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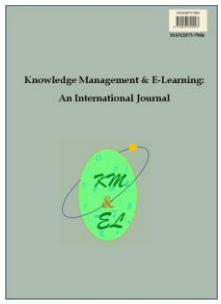


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# Employees' acceptance of knowledge management systems and its impact on creating learning organizations

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# Employees' acceptance of knowledge management systems and its impact on creating learning organizations

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**Abstract:** Many organizations are eager to become learning organizations that are known to contribute to increased financial performance, innovation, and the retention of workers who possess valuable organizational knowledge. For this reason, knowledge management systems (KMSs) in reality have been utilized as a means to foster the development of learning organizations. However, it remains questionable as to whether or not KMSs have any impact on the creation of learning organizations. Therefore, this study is designed to address this deficit and build a foundation for future research. Situated in theoretical frameworks pertinent to learning organizations and technology acceptance, a total of 327 datasets collected from three South Korean companies revealed that employees' technology acceptances of KMSs could influence the creation of learning organizations in the workplaces of South Korea. The results showed that using KMSs influenced the development of learning organizations. To maximize the utilization of KMSs, the change management process should not be overlooked before and after the integration of technology.

**Keywords:** Knowledge management system; Learning organization; Technology acceptance; Workplace; South Korea

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engagement systems in the workplace with a keen interest in learners' motivational and cognitive processing.

## 1. Introduction

A learning organization is defined as an "organization where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together" (Senge, 1990, p. 1). Gopher, Weil, and Bareket (1994), Solomon (1994), Thornburg (1994), and Thomas and Allen (2006) also described that a learning organization is a company that has an enhanced capacity to learn, adapt, and change, and enables employees to consistently acquire and share knowledge. Such capability is critical to organizations developing a sustainable competitive advantage (Bierly III, Kessler, & Christensen, 2000) in order to respond to external business pressures, such as increasing complexity in the workplace, a move to diversify the workforce, emphases on the quality of products or services and customers' satisfaction, have shifted faster than in the past (Morris, 1993). Many organizations have tried to become learning organizations because they are known to contribute to increased financial performance, innovation, and the retention of knowledge workers (Ellinger, Ellinger, Yang, & Howton, 2002; Lee-Kelly, Blackman, & Hurst, 2007). The workforce is an integral part of learning organizations because employees have to become experts who take the data and information and transform them into valuable knowledge for individual and organizational use (Marquardt, 1996).

Knowledge is the key to an organization's success and, therefore, many organizations find tools or methods that can help increase employees' knowledge (Mladkova, 2007). Adopting information technology makes it possible to create, save, and share knowledge in the organization's system for future use in the workplace. In South Korea, Knowledge Management Systems (KMSs) have represented technological solutions that support employees' learning and knowledge sharing across organizations in the workplace (Liebowitz & Frank, 2010). The concept of a learning organization has gained a great deal of popularity in South Korea since 1990. As a result, many organizations in South Korea built KMSs to support the distribution and sharing of employees' knowledge (Lee, 2008), which is defined as "a class of information system applied to managing organizational knowledge" (Alavi & Leidner, 2001, p. 114). It helps organizations get the right information to the right people when they need it (Rosenberg, 2006).

While it is crucial to utilize technology to foster the development of learning organizations, the integration process often presents numerous challenges. In South Korea, many companies have applied means such as rewards based on employees' levels of generating and sharing knowledge or developing best practices for supporting employees' consistent utilization of KMSs (Baek, Lim, Lee, & Lee, 2008). KMSs, however, have not been found able to help organizations achieve their expected outcomes (Lee, 2000; Lee & Suh, 2003). The first issue with this ineffective integration is that although many studies examined employees' learning, acquisition of knowledge and their relationship to the learning organization, only a few studies have examined the impact of KMSs on the creation of learning organizations with strong empirical support. Second, information technologies, such as KMSs, cannot be the driving force of knowledge management practices but an enabler, to extend the achievement of organizational

purposes through knowledge management (Suh, Lee, & Kim, 2006). Therefore, it is important to understand if the utilization of KMSs can impact the development of learning organizations.

In order to respond to the aforementioned integration issues, this study investigated the relationships between the integration of information technology (i.e., the KMS), along with the development of learning organizations in the workplace in South Korean companies. In particular, this study aimed at testing the following hypothesis: Employees' perceptions towards KMSs can influence the perceived dimensions of a learning organization.

## 2. Literature review

The literature review consists of four sections. The first section discusses learning organizations in terms of its definitions and measurement. Second, the discussion shifts to the importance of technology in the workplaces of South Korea. The third section discusses employees' technology acceptance of KMSs. Finally the discussion illustrates the conceptual framework between KMSs as a form of information technology and learning organization.

### *2.1. Learning organization*

The term "learning organization" gained popularity as soon as Senge (1990) published his book "The Fifth Discipline" in the early 1990s. Many organizations paid attention to Senge's concept because they needed to reorganize themselves in order to stay competitive. According to Senge (1990), a learning organization is defined as "an organization where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together" (p. 1). Garvin (1993) referred to a learning organization as an organization that facilitates the learning of all its members and one that continuously transforms itself. King (2001) defined a 'learning organization' as "one that focuses on developing and using its information and knowledge capabilities in order to create higher-valued information and knowledge, to change behaviors, and to improve bottom-line results" (p.14). Essentially the learning organization looks into the future and considers long-term strategies, rather than focusing on the present and short-term goals. It attempts to figure out the underlying causes of events to solve problems effectively and learn from mistakes, rather than just relieve symptoms (Müller, 2011).

However, in recent years the learning organization seems to have lost attention by scholars and practitioners. It is difficult to apply the concept to the real world of organizations due to the lack of empirical studies as well as the criticism that organizations take on a coercive role which presents learning as a duty to employees (Rebelo & Gomes, 2008). Even though attention to learning organizations has waned, carrying out empirical research about learning organizations remains critical to understanding how organizations can establish win-win relationships with their employees in learning matters.

### *2.2. Integration of KMS in the context of organizational learning*

Adopting information technology is essential to organizations because it affects work performance, organizational culture, and organizational development, as well as supporting learning for employees within organizations. As part of the overall information technology infrastructure in the organization, the KMS attempts to support learning while creating, sharing, and transferring knowledge across organizations (Maier & Schmidt, 2007; Liebowitz & Frank, 2010). Many organizations have built KMSs into their systems to help save, share, and use knowledge as a learning resource, and supporting it for employees' performance, which is defined as "a system that supports managing knowledge within organizations" (Alavi & Leidner, 2001). Allee (1997) emphasized that a KMS has to include work processes and must incorporate conscious and deliberate attention to every aspect of knowledge to become a learning organization. Many factors affecting the successful integration of KMSs with organizations have been identified in previous research (Davenport, 1997; Loermans, 2002; OuYang, Yeh, & Lee, 2010). McCampbell, Clare, and Gitters (1999) showed that the barriers of KMSs are changing people's behavior, measuring the value and performance of knowledge assets, determining what knowledge should be managed, and justifying the use of scarce resources for knowledge initiatives.

Many Korean companies in South Korea have built KMSs into their companies and have tried to motivate their employees to utilize KMSs through means such as rewards, based on their levels of generating and sharing knowledge or developing best practices and supporting employees' consistent learning (Baek, Lim, Lee, & Lee, 2008). However, after building a KMS within an organization, it has not helped organizations achieve their expected outcomes (Lee, 2000; Lee & Suh, 2003) owing to the following assumptions by organizations regarding the nature and function of knowledge. First, many organizations regard knowledge as static assets and believe that knowledge is self-managed regardless of the people who create it (You, 2007). However, knowledge is not a stock or object but an interacting flow among people (You, 2007). Second, many organizations concentrate on accumulating information instead of knowledge. Knowledge is different from information in that information can be saved without the involvement of its owners but knowledge cannot be accumulated without creators of the knowledge (Brown & Duguid, 2000). Third, many Korean companies built KMSs and have held misinformed beliefs that employees would utilize them automatically. They have overlooked the benefits of creating facilitating environments using structure, policies, and support and reducing barriers. All three assumptions neglect the involvement of KMS users during the integration process.

Lee and Suh (2003) selected thirteen Korean companies, which had adopted KMSs and found that they focused mostly on technology in the initial stage of the KMS integration, but then shifted to organizational culture during the later stages of KMS. If companies simply utilize technology and process without considering human factors, they will fail to integrate KMSs (Lee, 2000). OuYang and colleagues (2010) investigated the critical success factors for knowledge management adoption in organizations and classified four main categories that affect the adoption of KMSs in the organizations: Organizational factors, individual factors, knowledge management capability, and organizational performance. In order to be successful in integrating KMSs, some researchers identified the following success factors: Ease of use, value and quality of the knowledge, system accessibility, user involvement, integration, top management support/commitment, project manager and team skills, incentives, interpersonal trust and respect, reciprocity, shared values, and convenient knowledge transfer mechanisms (Liebowitz, 2009; Nevo & Chan, 2007). Liebowitz and Frank (2010) further consolidated

three success factors for the implementation of KMSs, such as people, process, and technology.

The lack of managerial focus on open learning across organizations, and the failure to nurture an environment that supports and encourages employees to access the new generation of knowledge and its subsequent management, will lead to poor utilization of corporate knowledge resources through technology (Loermans, 2002). The most important factor is how employees utilize KMSs as a technology within organizations. If people within organizations do not utilize the KMSs, it will compromise all knowledge management activities and goals intended by the organizations.

### *2.3. The utilization of technology*

To address the aforementioned assumptions derived from the ineffective integration of KMSs in South Korean companies, this study adopted the concept of technology acceptance to emphasize the importance of a user-centered approach when integrating KMSs. Although organizations have built advanced technology to support employees' learning and performance, they will not be worthwhile if users do not accept and use them in the workplace (Venkatesh, Morris, Davis, & Davis, 2003). To maximize the utilization of technology, users' acceptance level is an important factor. Roca, Chiu, and Martinez (2006) explained that technology acceptance influences users' continuance intention by their satisfaction of technology. The acceptance of technology by the individual users is an important factor that influences the individual usage of any information technology systems (Liaw, Huang, & Chen, 2007).

The Unified Theory of Acceptance and Use of Technology (UTAUT), a recent instrument developed and validated by Venkatesh and colleagues (2003) has synthesized eight existing theories to use eight perceptual constructs to predict the intention to use technology. UTAUT integrates elements of the following: Theory of Reasoned Action (TRA), Motivational Model (MM), Theory of Planned Behavior (TPB), Technology Acceptance Model (TAM), a combined TAM and TPB model, Model of PC utilization, Innovation Diffusion Theory, and Social Cognition Theory (Venkatesh, Morris, Davis, & Davis, 2003). UTAUT consists of eight constructs: performance expectancy, effort expectancy, social influence, facilitating conditions, self-efficacy, anxiety, behavioral intention to use, and attitude towards using technology. The UTAUT has been applied to examine technology usage in both academic settings and the workplace (Bals, Smolnki, & Riempp, 2007; Dingel & Spiekermann, 2007; Ong, Lai, & Wang, 2004). In addition, UTAUT was validated in cross-cultural settings. Including the Czech Republic, Greece, India, Malaysia, New Zealand, Saudi Arabia, South Africa, the United Kingdom, and the United States (Oshlyansky, Cairns, & Thimbleby, 2007). However, employees' technology acceptance of KMSs in the Korean context has not been investigated.

### *2.4. Information technology and learning organization*

A learning organization is a company that has an enhanced capacity to learn, adapt, and change, and enables employees to consistently acquire and share knowledge (Gopher, Weil, & Bareket, 1994; Solomon, 1994; Thornburg, 1994; Thomas & Allen, 2006). It is crucial for organizations to enhance their capabilities for effective learning and knowledge management, by using information and communications technology (Wang, Moormann, & Yang, 2010). Mihalca, Uta, Andreeu, and Intorsureanu (2008) and Bonifacio, Franz, and Staab (2008) suggested that information technology is needed to support KMSs for sharing of knowledge among employees across organizations. Thus,

employees' use and perceptions towards KMSs could influence the perceived dimensions of a learning organization. Very few studies, however, have explored the relationship between learning organizations and technology acceptance and usage in the workplace.

Among the scarce attempts to situate the use of technology in the context of creating learning organizations, prior studies have identified preliminary relationships between technology usage and the perceptions towards learning organization. In one workplace, Marchi (1999) conducted a survey of 103 managers and found that employees in learning organizations used the Internet more than those in non-learning organizations. Vongchavalitkul, Singh, Neal, and Morris (2005) later reached a similar conclusion in a business school setting. Her study was conducted in a business organization while Vongchavalitkul, Singh, Neal, and Morris (2005) study was conducted in the college of business in universities. However, these two studies showed the same results: that there is a relationship between Internet use and learning organizations. Thus, there seems to be a relationship between information technology and the development of learning organizations.

Pursuing the learning organizations, companies tended to build KMSs for facilitating employees' knowledge sharing, however, using KMSs seemed not to show what companies expected to be used by employees Although organizations have built advanced technologies to support employees' learning and performance, they will not be worthwhile if employees do not accept and use them in the workplace. To maximize the utilization of technology, employees' acceptance is a critical factor. Previous empirical studies showed similar results that using the Internet affects users' perceptions of learning organizations.

Therefore, the hypothesis is as follows: Employees' technology acceptances towards KMSs influence the perceived dimensions of a learning organization.

## 3. Methodology

The purpose of this quantitative survey study was to test the research hypothesis that employees' technology acceptances towards KMSs influence creating learning organizations in South Korea. The following sections describe the research site, instrumentation, data collection, and data analysis.

### *3.1. Research setting and participants*

This study targeted three companies in South Korea, which are in the IT service industry and media service industry. Generally, employees who work for service companies tend to be transferred to separate workplaces among various job locations. They can share a lot of information through technology. Three companies that possess KMSs were selected as study sites by convenient sampling. All employees who have had at least more than one year of work experience in these three companies were invited to participate in this study, but new employees were excluded, as they might not have had opportunities to use KMSs. In addition, executives from three companies were excluded because they seem to use different levels of KMSs. Participants were recruited from entry-level positions, assistant managers, managers, and senior managers and participation was strictly voluntary. Respondents were required to be fluent in Korean, the language in which the survey was translated and distributed.

### *3.2. Instrumentation*

This section describes in detail the instruments for testing the hypothesis. The online survey questionnaire was designed to access three areas: (1) learning organization, (2) the behavioral intention to use and acceptance of KMSs, (3) participants' demographic information.

The dimensions of learning organization questionnaire (DLOQ). This instrument was used to measure the extent to which a company meets certain criteria as a learning organization (Watkins & Marsick, 1996, 2003). Many studies have been conducted by using DLOQ due to its reliability and validity (Ellinger, Ellinger, Yang, & Howton, 2002; Hernandez, 2003; Kumar & Idris, 2006; McHargue, 2003; Yang, 2003; Yang, Watkins, & Marsick, 2004; Zhang, Zhang, & Yang, 2004). As one of the most popular data-collection instruments, DLOQ has been validated in the Korean context (Park, 2008; Song, Joo, & Chermack, 2009). In this study, the short version of the DLOQ with 21 items was used because the overall reliability for the 21-item scale of .93 has better psychometric properties in terms of the formation of an adequate measurement model (Yang, 2003).

The unified theory of acceptance and use of technology (UTAUT). To measure the technology acceptance levels towards KMSs, UTAUT was applied. UTAUT is measured by eight constructs, which include performance expectancy (4 items), effort expectancy (4 items), social influence (4 items), facilitation conditions (4 items), anxiety (2 items), self-efficacy (4 items), attitude towards using technology (4 items) and behavioral intention (3 items). See Table 1 for the construct definitions.

The reliability and validity of the questionnaire was also examined by numerous studies (Oshlyansky, Cairns, & Thimbleby, 2007; Venkatesh & Davis, 2000). The reliabilities of all constructs were found to be acceptable and highly consistent (Alpha > .80) (Venkatesh, Morris, Davis, & Davis, 2003). In addition, the cross-cultural validity of the UTAUT tool was examined. The results clearly showed that this tool is robust enough to be used cross-culturally (Oshlyansky, Cairns, & Thimbleby, 2007).

**Table 1**
The UTAUT (Venkatesh, Morris, Davis, & Davis, 2003)

| Construct | Definitions |
|---|---|
| Performance Expectancy | The degree to which an individual believes that using the system will help him or her to attain gains in job performance. |
| Effort Expectancy | The degree of ease associated with the use of the system. |
| Attitudes | An individual's positive or negative feelings about performing the target behavior. |
| Social Influence | The degree to which an Individual perceives that important others believe he or she should use the new system. |
| Facilitating Conditions | The degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system. |
| Self-efficacy | Judgment of one's ability to use a technology to accomplish a particular job or task. |
| Anxiety | Evoking anxious or emotional reactions when it comes to performing a behavior. |
| Behavioral Intention to use | The degree to which an individual wants to use technology and will use what is learned in the work context. |

### *3.3. Data collection and analysis*

The data were collected for eight weeks (February 6th to March 31th) in 2012 from three service companies in South Korea. The online survey was distributed to 1,150 employees within the three companies by HRD staff and 334 surveys were returned (response rate 29%). The time span was selected for one month because the response rate of the online survey dropped rapidly after the first two weeks (Madge & O'Connor, 2002).

The data was analyzed and reported. First, the researchers will report on how to handle missing data. Second, the researchers will report on the participants, exploratory factor analysis and reliability, and hypothesis testing results based on the overall data. Third, the researchers will report on the participants, exploratory factor analysis and reliability, and hypothesis testing results based on the three companies.

Of 334 returned datasets, 2 datasets were deleted due to errors. An analysis of the patterns of the missing data was examined and missing data were checked. First, a total of 332 datasets were tested using Little's MCAR test if the datasets were missing completely at random (MCAR) (Allison, 2002; Howell, 2007; Little & Rubin, 1987; Schlomer, Bauman, & Card, 2010). The result of Little's MCAR (Chi-Square = 6981.929, DF = 6996, Sig = .545) showed that the missing data of the datasets were MCAR (Little, 1988). The missing data had been shown as more than 20% (missing variables 34%).

The list wise deletion was used in many studies. However, this is not an advisable method when the amount of missing data was substantial (Schlomer, Bauman, & Card, 2010). The list wise deletion method could cause the loss of statistical power (Howell, 2007; Schlomer, Bauman, & Card, 2010) and deliver the least accurate estimates of population parameters, such as correlations (Roth, 1994). The mean substitution was used when the missing data were less than 10% and this method could reduce the variance of the variables (Schlomer, Bauman, & Card, 2010). Thus, list wise deletion and mean substitution seem to be inappropriate in dealing with missing data (Peng, Harwell, Liou, & Ehman, 2006; Roth, 1994; Schlomer, Bauman, & Card, 2010). The Expectation Maximization (EM) Algorithm method was applied to deal with the missing data for this study because it is a proper, alternative way in multivariate analysis for this study (Howell, 2007; Schafer, 1999; Schlomer, Bauman, & Card, 2010). Five cases were excluded due to outliers and a total of 327 datasets were used for further analyses.

## 4. Results

### *4.1. Participants*

Of 327 completed datasets, 148 (45.3%) were completed by males, while 59 (18.0%) were completed by females and 120 (36.7%) showed no indication of whether they were completed by males or females. 113 (34.6%) participants were in their thirties, 64 (19.6%) in their forties, 28 (8.6%) in their twenties, 1 (0.3%) in less than their twenties and one (0.3%) in his fifties. 120 (36.7%) did not reveal their ages. Eight-five (26.0%) participants had work experiences between 1 and 5 years, 60 (18.3%) between 6 and 10 years, 33 (10.1%) between 11 and 15 years, 16 (4.9%) between 16 and 20 years, and 12 (3.7%) had work experiences of less than 1 year in the companies while 120 (36.7%) participants did not indicate their work experience in their companies. Fifty-six (17.1%) employees worked in sales/marketing, 43 (13.1%) as production workers or technicians, 51 (15.6%) in supporting departments such as human resources, accounting, and finance, 14 (4.3%) in research, and 4 (1.2) in customer service. 124 (37.9%) participants did not

indicate their jobs in the companies. Sixty-three participants (19.3%) were assistant managers, 36 (11.0%) were employees, 61 (18.7%) managers, 31 (9.5%) senior managers, and 15 (4.6%) were supervisors (directors) in the companies, while 121 (37.0%) participants did not indicate their positions. Nearly half of the participants (49.2%) held bachelor' degrees, 30 (9.2%) held Master's degrees, 10 (3.1) held two year college degrees, and 1 (0.3) holds a doctoral degree, while 121 participants did not indicate their education levels. These demographics are shown in Table 2.

**Table 2**
Descriptive statistics of participant demographic information

| Frequency (Percent) | | Total |
|---|---|---|
| Gender | Male | 148(45.3) |
| | Female | 59(18.0) |
| | Missing | 120(36.7) |
| | Total | 327(100.0) |
| Age | Less than 20 | 1(0.3) |
| | 20 – 29 | 28(8.6) |
| | 30 – 39 | 113(34.6) |
| | 40 – 49 | 64(19.6) |
| | Over 50 | 1(0.3) |
| | Missing | 120(36.7) |
| | Total | 327(100.0) |
| Work experience | Less than 1 year | 12(3.7) |
| | 1 – 5 years | 85(26.0) |
| | 6 – 10 years | 60(18.3) |
| | 11 – 15 years | 33(10.1) |
| | 16 – 20 years | 16(4.9) |
| | Over 20 years | 1(0.3) |
| | Missing | 120(36.7) |
| | Total | 327(100.0) |
| Job function | Sales/ Marketing | 56(17.1) |
| | Product/ Technician | 43(13.1) |
| | Support | 51(15.6) |
| | Research | 14(4.3) |
| | Service | 4(1.2) |
| | Others | 35(10.7) |
| | Missing | 124(37.9) |
| | Total | 327(100.0) |
| Position | Employee | 36(11.0) |
| | Assistant Manager | 63(19.3) |
| | Manager | 61(18.7) |
| | Senior manager | 31(9.5) |
| | Supervisor | 15(4.6) |
| | Missing | 121(37.0) |
| | Total | 327(100.0) |
| Education Level | High school graduate | 4(1.2) |
| | Certificate or associates degree | 10(3.1) |
| | Undergraduate degree | 161(49.2) |
| | Graduate degree (Master) | 30(9.2) |
| | Ph.D. | 1(0.3) |
| | Missing | 121(37.0) |
| | Total | 327(100.0) |

### *4.2. Exploratory factor analysis and reliability*

UTAUT towards KMS. Since UTAUT was developed to examine user's technology acceptance, many studies have used the instrument to conduct various technologies in the workplace as well as in classroom settings. However, KMS has not been examined by many researchers, while e-learning, asynchronous software, blogs, and content management systems have been examined by UTAUT (Borotis & Poulymenakou, 2009; Lee, Yoon, & Lee, 2009; Park, 2009). In addition, using UTAUT in the workplace of the Korean context seems to be rare even though it has been validated as useful cross-culturally (Oshlyansky, Cairns, & Thimbleby, 2007).

For this reason, exploratory factor analysis (EFA) was examined to validate a scale. An initial factor extraction was done according to PCA (KMO = .900) (See Table 3), and rotated according to the varimax method (PCA: principal component analysis, KMO: Kaiser-Meyer-Olkin). The PCA extracted 5 components with eigenvalues greater than 1.00 and accounted for 71.8% of the variance (See Table 4). Of the 5 factors extracted, only two factors (10 items) were used for further analysis based on the results of Parallel Analysis (PA) (See Table 5).

**Table 3**
KMO and Bartlett's test

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of sampling Adequacy | | 0.900 |
| Barlett's Test of Sphericity | Approx. Chi-Square | 6847.726 |
| | Df | 300 |
| | Sig. | .000 |

**Table 4**
Actual and random engenvalues (Parallel analysis: PA)

| Factor | Actual eigenvalue | Average eigenvalue | Standard Dev |
|---|---|---|---|
| 1 | **11.632** | 1.5397 | .0397 |
| 2 | **2.629** | 1.4603 | .0339 |
| 3 | 1.388 | 1.3951 | .0284 |
| 4 | 1.255 | 1.3359 | .0296 |
| 5 | 1.046 | 1.2866 | .0245 |

**Table 5**
Rotated component matrix

| | Component | | |
|---|---|---|---|
| | 1 | 2 | $h^2$ (Communality) |
| IU1 | .820 | | .774 |
| IU2 | .790 | | .799 |
| IU3 | .770 | | .782 |
| SI1 | .692 | | .631 |
| SI2 | .625 | | .699 |
| SI3 | .602 | | .686 |
| EE3 | | .777 | .768 |
| EE4 | | .775 | .760 |
| EE2 | | .720 | .688 |
| EE1 | | .610 | .733 |
| Eigenvalue | 11.632 | 2.629 | |

The overall reliability (Cronbach's Alpha) of KMS is 0.925, while the internal consistencies of the instruments vary from 0.913 to 0.922 (See Table 6). The overall reliability of the instrument is very good because instruments are generally considered reliable when they have an alpha of .80 or higher on a scale of 0 to 1 (Rubin & Babbi, 2009).

**Table 6**
Item statistics and reliability (N=327)

| Component | Item (10 items) | Mean (Std. Deviation) | Cronbach's Alpha if item deleted | Cronbach Alpha |
|---|---|---|---|---|
| 1 | IU1 | 4.91(1.02) | .916 | |
| | IU2 | 4.80(1.06) | .913 | |
| | IU3 | 4.86(1.02) | .913 | |
| | SI1 | 4.69(1.04) | .919 | |
| | SI2 | 4.46(1.06) | ,917 | .925 |
| | SI3 | 4.66(1.08) | ,917 | |
| 2 | EE3 | 4.91(0.92) | .917 | |
| | EE4 | 4.72(0.92) | .919 | |
| | EE2 | 4.80(0.98) | .922 | |
| | EE1 | 4.35(0.96) | .915 | |

The dimensions of learning organization. Since DLOQ was developed by Watkins and Marsick (1996, 2003), it has been used to examine the learning organizational culture in different cultural contexts (Jamali, Sidani, & Zouein, 2009; Kim, Lee, & Choi, 2010; Sharifirad, 2011; Song, Joo, & Chermack, 2009). Song, Joo, and Chermack (2009) conducted the validation of DLOQ in the Korean context and reported that its validity and reliability are stable in the Korean context. However, their study sites were 11 firms in two major Korean conglomerates, which are not from the service industry. DLOQ, instruments had not been validated enough in cross-cultural contexts in the service industry of South Korea.

For this reason, a principal component analysis (PCA) of DLOQ was conducted to validate and reduce the variables. An initial factor extraction was done according to PCA (KMO = .951), and rotated according to the varimax method. See Table 7 for detailed information. The PCA extracted 2 components with eigenvalues greater than 1.00 and accounted for 59.9% of the variance.

**Table 7**
KMO and Barlett's test

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of sampling Adequacy | | .951 |
| Barlett's Test of Sphericity | Approx. Chi-Square | 4864.189 |
| | Df | 210 |
| | Sig. | .000 |

The retained two factors (18 items) all consist of multiple items with loading scores that are greater than .60. Table 8 shows the remaining factors, which are factor 1 and factor 2. To verify the two factors, parallel analysis (PA) was conducted (Watkins, 2010). PA (Horn, 1965) is one of the most accurate methods for determining the number

of factors retained (Liu & Rijmen, 2008; Hayton, Allen, & Scarpello, 2004), as illustrated in Table 9. Only one factor (10 items) was eventually used to analyze the data in this study.

**Table 8**
Actual and random eigenvalues (Parallel analysis: PA)

| Factor | Actual Eigenvalue | Average Eigenvalue | Standard Dev |
|---|---|---|---|
| 1 | **11.430** | 1.4783 | .0463 |
| 2 | 1.121 | 1.3956 | .0360 |

Reliability. The overall reliability (Cronbach's Alpha) of DLOQ is 0.929, while the internal consistencies of the instruments vary from 0.917 to 0.927. Instruments are generally considered reliable when they have an alpha of .80 or higher on a scale of 0 to 1 (Rubin & Babbi, 2009). Thus, the overall reliability of the instrument is good (See Table 10).

**Table 9**
Component matrix

| | Component 1 | $h^2$ (Communality) |
|---|---|---|
| OL21: In my organization, leaders ensure that the organization's actions are consistent with its values. | .783 | .720 |
| TL8: In my organization, teams/groups revise their thinking as a result of group discussions or information collected. | .770 | .674 |
| OL19: In my organization, leaders mentor and coach those they lead. | .764 | .706 |
| TL9: In my organization, teams/groups are confident that the organization will act on their recommendations. | .699 | .651 |
| IL6: In my organization, people spend time building trust with each other. | .698 | .582 |
| IL5: In my organization, whenever people state their view, they also ask what others think. | .666 | .509 |
| TL7: In my organization, teams/groups have the freedom to adapt their goals as needed. | .662 | .490 |
| OL18: My organization encourages people to get answers from across the organization when solving problems. | .632 | .611 |
| IL4: In my organization, people give open and honest feedback to each other. | .614 | .577 |
| OL20: In my organization, leaders continually look for opportunities to learn. | .612 | .640 |
| Eigenvalue | 11.4 | |

**Table 10**
Item statistics and reliability

| Component | Item (10 items) | Mean (Std. Deviation) | Cronbach's Alpha if item deleted | Cronbach Alpha |
|---|---|---|---|---|
| 1 | Strategic leadership (O21) | 4.86(1.21) | .917 | |
| | Team learning (T8) | 4.94(1.29) | .919 | |
| | Strategic leadership (O19) | 4.99(1.28) | .918 | |
| | Team learning (T9) | 4.84(1.26) | .919 | |
| | Inquiry and dialog (I6) | 4.73(1.26) | .922 | |
| | Inquiry and dialog (I5) | 4.79(1.17) | .925 | |
| | Team learning (T7) | 4.74(1.36) | .927 | .929 |
| | System connection (O18) | 4.84(1.27) | .922 | |
| | Inquiry and dialog (I4) | 4.58(1.23) | .923 | |
| | Strategic leadership (O20) | 4.77(1.26) | .920 | |

### *4.3. Descriptive statistics*

The mean score of learning organizations was 4.81 (7 Likert-scale), the mean score of factor 1 and factor 2 of UTAUT towards KMS were 4.73 and 4.69 (See Table 11).

**Table 11**
Descriptive statistics of remained factors (N=327)

| Mean(S.D) | All Three Companies |
|---|---|
| UTAUT KMS | |
| Factor 1 (IU/SI) | 4.73(0.87) |
| Factor 2 (EE) | 4.69(0.82) |
| Learning Organization | |
| Factor 1 (I, T, O) | 4.81(0.98) |

### *4.4. Hypothesis testing*

Employees' use and perceptions on KMSs as an independent variable affects the learning organization and is statistically significant ($R^2$=.273). Results show that factor 1 (IU/SI) and factor 2 (EE) influence the perceived dimensions of a learning organization. Thus, the Hypothesis was supported by the results that employees' technology acceptance of KMSs influence the perceived dimensions of a learning organization. See Table 12 for detailed information.

**Table 12**
Regression model

| Model | Beta | T | Sig. | df | F | $R^2$ |
|---|---|---|---|---|---|---|
| (Constant) | | 5.71 | .000 | 3,323 | 40.50 | .273 |
| KMS Factor 1 | 0.310 | 4.34 | .000** | | | |
| KMS Factor 2 | 0.307 | 4.40 | .000** | | | |

a. Predictors: (Constant), KMS factor 1, 2, 3; b. Dependent Variable: Learning Organization

## 5. Discussions

This study sought to investigate the relationships that exist between employees' acceptance of technology towards KMSs and the learning organization in three companies in South Korea. Three sites were chosen in the service industry because employees in the service industry are accustomed to being divided into separate workplaces. Therefore, information technologies, such as KMSs, are critical media to communicate with, aid in learning, and developing employees within organizations.

To reveal the relationships among technology acceptance of KMSs, and the dimensions of learning organizations, the following hypothesis was tested by an empirical research methodology based on all data points from three companies. Hypothesis was confirmed to show that employees' perceptions on KMSs influence their perceived dimensions of a learning organization. The hypothesis was confirmed based on the combined data from all three companies.

The results of this study showed that only two factors about UTAUT towards KMSs were accepted from the three Korean companies. In particular, factor 1 (IU/SI) and factor 2 (EE) play an important role in contributing to the learning organizations in Korean companies. Even though KMSs attempts to support learning while creating, sharing, and transferring knowledge across organizations (Maier & Schmidt, 2007), employees hold different perspectives about accepting them.

For learning and knowledge sharing, employees have been expected to use KMSs within companies. However, there seem to be many reasons for employees not to want to use them. According to Garfield (2006), there are several reasons why employees do not share their knowledge. For example, they do not understand why knowledge sharing is important for individuals or organizations. They may understand the importance of knowledge sharing but may not believe that the way knowledge is shared in their company is effective or appropriate. They may not have the motivation to utilize the knowledge or may not properly believe in the benefits. Using technology, such as KMSs, could be explained with the same reasons. Based on the UTAUT by Venkatesh, Morris, Davis, and Davis (2003), if employees feel a burden to learn how to utilize KMSs, they may not use it. Effort expectancy (EE) refers to "the degree of easiness associated with the use of the system" (Venkatesh, Morris, Davis, & Davis, 2003). Another possible explanation is social influence (SI), the degree to which an individual perceives that using the system is important. On the contrary, if employees believe that using KMSs is not beneficial for their performance, they may not use it. In addition, if there are potential resources or supporting teams or experts when employees use KMSs, their intention to use KMSs might increase. In particular, enhancing the utilization of KMSs might need to be considered by increasing the ease of use of the system.

### *5.1. The dimensions of learning organizations*

As an integrative approach, DLOQ was used because it consists of three different levels, which are individual, team, and organizational levels. However, only one factor was accepted after EFA with the datasets from three companies of South Korea. The results of this study are not consistent with the previous studies that reported that seven constructs of DLOQ were validated in the Korean context (Song, & Chermack, 2008; Song, Joo, & Chermack, 2009) as well as cross-cultural contexts (Jamali, Sidani, & Zouein, 2009; Kim, Lee, & Choi, 2010).

One factor included items from all three levels, which are individual (inquiry and dialog), team (team learning), and organizational levels (empowerment, system connection, and strategic leadership). However, organizational items dominate the factor. According to Alavi and Leidner (2001), organizational knowledge is developed and created within teams of individuals. One of the implications is that employees in South Korea may appreciate organizational learning. Many researchers indicated that cultural dimensions influence knowledge management and sharing within organizations (Bock, Zmud, Kim, & Lee, 2005; Collins & Smith, 2006; Connelly & Kelloway, 2003; Mohammed & Dumville, 2001). As Hofstede (1980) introduced, national culture may influence employees' perceptions of the learning organization. South Korea could be a high collectivistic and low individualistic culture because it has been a homogenous society for a long time. Collectivistic societies tend to emphasize group or organizational achievement instead of putting more value into individual performance (Ford & Chan, 2003). Nowadays, the index of collectivism seems to have changed. However, employees in three companies of South Korea appear to perceive that learning within organizations is invaluable. Second, the previous studies that were conducted in South Korea collected data from various industries (Song, Joo, & Chermack, 2009) and focused on data from the manufacturing industry (Kim, Lee, & Choi, 2010). Thus, the service industry might show different results.

### *5.2. Hypothesis*

Employees' acceptance of KMSs from three companies influenced the development of learning organizations in South Korea. As supported by Hypothesis, technologies are enablers of the development of a learning organization. Previous studies found that using KMSs positively influences the development of learning organizations (Kane, & Alavi, 2007; Keane, Barber, & Munive-Hernandez, 2007; Chatti, Jarke, & Frosch-Wilke, 2007). Knowledge management affects the enhancement of organizational learning (Liao & Wu, 2010), which is an antecedent to the development of learning organizations (Ke & Wei, 2006). Liao and Wu (2010) collected a total of 327 completed data from 1100 companies in Taiwan and revealed that organizations with more knowledge management practices showed more positive capabilities of fostering organizational learning. Ashworth, Mukhopadhyay, and Argote (2004) examined the relationship between information systems and organizational learning in a bank and revealed that using information technologies that facilitates knowledge sharing can increase organizational learning. In addition, Kane and Alavi (2007) also found that knowledge management tools such as electronic communities of practice or knowledge repositories affect and enhance organizational learning. The findings of this study showed similar results as previous studies and can contribute to the existing research about South Korean organizations.

## 6. Conclusion

This study shows the critical role of KMSs in developing learning organizations. Technologies play a critical role in influencing employees' behaviors as well as creating tools that accelerate knowledge sharing (Ardichvili, 2008; Barab, Schatz, & Scheckler, 2004; Huang & Chen, 2001; Jian & Jaffres, 2006; Wenger, 1998). Although the positive effects of taking an integral approach in addressing the relationship between perceived technology acceptance of KMSs, and the development of learning organizations might appear obvious, the feasibility of such integration may not be clear to HRD practitioners in South Korea. Adopting information technologies can be one intervention for organizational development and can bring a variety of changes at the individual, team, or

even organizational levels. However, there seems to be a problem where technology is overlooked in the change management process. Executives, managers, even HRD professionals have yet to recognize its real value (De Long & Fahey, 2000). Wang, Wang, Ma, and Liang (2009) emphasize that adopting technology is a very complex process that is related to psychological, organizational, and systems variables.

Based on the findings of this study, the researcher proposes the following suggestions to practitioners who desire to incorporate technologies within their organizations. First, they need to reveal the barriers, and create a link between interventions and technologies, which enhance the creation of a learning organization with their organizations. Adopting and implementing KMSs may be performed in various ways based on the organizations' situations. KMS practices may have variations and differentiations, depending on the organizations. Thus, an alternative strategy is to diagnose the organizations' situations by identifying the specific groups that need extra interventions as well as by determining which interventions are needed to fill in the gaps to integrate the technologies. Second, based on the diagnosis, the practitioners should actively provide support resources and feedback to employees and decision makers with updates regarding the implementation of the technologies. This means that the utilization of KMSs may not be appreciated nor recognized in this particular workplace. Thus, HRD professionals can take into account reward structures and collaborate with Human Resource Management (HRM), which is in charge of the compensation system, to make that alignment between reward and promotion of KMSs.

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