						
	sales/customer counseling	6	1.81	Annual Income	15~25million won	62	18.67
	IT/Internet	25	7.53		25~35million won	135	40.66
	engineers /designer	17	5.12		35~45million won	85	25.60
	education	26	7.83		45million won~	50	15.06
	media	5	1.51	Work Position	Staff/Assistant Section manager	163	49.10
	public institution	8	2.41		Administrative manager	90	27.11
	construction	4	1.20		Section manager	69	20.78
	distribution/ trade	10	3.01		Chief	8	2.41
	service	16	4.82		Head manager~	2	0.60

In this study, the survey was conducted on the subjects who had experienced smart learning. Among them, 133 (40.06%) responded that they had experienced smart learning in the language education; 121 (36.45%) in the certificate education; 38 (11.45%) in the job training required for a career turnover; 35 (10.54%) in the resume preparation, self-introduction preparation, and interview preparation; and 5 (1.51%) in the general sense/current situation education. For the frequency of usage of smart learning, twice a week and three times a week were answered by 122 (33.73%), five times or more a week by 52 (15.66%), once a week or less by 29 (8.73%), and four times a week by 27 (8.13%).

<Table 10> Analysis of the Frequency of Smart Learning Experience (Unit: N, %)

contents	*Categories*	*빈도(N)*	*백분율(%)*
Experiences of smart learning education	language study	133	40.06
	certificate	121	36.45
	resume/ interviewing Ed.	35	10.54
	common knowledge/current events	5	1.51
	job training required for a career turnover	38	11.45
Smart device type used for smart leaning	smart phone	99	29.82
	Tablet PC	42	12.65
	laptop PC	133	34.04
	use sth mixed	78	23.49
Frequency of usage of smart learning	Once a week	29	8.73
	Twice a week	112	33.73
	3 times a week	112	33.73
	4 times a week	27	8.13
	More than 5 times a week	52	15.66

4.2 Construct Reliability and Validity Test

Table 11 represents the analysis of validity and reliability of the variables used in this study.

Prior to the exploratory factor analysis, KMO(Kasier-Meyer-Olkin) was conducted to evaluate the possibility of the exploratory factor analysis. After analyzing the KMO statics on the factor analysis, it was found that every statistic value of KMO was 0.70 or above (Self-efficacy = .831, Personal Innovativeness= .867, Perceived Usefulness= .869, Perceived Ease of Use= .792, Career Related Learning=.843, Continuous Usage Intention= .717) so it could be assumed that it was suitable for the factor analysis. In this study, Varimax rotation was used for the factor analysis. In addition, factor loading was set to be at 0.50 or above. In this study, to measure the internal consistency of the survey questions, the reliability analysis was made by using Cronbach's Alpha coefficient and since every variable was shown to have the value of 0.70 or above(Self-efficacy =.816, Personal Innovativenes=.8630, Perceived Usefulness=.8560, Perceived Ease of Use=.778, Career Related Learning=.848, Continuous Usage Intention=.8286) it was considered that these variables were internally consistent, suitable for the verification of the hypotheses. In addition, the factor analysis was made with variables of this study, verifying their independence.

<Table 11>Construct Reliability and Validity Test

variables	*Factor loadings*	*Cronbach's Alpha*	*variables*	*Factor loadings*	*Cronbach's Alpha*
Self-Efficacy	0.7025	0.8169	Perceived Ease of Use	0.5070	0.7789
	0.7089			0.5328	
	0.6420			0.6404	
	0.7189			0.6848	
	0.6062			0.6599	
Personal Innovativenes	0.7045	0.8630		0.6327	
	0.7181		Career Related Learning	0.5688	0.8483
	0.7443			0.6416	

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	0.6858			0.6500	
	0.7348			0.6045	
	0.6661			0.5329	
Perceived Usefulness	0.6705	0.8560		0.6062	
	0.6244			0.6422	
	0.7218			0.6655	
	0.7113			0.6535	
	0.6721		Continuous Usage Intention	0.7615	0.8286
	0.6024			0.7917	
	0.7268			0.7211	

4.2.1 Correlation Analysis

To confirm the correlations among measurement factors of this study model, every question was subject to the correlation analysis. Results of the correlation analysis are shown in Table 12 and 13, and the decision criterion was set to be at 0.7, of a correlation coefficient, and it was found that there were no extremely high correlations among variables, so it was considered to be suitable for the structure equation analysis.

<Table 12> Results of the Analysis of Correlation between Independent Factors and Mediating Factors

	M	SD	Self-efficacy					Personal Innovativenes						Perceived Usefulness							Perceived Ease of Use						
			se1	se2	se3	se4	se5	pi1	pi2	pi3	pi4	pi5	pi6	pu	pu2	pu3	pu4	pu5	pu6	pu7	pe1	pe2	pe3	pe4	pe5	pe6	pe7
	3.5240	.73499	1																								
Self-efficacy	3.6897	.75177	0.5522	1																							
	3.7409	.71188	0.4681	0.5099	1																						
	3.	.6	0.	0.	0.	1																					

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	56 62	89 8	53 9	49 12	45 34																						
	3. 46 98	.7 63 0	0. 38 92	0. 42 35	0. 38 61	0. 52 03	1																				
	3. 41 56	.8 01 5	0. 21 89	0. 24 98	0. 15 75	0. 26 69	0. 26 26	1																			
Personal Innovativeness	3. 59 93	.7 88 3	0. 17 57	0. 23 32	0. 21 83	0. 22 39	0. 18 83	0. 51 77	1																		
	3. 25 90	.7 99 7	0. 22 06	0. 29 99	0. 29 33	0. 32 47	0. 29 5	0. 52 43	0. 59 63	1																	
	3.	.8	0.	0.	0.	0.	0.	0.	0.	0.	1																

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	52 71	01 7	21 68	27 22	27 17	25 62	25 07	50 43	42 59	53 56																	
	3. 31 92	.8 04 3	0. 24 25	0. 34 92	0. 18 18	0. 25 57	0. 23 72	0. 55 27	0. 50 72	0. 57 55	0. 51 59	1															
	3. 73 79	.7 54 0	0. 26 49	0. 29 85	0. 32 34	0. 19 9	0. 24 62	0. 46 07	0. 52 93	0. 42 35	0. 50 9	0. 50 2	1														
Perceived Usefulness	3. 66 86	.7 40 6	0. 56 97	0. 39	0. 39 83	0. 43 93	0. 33 51	0. 16 65	0. 14 45	0. 12 49	0. 15 26	0. 15 78	0. 26 6	1													
	3. 76 50	.7 28 5	0. 38 86	0. 35 75	0. 51 15	0. 38 57	0. 29 16	0. 16 77	0. 19 86	0. 21 37	0. 24 89	0. 17 48	0. 25 61	0. 44 32	1												
	3.	.7	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1											

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	75	*37*	*47*	*34*	*41*	*46*	*38*	*23*	*21*	*23*	*17*	*17*	*23*	*53*	*50*											
		9	*07*	*99*	*12*	*29*	*63*	*24*	*16*	*29*	*75*	*56*	*48*	*34*	*86*											
	3.	*.7*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*											
	65	*63*	*42*	*36*	*35*	*53*	*45*	*22*	*16*	*24*	*24*	*24*	*25*	*43*	*44*	*58*	*1*										
	66	*3*	*94*	*14*	*29*	*1*	*42*	*91*	*23*	*02*	*73*	*31*	*79*	*41*	*12*	*73*											
	3.	*.7*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*										
	56	*64*	*38*	*36*	*40*	*48*	*43*	*25*	*17*	*24*	*24*	*18*	*25*	*42*	*41*	*44*	*50*	*1*									
	92	*4*	*69*	*09*	*51*	*11*	*09*	*86*	*9*	*73*	*34*	*5*	*44*	*49*	*45*	*05*	*69*										
	3.	*.7*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*									
	43	*83*	*25*	*22*	*24*	*32*	*36*	*21*	*18*	*17*	*13*	*15*	*19*	*33*	*34*	*41*	*40*	*48*	*1*								
	07	*9*	*2*	*23*	*93*	*97*	*77*	*91*	*23*	*33*	*76*	*98*	*15*	*5*	*7*	*65*	*95*	*7*									
	3.	*.6*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*								
	67	*71*	*41*	*38*	*37*	*49*	*37*	*20*	*16*	*22*	*25*	*23*	*32*	*55*	*44*	*44*	*51*	*50*	*49*	*1*							
	16	*4*	*1*	*42*	*15*	*39*	*87*	*94*	*17*	*07*	*51*	*94*	*48*	*83*	*09*	*36*	*62*	*65*	*91*								
Per	*3.*	*.6*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*1*						

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cei ved Eas e of Use	*85 24*	*72 6*	*42 58*	*30 95*	*42 47*	*29 13*	*22 38*	*13 65*	*17 3*	*14 99*	*15 59*	*10 97*	*31 07*	*52 01*	*43 46*	*43 67*	*35 41*	*30 49*	*21 26*	*44 09*							
	3. 87 65	*.6 77 5*	*0. 38 52*	*0. 32 2*	*0. 44 09*	*0. 29 87*	*0. 29 96*	*0. 10 59*	*0. 15 6*	*0. 12 61*	*0. 19 81*	*0. 12 25*	*0. 27 35*	*0. 43 6*	*0. 47 36*	*0. 45 77*	*0. 37 34*	*0. 32 87*	*0. 28 82*	*0. 42 86*	*0. 60 95*	*1*					
	3. 62 95	*.8 21 5*	*0. 24 75*	*0. 26 83*	*0. 35 2*	*0. 25 93*	*0. 24 96*	*0. 16 57*	*0. 09 67*	*0. 33 96*	*0. 23 32*	*0. 22 98*	*0. 17 44*	*0. 17 5*	*0. 24 78*	*0. 36 5*	*0. 30 24*	*0. 19 25*	*0. 17 35*	*0. 28 82*	*0. 27 25*	*0. 29 21*	*1*				
	3. 45 18	*.8 00 7*	*0. 35 11*	*0. 35 9*	*0. 28 55*	*0. 38 32*	*0. 40 8*	*0. 24 78*	*0. 11 53*	*0. 25 54*	*0. 26 79*	*0. 29 6*	*0. 23 67*	*0. 31 43*	*0. 22 39*	*0. 37 58*	*0. 42 26*	*0. 46 7*	*0. 40 14*	*0. 44 53*	*0. 20 83*	*0. 19 78*	*0. 31 49*	*1*			
	3. 49 69	*.8 09 6*	*0. 36 82*	*0. 33 35*	*0. 26 07*	*0. 42 49*	*0. 44 73*	*0. 30 45*	*0. 13 3*	*0. 29 05*	*0. 20 96*	*0. 25 66*	*0. 21 89*	*0. 33 08*	*0. 24 46*	*0. 37 54*	*0. 42 36*	*0. 45 43*	*0. 40 9*	*0. 42 89*	*0. 20 72*	*0. 22 24*	*0. 27 31*	*0. 58 46*	*1*		
	3.	*.7*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*0.*	*1*	

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	62 34	12 2	33 77	32 29	26 59	39 83	33 76	27 5	19 87	24 6	27 98	18 94	33 32	33 55	36 46	41 81	52 28	42 81	45 9	47 99	33 77	37 29	31 33	39 98	48 26		
	3. 34 93	.8 06 8	0. 26 09	0. 30 88	0. 26 33	0. 32 19	0. 37 54	0. 26 53	0. 20 65	0. 31 35	0. 26 55	0. 29 31	0. 26 02	0. 28 03	0. 28 91	0. 30 45	0. 38 18	0. 32 8	0. 40 14	0. 48 57	0. 19 55	0. 23 95	0. 29 16	0. 49 38	0. 51 03	0. 46 09	1

<Table 13> Results of the Analysis of Correlation Among Dependent Factors

	M	SD	Career Related Learning										Continuous Usage Intention		
			cl1	cl2	cl3	cl4	cl5	cl6	cl7	cl8	cl9	cl10	iu1	iu2	iu3
Career Related	3.5 54 2	.6 86 5	1												

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Learning	*3.659 6*	*.6653*	*0.4671*	*1*										
	3.689 7	*.7476*	*0.4242*	*0.4976*	*1*									
	3.5632	*.7201*	*0.3872*	*0.4076*	*0.4602*	*1*								
	3.8253	*.7613*	*0.2609*	*0.3952*	*0.2707*	*0.2847*	*1*							
	3.7138	*.7532*	*0.3134*	*0.3898*	*0.3408*	*0.259*	*0.3445*	*1*						

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	3.5933	*.7538*	*0.2908*	*0.3557*	*0.408*	*0.4009*	*0.2233*	*0.385*	*1*						
	3.7138	*.6861*	*0.3056*	*0.3816*	*0.3506*	*0.3516*	*0.3493*	*0.373*	*0.4227*	*1*					
	3.5530	*.7550*	*0.3174*	*0.3422*	*0.3778*	*0.3715*	*0.2877*	*0.3313*	*0.4276*	*0.5095*	*1*				
	3.6054	*.6716*	*0.3512*	*0.3611*	*0.3812*	*0.3859*	*0.2429*	*0.3076*	*0.3505*	*0.4885*	*0.5746*	*1*			
Continuous Usage	*3.8373*	*.7022*	*0.3567*	*0.4049*	*0.2431*	*0.2594*	*0.3649*	*0.3572*	*0.2399*	*0.3358*	*0.2714*	*0.2094*	*1*		

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Intention	*3.8313*	*.75077*	*0.2933*	*0.3867*	*0.2402*	*0.2824*	*0.4081*	*0.3631*	*0.2468*	*0.2579*	*0.2702*	*0.2091*	*0.6642*	*1*	
	3.7168	*.80666*	*0.3387*	*0.3659*	*0.3398*	*0.3377*	*0.3964*	*0.3983*	*0.2771*	*0.3008*	*0.3662*	*0.2281*	*0.5798*	*0.6193*	*1*

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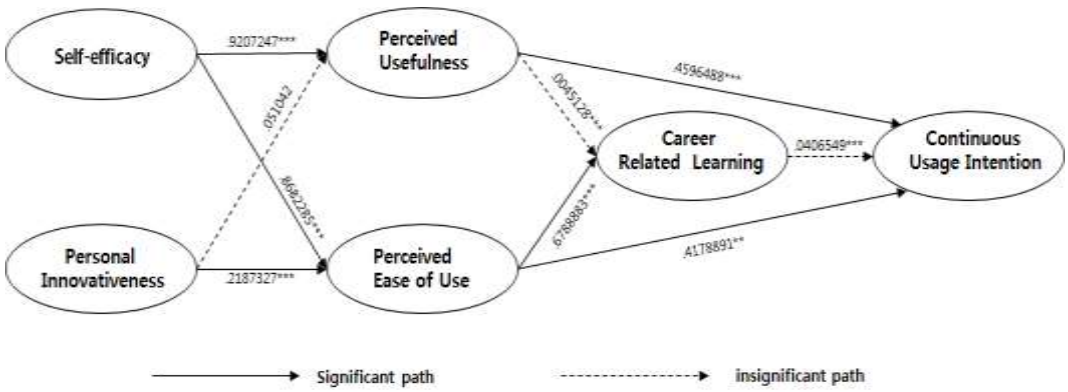
4.3 Hypothesis Testing

4.3.1 Results of the path analysis

For this study, 9 hypotheses were formulated and their results were shown in Fig. 7.



<Fig. 7> Hypothesis Result of Research Model

4.3.2 Structural Model Fit

As shown in Table 14, The model is a good fit. The chi square2 (χ^2) model vs. saturated in a likelihood ratio-test, the ratio was 0.000, indicating that the model exhibited goodness-of-fit. In the confidence interval of 90%, the RMSEA of population error was 0.066, and the lower bound was 0.000, (The value of RMSEA fell in the range of .05 to .08 and was considered as reasonable fit) CFI of baseline comparison was 0.841, and its TLI was 0.829, both of which were close to 1. The SRMR was 0.110, close to the 0 of the reference model. Therefore, the model showed goodness-of-fit (GFI, NFI, CFI, 0.8~0.9 good fit; Bagozzi & Dholakia, 2002).

<Table 14> Structural Model Fit

Categories	Fit index	Categories	Fit index

Likelihood ratio		Information criteria	
$\chi 2$_model vs. saturated	1436.163	AIC	22509.961
$p > \chi 2$	0.000	BIC	22955.161
χ^2_baseline vs. saturated	5987.604	Baseline comparison	
$p > \chi 2$	0.000	CFI	0.841
Population error		TLI	0.829
RMSEA	0.066	Size of residuals	
90% CI< lower bound	0.000	SRMR	0.110
		CD	0.991

4.3.3 Hypothesis Testing

Results of the hypothesis testing are shown in table 15. By verifying the hypothesis on the relationship between self-efficacy and perceived usefulness, it was shown to have the path coefficient of .9207247, P=0.000(p<0.001), indicating a significant direct(+) relationship.

Therefore, the H:1-1 that self-efficacy will have an influence over perceived usefulness was accepted. By verifying the hypothesis on the relationship between self-efficacy and perceived ease of use, it was shown to have the path coefficient of .8682285, P=0.000(p<0.001), indicating a significant direct(+) relationship. Therefore, the H:1-2 that self-efficacy will have an influence over perceived ease of use was accepted. By verifying the hypotheses on personal innovativenes and perceived usefulness, it was shown to have the path coefficient of .051042, P=0.304. In other words, it has a direct (+) relationship, but insignificant. Therefore, the H:1-3 that personal innovativenes will have an influence over perceived usefulness was rejected. By verifying the hypothesis on the relationship between personal innovativeness and perceived ease of use, it was shown to have the path coefficient of .2187327, P=0.000(p<0.001), indicating a significant direct(+) relationship. Therefore, the H:1-4 that personal innovativeness will have an influence over perceived ease of use was accepted.

By verifying the hypothesis on the relationship between perceived usefulness and career related learning, it was shown to have the path coefficient of .0045182, P= 0.978, In other words, it has a direct (+) relationship, but insignificant. Therefore, the H:2-1 that perceived usefulness will have an influence over career related learning was rejected. By verifying the hypothesis on the relationship between perceived usefulness and Continuous Usage Intention, it was shown to have the path coefficient of .4596488, P=0.000(p<0.001), indicating a significant direct(+) relationship. Therefore, the H:2-2 that perceived usefulness will have an influence over continuous usage intention was accepted. By verifying the hypothesis on the relationship between perceived ease of use and career related learning, it was shown to have the path coefficient of .6788883, P=0.000(p<0.001), indicating a significant direct(+) relationship. Therefore, the H:2-3 that Perceived ease of use will have an influence career related learning was accepted. By verifying the hypothesis on the relationship between perceived ease of use and continuous usage intention, it was shown to have the path coefficient of .4178891, P=0.005(p<0.05), indicating a significant direct(+) relationship. Therefore, the H:2-4 that perceived ease of use will have an influence over continuous usage intention was accepted. By verifying the hypotheses on career related learning and continuous usage intention, it was shown to have the path coefficient of 0.0406549, P=0.570. In other words, it has a direct (+) relationship, but insignificant. Therefore, the H3 that career related learning will have an influence over continuous usage intention was rejected.

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<Table 15> Results of Hypotheses Testing

Hypothesis	*Path name*	*Standard coefficient*	z	*p-value*	*Result*
H1-1	Perceived Usefulness ← Self-efficacy	.9207	36.92	0.000 ***	Supported
H1-2	Perceived Ease of Use ← Self-efficacy	.8682	25.40	0.000 ***	Supported
H1-3	Perceived Usefulness ← Personal Innovativenes	.0510	1.03	0.304	Not supported
H1-4	Perceived Ease of Use ← Personal Innovativenes	.2187	3.98	0.000 ***	Supported
H2-1	Career Related Learning ← Perceived Usefulness	.0045	0.03	0.978	Not supported
H2-2	Continuous Usage Intention ← Perceived Ease of Use	.4596	3.71	0.000 ***	Supported

H2-3	Career Related Learning ← Perceived Ease of Use	.6788	4.36	0.000 ***	Supported
H2-4	Continuous Usage Intention ← Perceived Ease of Use	.4178	2.83	0.005 **	Supported
H3	Continuous Usage Intention ← Career Related Learning	.0406	0.57	0.570	Not supported

Reference: * P < 0.1, ** P < 0.05, *** P < 0.001

V. Conclusion

The results of this study are presented as follows:

Firstly, the hypothesis that self-efficacy for smart learning influences perceived usefulness and perceived ease-of-use was accepted. In other words, the more self-confidence of smart learning learners have, the more they are likely to perceive usefulness of smart learning and ease-of-use. In this study, perceived usefulness had a higher result value than perceived ease-of-use. This result is similar to the result from research by Kim, et al.(2016). In particular, given the point that the subjects of this study had the experience of achievement through smart learning, the more self-confidence of competence improvement learners have through smart learning, the more they are likely to use smart learning actively in order to achieve their learning objectives like competency improvement. Therefore, in order for learners who have strong disposition of self-directed learning to use smart learning, it is necessary to help them have self-confidence and participate in smart learning and to design, operate, and support the education service system that can bring out objective-oriented and practical learning achievements.

Secondly, the hypothesis that personal innovation influences perceived usefulness was rejected, but the hypothesis that personal innovation influences perceived ease-of-use was accepted. This

result is similar to the result from research by Park, & Kim(2013). Learners who have strong disposition of self-directed learning and accepts smart learning technology fast are highly likely to adapt themselves to smart learning environment and use relevant services and technologies. For this reason, it is necessary to establish an education service system that helps learners achieve their learning objectives on the basis of the service that can perceive usefulness of smart learning.

Thirdly, the hypothesis that perceived usefulness influences career-related learning was rejected but the hypothesis that perceived ease-of-use influences career-related learning was accepted. In terms of the performance of career-related learning as one's continuous and self-directed learning activities in a personal level, it is necessary to enable learners to perceive and use smart learning easily and conveniently, and thereby to improve their personal competency and abilities and to acquire the knowledge for jobs with the use of smart learning.

Fourthly, the hypothesis that career-related learning influences continuous usage intention was rejected. Career-related learning is the activity of comprehensive and continuous learning to improve personal competency and abilities. Therefore, it can vary. In order for online smart learning to be applied to the learning activity for career development continuously and for the smart learning based knowledge and competency for jobs to be applied to learners' present and future work conditions, it is necessary to design and develop the education service that can contribute to career-related learning on the basis of practical learning effects.

Fifthly, the hypothesis that both perceived usefulness and perceived ease-of-use influence continuous usage intention was accepted. In particular, perceived usefulness was more influential than perceived ease-of-use. Davis(1989) argued that the more perceived usefulness users have, the more they have positive attitude. Cho(2018) confirmed that smart learning satisfaction was higher as learners had voluntary learning motivation and received education related to work competency improvement. Bhang(2012) said that when self-directed smart learning was guaranteed, learners improved their learning satisfaction through self-enforcement based self-directed learning. The result of this study is similar to the results of previous studies. In other words, when learners who had strong disposition of self-directed learning judged that smart learning was useful to achieve their learning objectives for developing their competency, they more strongly intended to use smart learning continuously. In order to increase use of smart learning continuously, it is necessary to design and develop an education system that helps learners perceive its usefulness.

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VI. Suggestions

In order to activate smart learning, this study looked into the personal characteristics of young displaced workers who had strong disposition of self-directed learning. It has suggestions as follows:

Firstly, this study is meaningful in the point that it analyzed the personal characteristics of young displaced workers as digital native in terms of their continuous use of smart learning. Smart learning makes it possible to improve learning effects through various services triggering interest and immersion, such as analysis of current learners and learning management, recommendation systems based on learners' data, learning analysis and feedback, inducement of participation, micro-learning for efficient learning in a short time, interaction between participants, and gamification. In addition, it provides the environment for easier participation of learners. With the use of big data and AI, smart learning makes possible more personalized and customized curation service. To improve personal competency and develop human resources with the use of smart learning, it is necessary to achieve content based personalization and customization and provide an education service in line with personal dispositions and characteristics. In order for learners who have strong self-efficacy to achieve their learning objectives, it is necessary to provide object-oriented service and content. For learners who have strong personal innovation, it is necessary to provide the easier education service and content with high efficiency. In this way, it is required to help learners use smart learning continuously in order to improve their personal competency.

Secondly, to use smart learning for career-related learning, it is necessary to make an approach based on perceived ease-of-use. Career-related learning is the activity of acquiring knowledge and technology through work and self-directed and continuous learning (Kang, 2015) and triggers a variety of formal and informal learning activities. In this case, if learning areas are expanded through smart learning along with conventional learning activities, it is possible to expect positive effects like increased learning efficiency. On contrary, it can give a burden of adapting learners to a new learning method. In order for learners to set up a learning plan to acquire knowledge and technology, to continue to participate in education & training and learning activities, apply their acquired knowledge and techniques to their jobs, and to combine smart learning with career-related activities, it is necessary to use the advantage of easy and convenient smart learning and to design an education service system that makes it possible to learn continuously according to personal career path and learning level.

The limitations of this study and suggestions for follow-up research are presented as follows:

Firstly, this study used only self-efficacy and personal innovation among personal characteristics of displaced workers. It is necessary to research various personal characteristics including use experience, knowledge, emotion, and motivation, system factors such as system quality, information quality, and service quality, and social factors such as social pressure, subjective norms, and others' use.

Secondly, if various groups, including displaced worker group, non-displaced worker group, displaced workers in different age groups, groups in different occupations, are compared and researched in order to analyze continuous usage intention, it will be possible to effectively suggest a plan for continuously using smart learning in the dimensions of individuals and human resource development.

Thirdly, there is not much research on career-related learning. With the faster development of technologies, individuals will face faster changes in their job conditions. As a result, it is expected to emphasize national and corporate support of career development and the importance of career-related learning to manage and develop personal career in personal dimension. Therefore, it will be necessary to conduct a variety of research with the use of career-related learning factors.

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