

The Influence of Transformational Leadership Exhibited by Organizational Leaders on Organizational Commitment: Focusing on the Mediating Effect of Knowledge Management Activities

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<Abstract>

This empirical study analyzed the influence of transformational leadership on knowledge management activities and organizational commitment, and examined the mediating effect of knowledge management in the relationship between transformational leadership and organizational commitment. A survey was employed as the research method. The survey targeted 635 participants working in the service, manufacturing, and IT industries. The results were used to compare and analyze the relationships among industry-specific variables.

Transformational leadership is defined as the tendency to strive for change and innovation despite the achievement of objectives, develop the potential capabilities and strengths that each member of the organization possesses, amplify their self-esteem and passion, and lead them to surpass their expected objectives by stimulating positive strengths. Such type of leadership has been perceived as a precedent that enhances organizational effectiveness.

In summary, this study has yielded the following results: First, the transformational leadership exhibited by organizational leaders was found to have a significant positive impact on knowledge management activities as well as organizational commitment. Second, knowledge management activities were found to have a significant positive influence on organizational commitment. Third, the transformational leadership exhibited by organizational leaders was found to have a partial mediating effect on the mediating role of knowledge management activities in the relationship with organizational commitment. Fourth, analyzing industry-wise, the influence of transformational leadership on knowledge management activities was the most significant in the service industry, which was also the case for the influence of knowledge management activities on organizational commitment. The influence of leaders' transformational leadership on organizational commitment was the most significant in the information technology industry. Finally, based on the aforementioned research results, suggestions were made regarding the meaning of the influence of transformational leadership on knowledge management activities and organizational commitment and the differences by industry thereof, while also suggesting the limitations of this work.

Key Words: transformational leadership, knowledge management activities, organizational commitment, comparison and contrast among different groups

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I. Introduction

With an aim to address the grim economic scenario that ensued after the International Monetary Fund currency crisis that occurred toward the end of 1997, Korean firms have been undergoing regular restructuring for the past 17 years. In today's management environment, in which intensifying competition and lean organizational management are emphasized, restructuring with a focus on workforce reduction may be an inevitable choice.

As the concept of "jobs for life" disappears because of regular restructuring and early retirement, employment insecurity is on the rise owing to weakening loyalty to the organization, which increases the risk of high-performing employees leaving the organization. In addition to these changes in the perspective and attitude of the employees of Korean firms, further research is needed on factors influencing organizational effectiveness, such as organizational commitment and job satisfaction of the employees of the firm, to ensure rational and effective human resource management.

In particular, according to Angle and Perry (1986), organizational commitment is more stable in the long term, and more effective and useful in predicting the relationship between the attitude and behavior of the employees of a firm than job satisfaction. Thus, empirical studies consider organizational commitment as the outcome variable.

In today's organizations, where employment

insecurity is increasing, the factors contributing to employee retention are not only quantitative, such as promotions and wages, but also qualitative, such as employment prospects in the job market and the need for managing relevant experiences.

According to a January 2013 survey conducted by a domestic job portal among 1,038 working professionals¹⁾, surveyed, 82.2% wanted to join or move to a firm with a good welfare system, albeit providing lower salaries. The results showed that the level of satisfaction relative to welfare systems was very important in the selection of a firm. Given this context, considerable focus should be directed toward the influence of the transfer and sharing of individually created knowledge with other persons within the firm or with the firm itself, also known as knowledge management activities, on organizational commitment. Such focus is needed because these activities are regarded as a definite organizational management strategy that can enhance organizational effectiveness and performance (Lee, 2009). Hence, this study predicts that as the members of an organization engage in knowledge management activities, they will be more committed to the firm. This work aims to investigate this concept empirically.

Transformational leadership focuses on the leader's role in suggesting a futuristic vision to the members of the organization and sharing this vision, which then leads to voluntary participation by the members and results in an

1) Results of the survey on the "Degree of Satisfaction on Welfare Systems" with participation of 1,038 office workers, conducted by the job portal Incruit(www.incruit.com) on January 17, 2013.

organizational performance that surpasses the expectations (Smith, 2011).

Transformational leadership is recognized as an effective type of leadership as the leader not only suggests a vision to the members but also improves emotional wellness by showing individual care for the members, thereby increasing the effectiveness of organizational operations, which has been proven by many empirical studies (Bass and Riggio, 2005; Smith, 2011).

Koh et al. (1995) have suggested that transformational leaders better enhance the degree of organizational commitment compared to other leaders. Mottaz (1989) has reported that the individual care of the leader for a member maximizes the member's organizational commitment. As such, it has been demonstrated that transformational leadership has a positive impact on indicators of organizational effectiveness, such as organizational commitment and job satisfaction. Accordingly, this study expects that transformational leadership will have a positive impact on organizational commitment and aims to study this in an empirical manner.

Moreover, it could be expected that transformational leadership will enhance the degree of individual knowledge creation and sharing as the leadership stimulates the members' motives and leads the members to achieve objectives on a higher level, which will further increase the organizational commitment of the individuals. However, studies that have comprehensively examined the relationship between transformational leadership, knowledge

management activities, and organizational commitment are few in number, and thus this study will examine the mediating role of knowledge management when transformational leadership impacts organizational commitment.

Based on an analysis of the above research results, this study aims to investigate the influence of transformational leadership on knowledge management activities and organizational commitment by comparing employees of large corporations in the service, manufacturing, and IT sectors.

While previous scholars have performed various industry-specific studies that focus on manufacturing (Chae et al. 2007; Moon and Cho, 2010; Yang and Choi, 2011), the service industry (O'Reilly and Chatman, 1986; Sung, 2011; Chun and Choi, 2011; Seo et al., 2013; Sung and Yoon, 2014; Song and Yoon, 2014), and the public sector (Kim and Kim, 2010; Ok, 2010; Sung, 2011; Kim, 2012; Lim and Kim, 2014), comparison studies on these industries are still rare.

Through this study, it is expected that strategic considerations will be proposed for the role of the leader in enhancing the firm's organizational commitment as well as knowledge acquisition and distribution at the firm level. Moreover, when this relationship differs by industry, it is also expected that industry-specific considerations and strategies may be suggested, such as those for the service, manufacturing, and IT industries.

The characteristics affecting the level of innovative behaviors may differ among industry groups. To actively respond to the drastic

changes in the external environment, the manufacturing industry is undergoing constant development and a creative and innovative makeover in order to equip its employees with a higher sense of ownership and spur self-directed achievement through close and productive relationships within their organizations (Kang, 2014). Unlike the manufacturing industry, however, the service industry depends heavily on human resources, as most of the industry's products and processes are intangible (Tether and Taiar, 2008). Further, its innovation is heavily dependent on external sources due to the relatively low level of its internal R&D (Park, 2009). In addition, the IT industry, a representative knowledge service sector, provides IT-based services and leads to the creation of other high value-added manufacturing and service sectors that utilize IT (Shin and Ko, 2015).

Furthermore, large business organizations are capable of quickly combining diverse technologies. The existing scopes of businesses are being encroached by businesses from different sectors infiltrating as competitors. This is placing many companies at the crossroads of new changes. A business organization may be accustomed to the traditional ways of management, and may tend to neglect the possibility of new development in the future. The boundary between different industries is disappearing, and the birth of new growth industries through convergence is deemed necessary. In this study, employees in the fields of services, production, and IT were compared, with the goal of enhancing the possibility of

being able to generalize the future study results.

As such, the comprehensive purpose of this study is as follows:

1. To examine and prove the influence of transformational leadership on knowledge management activities;
2. To examine and prove the influence of knowledge management activities on organizational commitment;
3. To examine and prove the influence of transformational leadership on organizational commitment;
4. To examine and prove the mediating effect of knowledge management activities on the relationship between transformational leadership and organizational commitment; and
5. To additionally verify the aforementioned four research objectives regarding the relationship between leaders' transformational leadership, knowledge management activities, and organizational commitment, by dividing into service, manufacturing, and IT conglomerates. Furthermore, to examine the differences among the industries based on this verification and provide implications of the present study.

II. Theoretical Background

1. Transformational Leadership

In the 1980s, the theory of transformational leadership appeared as a product of attempting to adapt quickly to the era of change, based on the perspective that organizations that cannot adapt to change cannot survive. The theory has

since evolved into a leadership model that precipitates and drives change.

The theory of transformational leadership was first suggested by Burns(1978) based on the preliminary studies by Downton(1973). It was then structuralized by Bass(1985) with political leadership as its base and later adapted to organizational settings, thus becoming known widely. Bass(1985) defined transformational leadership as improving followers' understanding of the importance and value of a planned result; strengthening followers to act on behalf of the

firm or policy, beyond their personal benefit; and expanding the needs and desires of followers to a broader dimension, thereby modifying the quality of their desires.

Bass(1985) first proposed idealized influence, intellectual stimulation, and individualized consideration as the three constructs of transformational leadership but added a fourth factor of inspirational motivation in his modified theory (Bass, 1990), as shown in Table 1.

<Table 1> Constructs of transformational leadership

Constituents(Lower constructs)	Details
Idealized Influence	<ul style="list-style-type: none"> • Suggests vision to the members of the organization • Instills pride among the members • Target of confidence and awe from members
Intellectual Stimulation	<ul style="list-style-type: none"> • Hastens the knowledge acquisition by the members • Encourages the members to act and think logically • Stimulates the members to consider multiple methods to solve problems
Individualized Consideration	<ul style="list-style-type: none"> • Shows individualized attention to each member • Considers the individual characteristic of each member • Supports and advises each member
Inspirational Motivation	<ul style="list-style-type: none"> • Shows a high degree of expectation for the members • Utilizes multiple symbols to stimulate the efforts of the members • Describes the importance of the objective to the member in a simple manner

Source: Kim et al.(2007)

2. Knowledge Management Activities

Knowledge management was first proposed from a knowledge-based perspective of the firm by Penrose(1959). Based on this study, other researchers have expanded the concept into a resource-based theory (Barney, 1991; Conner, 1991). Wiig(1997) defined knowledge

management activities as systematic, indicative, and purposeful activities concerned with creating, modifying, and applying knowledge in order to maximize the effectiveness of management activities and create maximum value addition from knowledge assets. Ruggles(1998) defined it as a series of activities that dynamically leverages the know-how,

experience, and decisions that occur within and outside of the firm with an aim to create or enhance value. The author classified five stages of major activities relating to knowledge management: creation, organization, distribution, application, and learning of knowledge.

Knowledge management activities are classified based on a diverse range of perspectives. Choe and Kwon (2002) used related case studies to assert that the creation and acquisition, sharing and spreading, storing and gathering, utilization, and transfer of knowledge are the main constructs of knowledge management activities.

Nonaka and Takeuchi(1995) asserted that the transformation between the explicit and tacit knowledge results in the creation of new knowledge, and that knowledge created on an individual level spreads to the division, department, and the entire firm through social interactions.

With regard to the assertion that communication and interaction between the individual and the group form the basis of the creation of new ideas and are important tools for the creation and sharing of knowledge (Krogh et al., 2000), Krogh et al. (2000) asserted that communication and interaction between an individual and a group form the basis of the creation of new ideas, and are important tools that can stimulate knowledge creation and sharing. Specifically, it is necessary to focus on the influence of transformational leadership on the relationship between the leader and the members. This is because a transformational leader strives for change and innovation despite

objective achievement, develops the potential capabilities and strengths that each member of the organization possesses, amplifies the self-esteem and passion of members, and utilizes interaction that stimulates strengths, thus increasing the level of mutual understanding, encouraging member participation, and improving the quality of the relationship (Lim, 2004).

For the construction industry, Cho and Hwang (2006) identified that the key factors of knowledge management are strongly connected with the effectiveness of an organization, that is, job satisfaction, organizational commitment, and competitive advantage. Further, for the footwear industry, Song and Kim (2012) presented an alternative for constructing an industrial ecosystem to enhance the added value by exploring the possibility of knowledge management for transition to a knowledge industry.

Therefore, this study considers the observation that social interaction between members constitutes the precedent condition for knowledge management activities, such as knowledge creation and sharing (Nonaka and Takeuchi, 1995). Further, it expects that the higher the degree of transformational leadership, the more likely are the members of the organization to show higher degrees of knowledge creation and sharing. The study proposes to analyze this empirically.

3. Organizational Commitment

Organizational commitment has been studied

across domains such as sociology, industrial psychology, and behavioral science, and some other areas since the 1960s.

It is defined as "a strong belief in and acceptance of the organization's goals, a willingness to exert considerable effort on behalf of the organization, or a definite desire to maintain organizational membership" (Porter et al., 1974). Further, it also depicts the degree of friendly attitude toward the firm, which the members associate themselves with, and the degree to which the members wish to be actively involved and participate in organizational issues (Meyer and Allen, 1991).

Many studies have been conducted on organizational commitment as the organization's psychological and attitudinal outcome variable. This is because organizational commitment, as an indicator that identifies the extent to which a member has affections toward the organization, feels a sense of unity with the organization, and is willing to devote himself or herself to the organization, can be an important outcome variable for the organization.

According to Angle and Perry (1986), few important reasons why organizational commitment draws interest are: (i) it can be a more effective indicator of predicting an employee's departure compared to job satisfaction; (ii) it can be a more effective indicator of organizational effectiveness; and (iii) it shows stability in the long term, thus aptly displaying the relationship of the member's attitude and actions.

Meyer and Allen (1991) have classified organizational commitment as affective,

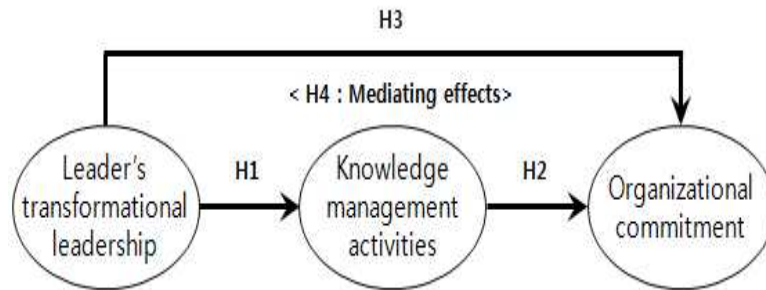
continuance, and normative. Affective commitment is the desire to remain in the organization due to the values of the organization and the employee. Continuance commitment is the desire to remain in the organization due to the rewards it offers. Normative commitment refers to a form of organizational commitment that occurs due to a sense of responsibility that has been influenced by the member's experience prior to joining the firm or afterwards.

In recent studies on transformational leadership and organizational commitment, the former was found to have a more significant value for the latter than transactional leadership. This implies that transformational leadership, which helps an organization adapt well to the changing environment, increases in association with increasing changes in the environment surrounding the organization (Ryu and Ryu, 2013). In addition, as transformational leadership affects self-efficacy, which can be referred to as confidence in work, it leads members to be satisfied about their work, and accordingly, has a positive effect on organizational performance (Goo and Lee, 2005; Kwon, 2012).

III. Study Model and Research Construction

1. Study Model

The purpose of this study is to empirically discover the influence of a leader's transformational leadership on knowledge



<Figure 1> Study Model

management activities and organizational commitment, and to analyze if there are any significant statistical differences between employees in the service, manufacturing, and IT industries. The study has presented a model in the diagram below based on existing theoretical basis and preceding research.

2. Hypothesis Setting

2.1 Relationship between transformational leadership and knowledge management activities

A defining feature of transformational leadership is that it is based on the interaction with the members. A transformational leader recognizes a potential motive of the members, motivates them to achieve a higher purpose, and leads the actions of the followers, ultimately resulting in a mutually beneficial relationship between the leader and the member as they evolve together (Shin, 2009).

Nonaka and Takeuchi(1995) assert that knowledge is created, shared, and distributed within the social interaction where the transformation of explicit and tacit knowledge occurs. Davenport and Prusak(1998) emphasize

on social interaction and define knowledge sharing as “the process in which knowledge is transferred from one individual to another, from an individual to a group, and from one group to another.” Nonaka and Konno(1998) termed the place in which the creation and sharing of knowledge occurs through the transformation between explicit and tacit knowledge as Ba (場).

In this context, Ba is defined as “a shared context where knowledge is created, shared, and applied” (Nonaka et al., 2000).

It could be asserted that these relationships of interaction and mutual advancement have a direct relationship with knowledge creation and sharing which is founded on social interactions.

Among the constructs of transformational leadership, that is, idealized influence, intellectual stimulation, individualized consideration, and inspirational motivation, it is expected that idealized influence and inspirational motivation will influence the intent of sharing knowledge. As the leader’s idealized influence and inspirational motivation drives the members to trust and respect the leader (Deng and Gibson, 2009), and the members are stimulated to complete given tasks for the leader (Bass, 1990),

the two constructs influence the intent to share knowledge. Moreover, intellectual stimulation pertains to the leader's actions to affect the logic, creativity, beliefs, and values of the members so as to escape traditional problem-solving methods and change into more creative methods. If this is combined with emotional stimulation, it will impact the effectiveness of the organization even further (Bass, 1990).

Thus, based on the above theoretical foundations and the results of the preceding research, the following hypothesis was set.

Hypothesis 1. The transformational leadership of a leader will have a positive impact on the knowledge management activities.

2.2 Relationship between knowledge management activities and organizational commitment

Alavi and Leidner(1999) define the knowledge management ability that determines the organizational competitiveness as "the firm's ability to learn new knowledge from the outside, the ability to merge the learned knowledge with existing knowledge, the ability to share and distribute the firm's knowledge, and the ability to effectively utilize the firm's knowledge at the opportune moment." Among the four abilities, the ability of knowledge transfer, which is the ability to "share and transfer knowledge," has been one that has gained the most attention (Kim et al., 2000).

In prior research on knowledge management activities, humans were the subject of the

related studies. The research emphasizes the importance of knowledge creation and transfer activities by members. This is because the knowledge must have been obtained from an individual and must be shared with another individual, group, or firm, once created. If the creation and transfer of knowledge occurs fluidly, the process of knowledge management cannot take place (Kang and Kim, 2005). Nonaka and Takeuchi (1995) also emphasize that if the creation and sharing of the newly created language occurs effectively, the firm cannot utilize the new knowledge.

An in-depth analysis of prior research on knowledge management activities and organizational effectiveness reveals few assertions. According to Schein(1996), organizational effectiveness can be improved by facilitating the knowledge transfer between group to group, group to individual, and individual to individual by building a knowledge management culture based on mutual trust. McDermott(1999) asserts that knowledge sharing facilitates communication and improves organizational effectiveness.

Empirical research carried out domestically on knowledge management activities and organizational commitment includes research on the relationship between the core factors of knowledge management, the knowledge sharing culture, and organizational effectiveness (job satisfaction, organizational commitment) (Yi and Seo, 2002); the relationship between the factors of intellectual capital (human resources, structural resources, and customer resources) and knowledge management activity (knowledge

creation and transfer) (Lee, 2009); the relationship between knowledge management activities, organizational effectiveness, and management performance (Cheon and Choi, 2011); and the relationship between human and structural assets, knowledge management activities, and organizational effectiveness (Song and Yoon, 2014).

Yi and Seo (2002) assert that knowledge management activities must be facilitated in order to improve the job satisfaction and organizational commitment for an employee in a hotel management firm. Lee(2009) proposed that convention centers improve the capability and creativity of the employees, strive toward the facilitation of knowledge sharing and knowledge creation, and thereby positively influence job satisfaction and organizational effectiveness. According to Cheon and Choi(2011), the travel industry is able to utilize knowledge management activities to improve the job satisfaction of its employees, commit them to the organization, and create a culture where they give their best at work. Specifically, the knowledge sharing of travel agency employees was found to influence organizational commitment more; it was also noticed that they seem to commit to the firm more as they share their own knowledge with other employees, utilize their co-workers' knowledge at work, and improve performance. Moreover, knowledge creation has a larger influence on job satisfaction, and this could be interpreted as employee creating new knowledge based on individualized experience and know-how, and thereby becoming more satisfied at work.

Song and Yoon (2014) found that when an employee in the food services industry is to engage in a knowledge sharing activity voluntarily with another person, he or she tends to commit to the organization more, and senses a high degree of job satisfaction.

Thus, based on the above theoretical foundations and results of prior research, the following hypothesis is set.

Hypothesis 2. Knowledge management activity will have a positive impact on organizational commitment.

2.3 Relationship between transformational leadership and organizational commitment

According to Bass(1985), a transformational leader (i) enhances the understanding of the followers regarding the value and importance of a specific idealized objective, (ii) makes the followers to go beyond their own profits for their firm and the group that they belong to, and (iii) makes the followers more interested in a higher desire, changes their thinking, and instills a sense of purpose in order to draw more efforts and achieve better-than-expected results.

Oh(2007) asserted that transformational leadership focuses on long-term effects and creation of value; changes the beliefs, desires, and values of the followers; and alters their mentality to create new value instead of obliging the followers to obey; thus, transformational leadership is a very modern form of leadership.

Such transformational leadership was found to

have a positive influence on the followers' organizational commitment. Prior research on the mediator variable and control variable pertaining

to the relationship between transformational leadership and organizational effectiveness is shown in Table 2.

<Table 2> Preceding research on transformational leadership and organizational effectiveness

Researcher (year)	Variable constituents			Research results
	Independent variable	Mediator/control variable	Dependent variable	
Ryu and Ryu (2013)	Transformational leadership	Organizational culture (control)	Organizational commitment	Selected (positive influence)
Lee and Jeong (2012)	Transformational leadership	Degree of trust in the leader (mediator)	Organizational commitment	Selected (partial mediation)
Kim and Kim (2012)	Transformational leadership	Organizational fairness, trust (mediator)	Organizational commitment	Transformational leadership -> Organizational fairness -> Trust in co-workers (full mediation) Transformational leadership -> Organizational fairness -> Trust in the leader (partial mediation)
Ki (2011)	Transformational leadership	Knowledge sharing (mediator)	Work results, innovational activities	Individual work results (full mediation) Recognition of the level of group work results, individual innovative activity (partial mediation)
Yang and Choi (2011)	Transformational leadership	Core self-assessment (mediator)	Organizational commitment	Selected (partial mediation)
Sung (2011)	Transformational leadership Servant leadership	Group effectiveness (mediator)	Organizational commitment	Servant leadership -> group effectiveness -> organizational commitment (selected) Transformational leadership -> group effectiveness -> organizational commitment (rejected)
Chae et al. (2007)	Transformational leadership	Mental empowerment (mediator)	Organizational commitment	Emotional commitment (weak partial mediation) Continuance commitment, normative commitment (full mediation)

In a knowledge-based society that respects creativity and diversity, the importance of

knowledge sharing continues to increase. On the other hand, studies on the success factors of a

firm's knowledge sharing (Nonaka and Takeuchi, 1995; Roos and Roos, 1997) and factors that impede knowledge sharing (Delone, 1997; Davenport and Prusak, 1998; O'Dell and Grayson, 1998) have been conducted in diverse ways. The degree of voluntariness of the members of the firm (Ross and Ross, 1997) and the creation of a place of interaction between members (Nonaka and Takeuchi, 1995) are factors that allow knowledge sharing to be successful. Factors that impede knowledge sharing, five of which are suggested by O'Dell and Grayson(1998), include the lack of human relationship. This shows that knowledge sharing is ineffective if there is no human-level understanding between the individual who requires the knowledge and the one who imparts it.

From this perspective, to raise the quality of individual knowledge creation and sharing, transformational leadership, which stimulates the followers' motives and leads them to achieve a higher objective, will have a positive effect, and can be expected to further increase individual organizational commitment.

However, a comprehensive empirical research on the relationship between transformational leadership, knowledge management activities, and organizational commitment is severely lacking in nature. Among the preceding research, Ki (2011) studied transformational leadership, knowledge management activities, and organizational effectiveness, and showed that transformational leadership was more effective than transactional leadership in enhancing the effects of knowledge sharing

activities and their level of perception, work results and their level of perception, and innovative actions and their level of perception. However, the limitations of this study are such that the only factor used for knowledge management activity was knowledge sharing, and that used for organizational effectiveness were work results and innovative actions. Further, the study targets were Chinese employees in Korean conglomerates who have expanded to China, thus making the results of this study difficult to standardize.

Thus, based on the above theoretical background and the results of preceding research, the following hypotheses were set.

Hypothesis 3. The transformational leadership of a leader will have a positive effect on organizational commitment.

Hypothesis 4. Knowledge management activity will have mediating effects between transformational leadership of a leader and organizational commitment.

3. Definitions

3.1 Transformational leadership of leader

The transformational leadership of a leader can be defined as a type of leadership that requires not only the charisma that leads the followers to build trust for the leader but also the ability to sense the need for organizational change and the ability to propose new visions

that can bring forth such change. Transformational leadership was measured using the multifactor leadership questionnaire developed by Bass and Avolio(1992). The questionnaire covered the four lower constructs of charisma, inspirational motivation, individualized consideration, and intellectual stimulation through a total of nine questions with proven reliability and validity by Yang and Shim(2013), modified and amended appropriately for the purposes of this study.

3.2 Knowledge management activity

Knowledge management is a method of management that accumulates individual knowledge, information, and know-how in a structured manner and shares them within the firm as standardized knowledge, besides improving the problem-solving abilities of the firm. Thus, knowledge management activities are activities that are conducted with the purpose of active creation and sharing of knowledge within the firm and turning them into processes. As such, the measurement indicators of knowledge management activity were based on those found in the research by Lee(2007). Eight questions with proven reliability and validity from Cheon (2009) were chosen, and modified and amended appropriately for the purposes of this study.

3.3 Organizational commitment

Organizational commitment is the emotional response of the member toward the firm, and indicates responses such as oneness, loyalty, and affection toward the firm, and the degree to

which the individual feels synonymous with the firm and commits to it. As such, measurement indicators for organizational commitment were based on the research by Meyer and Allen(1993). Eight questions were shortlisted with proven reliability and validity from Kim(2002), Rhee and Choi(2004), and Kim and Kim(2012), and modified and amended appropriately for the purposes of this study.

IV. Empirical Analysis

1. Data Gathering and Analysis Methodology

This study involved conducting a survey for a period of approximately one month from January 19, 2015 to February 17, 2015 with approximately 700 employees working in domestic large corporations in the service, manufacturing, and IT industries. The number of collected surveys was 650, and excluding 15 responses that were found to be insincere, the final 635 (90.7%) survey responses were found to be valid and hence utilized in the analysis.

Moreover, the data gathered for this study was analyzed using SPSS 18.0 and AMOS 20.0. First, SPSS 18.0 was used for a frequency test so as to facilitate a demographic analysis, and based on the results of the factor analysis on the measurement variables, reliability and validity tests were performed. In order to verify the correlations between concepts as suggested in the study model and conduct a structural equation model analysis, AMOS 20.0 was used.

2. Normal Characteristics of the Sample

The results of the demographic analysis of the 635 sample respondents are shown in Table 3

3. Reliability and Validity of the Measurement Indicators

The survey components of this study are classified as the transformational leadership of the leader, knowledge management activity, and organizational commitment, and the analysis of each variable in terms of its reliability and validity is as follows.

First, in order to verify the validity of the

constructs, an exploratory factor analysis was performed with measurement indicators. For the factor rotation, the most standard orthogonal factor rotation (Varimax) was utilized to simplify the factors, and there was no item with a factor loading value of below 0.50 or double-loaded. Moreover, to measure the reliability, the internal consistency was measured using Cronbach's α value. As a result of the exploratory factor analysis, all factors had a value of 0.5 and higher, and were therefore valid, while the Cronbach's α values were above 0.8 and thus highly reliable. Table 4, 5, and 6 show the results of the analyses.

<Table 3> Sample Demographic Characteristics

Variable		Frequency (No. of people)	Percent (%)	Variable		Frequency (No. of people)	Percent (%)
Gender	Male	351	55.3	Years of relevant experience (years)	1-5	247	38.9
	Female	284	44.7		6-10	178	28.0
Age range	20s	157	24.7		11-15	107	16.9
	30s	272	42.8		16-20	63	9.9
	40s	160	25.2		21-25	28	4.4
	50s	46	7.2		26-30	10	1.6
Marital status	Single	265	41.7		31-35	2	.3
	Married	370	58.3	Location of current firm	Seoul	307	48.3
Educational level	High school or below	54	8.5		Gyeonggi	109	17.2
	Skills/professions/college	96	15.1		Incheon	36	5.7
	University	421	66.3		Gangwon	8	1.3
	Master's degree	57	9.0		Choongbuk	12	1.9
	Doctorate	7	1.1		Choongnam	12	1.9
Employer industry	Service	212	33.4		Daejeon	29	4.6
	Manufacturing	211	33.2		Jeonbuk	8	1.3
	IT	212	33.4		Jeonnam	6	.9
Duration of employment	1-5	324	51.0		Gwangju	14	2.2
	6-10	135	21.3	Gyungbuk	11	1.7	
				11-15	78	12.3	

at current firm (years)	11-15	78	12.3		21-25	24	3.8
	16-20	59	9.3		31-35	2	.3
	21-25	24	3.8		Busan	30	4.7
	26-30	12	1.9		Jeju	2	.3
	31-35	2	.3		Other	1	.2
	36-40	1	.2				

<Table 4> Factor analysis and analysis of reliability (transformational leadership of the leader)

Measurement indicator		Factor loading	Similarity	Eigen value
Factor 1 (Cronbach'a = .939)				
Transformational leadership of the leader	My boss lets me know how he feels on what I am doing.	.706	.498	6.055
	My boss helps me to develop myself.	.807	.652	
	My boss helps me to find meaning in my work.	.860	.740	
	My boss explains what we can do in a moving manner.	.853	.728	
	My boss helps me think about old problems in a new manner.	.815	.664	
	My boss shows individualized attention to people who seem left out.	.802	.643	
	My boss makes me think again about issues that I had not questioned before.	.834	.696	
	My boss is able to explain in a few succinct words on what I can do and what I have to do.	.823	.678	
I am proud to be working with my boss.		.870	.757	

Factor selection: principle component analysis; factor location: Varimax with Kaiser standardization; KMO = .946
 Approx-X2 = 4201.075, df = 36, p = .000; explaining power of cumulative variance = 67.278%

<Table 5> Factor analysis and analysis of reliability (knowledge management activities)

Measurement indicator		Factor loading	Similarity	Eigen value
Factor 1 (Cronbach'a = .883)				
Knowledge management activity	I am participating on learning activities on an individual or group level.	.663	.439	4.410
	I communicate information about issues within and outside the firm and information on the decisions by management to my department in a quick manner.	.760	.578	
	I am sharing my own special knowledge with my co-workers to contribute to the success of the entire firm.	.745	.555	
	Important decisions are made by sharing opinions between members and overall	.742	.550	

	agreement.			
	I reflect information and knowledge on market trends and new products when carrying out my duties.	.733	.537	
	I receive assistance from relevant departments when carrying out my duties.	.739	.545	
	I quickly reflect the incidents within and outside the firm and information relating to the decisions by management on my duties.	.814	.662	
	I strive to apply best practice case studies when I am working.	.737	.543	

Factor selection: principle component analysis; factor location: Varimax with Kaiser standardization; KMO=.910
 Approx-X2 = 2138.316, df = 28, p = .000; Explaining power of cumulative variance = 55.126%

<Table 6> Factor analysis and analysis of reliability (organizational commitment)

Measurement indicator		Factor loading	Similarity	Eigen value
Factor 1 (Cronbach'a = .893)				
Organizational commitment	I feel familial affections with my firm.	.761	.580	4.269
	To stay with my firm, I will accept most types of work.	.684	.468	
	My values and the values of the firm that I work at are similar.	.798	.637	
	This workplace means a lot in my life.	.779	.606	
	My firm encourages me to do my best when working.	.834	.696	
	To me, my firm is the best place to work compared to other workplaces.	.823	.677	
	I truly believe that the issue of the firm is also my issue.	.778	.605	

Factor selection: principle component analysis; factor location: Varimax with Kaiser standardization; KMO =.920

Approx-X2 = 2154.337, df = 21, p = .000; Explaining power of cumulative variance = 60.979%

4. Confirmatory Factor Analysis

Based on the measurement indicators, in order to derive a measurement model per unit of research, a confirmatory factor analysis was performed. Based on each stage, in order to

assess the overall fit of the most efficient structure of factors, χ^2 , GFI, AGFI, RMR, and NFI were utilized. The results of the confirmatory factor analysis are shown in Table 7 and except for a few fit values, other values seem to be in line with the recommended levels.

The t values for factor loading of each measurement indicator were shown to be all statistically significant, and thus the construct measurement units that form this model can be said to have focus validity.

The overall fit of the measurement model was found to be reasonably appropriate. Therefore, the unidimensionality of the measurement model too was found to be appropriate. On the other hand, according to the

results of the confirmatory factor analysis, for all of the observed variables, the standardized factor loading (λ) was found to be between 0.606 and 0.856, and thus the convergent validity for the latent variable was found to be sufficient.

Therefore, the measurement model for this study has acquired convergent validity and reliability, and based on the overall fit, the unidimensionality is present as well.

<Table 7> Confirmatory factor analysis of variables

Path		Standardized coefficient	S.E.	C.R.	P	AVE	CCR
Transformational leadership of the leader	→ Transformational leadership 1	0.662	Fix	-	-	.948	.672
	→ Transformational leadership 2	0.780	0.074	17.589	.000		
	→ Transformational leadership 3	0.847	0.078	18.832	.000		
	→ Transformational leadership 4	0.840	0.077	18.716	.000		
	→ Transformational leadership 5	0.787	0.078	17.720	.000		
	→ Transformational leadership 6	0.772	0.080	17.441	.000		
	→ Transformational leadership 7	0.803	0.079	18.015	.000		
	→ Transformational leadership 8	0.797	0.079	17.916	.000		
	→ Transformational leadership 9	0.856	0.083	19.001	.000		
Knowledge management activity	→ Knowledge management activity 1	0.606	Fix	-	-	.926	.611
	→ Knowledge management activity 2	0.718	0.081	14.438	.000		
	→ Knowledge management activity 3	0.710	0.081	14.315	.000		
	→ Knowledge management activity 4	0.695	0.079	14.100	.000		
	→ Knowledge management activity 5	0.678	0.077	13.858	.000		
	→ Knowledge management activity 6	0.690	0.076	14.028	.000		
	→ Knowledge management activity 7	0.788	0.080	15.371	.000		
	→ Knowledge management activity 8	0.695	0.077	14.104	.000		
Organizational commitment	→ Organizational commitment 1	0.723	Fix	-	-	.911	.594
	→ Organizational commitment 2	0.612	0.053	14.853	.000		
	→ Organizational commitment 3	0.750	0.054	18.253	.000		
	→ Organizational commitment 4	0.735	0.057	17.900	.000		
	→ Organizational commitment 5	0.820	0.056	19.978	.000		
	→ Organizational commitment 6	0.790	0.060	19.239	.000		
	→ Organizational commitment 7	0.728	0.056	17.725	.000		

$\chi^2=612.024$, $df=249$, $p=0.000$, $RMR=0.028$, $GFI=0.923$, $NFI=0.935$, $IFI=0.961$, $CFI=0.961$

Thus, all observed variables and latent variables were utilized for the structural equation modeling analysis to test the hypothesis, without making any modifications to the model.

5. Correlation Analysis

This study calculated the average of each measurement indicator using the mean function based on the factors that resulted from the factor analysis, and conducted descriptive statistical analyses on these factors. Then, based on the data gathered, bivariate correlation

analyses were conducted between each construct.

This study has utilized the Pearson correlation coefficient to conduct a correlation analysis.

The results of the correlation analysis between variables are shown in Table 8. For correlation, if the correlation coefficient between the variables is more than 0.8, the two variables can be seen as the same, resulting in multicollinearity. However, correlation coefficients between the variables were found to be less than 0.8 and therefore discriminant validity is secured.

<Table 8> Correlation coefficients

Measurement indicator	Average	Standard error	Transformational leadership of the leader	Knowledge management activity	Organizational commitment
Transformational leadership of the leader	3.10	.759	1		
Knowledge management activity	3.44	.577	.487***	1	
Organizational commitment	3.18	.712	.662***	.579***	1

*** p < .01, ** p < 0.5

6. Analysis of the Structural Equation Model

To verify the study model, this study has restructured the measurement model resulting from the confirmatory factor analysis in such a manner that it matches the hypotheses. The study also used AMOS 18.0 to assess the statistical significance, and maximum likelihood was utilized in measuring the parameters.

The study has chosen the service (N = 212), manufacturing (N = 211), and IT (N = 212) sectors to analyze the structural equation model, results of which are shown in Table 7. First, in the assessment of the model fit, the overall group was found to be less than the experiential threshold value of '3' for the overall group (normed-X² = 2.458) and industrial groups (normed-X² = 1.834). For the overall group, the values were GFI = .923, AGFI = .908, NFI =

.935, and CFI = .961, while the industry groups showed values of GFI = .850, AGFI = .819, NFI = .866, and CFI = .934; thus, all values exceeded 0.8. Moreover, the structural equation model of this study was found to be fit as follows: RMR = .028, RMR = .040 (less than 0.05), RMSEA = .048, and RMSEA = .036 (less than 0.08). Thus, the results of the structural model analysis are as follows.

For the service, manufacturing, and IT industries, the transformational leadership had significant positive influence on the knowledge management activities and organizational commitment. Moreover, knowledge management activities had a significant positive effect on organizational commitment. On an industry by industry basis, the influence of transformational

leadership on knowledge management activities was found to be the largest in the service industry; likewise, the influence of knowledge management activities on organizational commitment too was the largest in the service industry.

The influence of transformational leadership on organizational commitment was largest in the IT industry. Therefore, hypotheses 1, 2, and 3 were accepted.

Moreover, in the relationship between transformational leadership and organizational commitment, in order to verify the mediating effect of knowledge management activities, the indirect influence was verified using the structural equation.

<Table 9> Verification results of hypotheses 1, 2, and 3

Hypot hesis	Path		Overall		Service		Manufacturing		IT		Hypothesis accepted/rejected	
			Standardized coefficient	p-value	Standardized coefficient	p-value	Standardized coefficient	p-value	Standardized coefficient	p-value		
H1	Transformational leadership of the leader	→	Knowledge management activities	.530**	.000	.631***	.000	.477**	.000	.442**	.000	Accepted
H2	Knowledge management activities	→	Organizational commitment	.330**	.000	.401***	.000	.326**	.000	.330**	.000	Accepted
H3	Transformational leadership of the leader	→	Organizational commitment	.545**	.000	.501***	.000	.561***	.000	.572**	.003	Accepted

***p<.01, **p<.05

In the service industry, with regard to the mediating effect of knowledge management activity on the relationship between transformational leadership and organizational commitment, the results of direct effect (path coefficient=0.501, p<.01), indirect effect (path coefficient = .253, p<.01), and total effect (path

coefficient = .754, p<.01) indicated a partial mediating effect.

In the manufacturing industry, with regard to the mediating effect of knowledge management activity on the relationship between transformational leadership and organizational commitment, the results of direct effect (path

coefficient=.561, $p<.01$), indirect effect (path coefficient = .155, $p<.01$), and total effect (path coefficient = .716, $p<.01$) indicated a partial mediating effect.

In the IT industry, with regard to the mediating effect of knowledge management activity on the relationship between

transformational leadership and organizational commitment, the results of direct effect (path coefficient=.572, $p<.01$), indirect effect (path coefficient = .142, $p<.01$), and total effect (path coefficient = .714, $p<.01$) indicated a partial mediating effect. Thus, hypothesis 4 was accepted.

<Table 10> Hypothesis 4 Verification of mediating effect of knowledge management activities

Industry Group	Path			Direct effect		Indirect effect		Total effect		SMC		
				Path coefficient	P-value	Path coefficient	P-value	Path coefficient	P-value			
Service	Transformational leadership	→	Knowledge management activity	→	Organizational commitment	.501***	.003	.233***	.003	.754***	.004	.665
Manufacturing	Transformational leadership	→	Knowledge management activity	→	Organizational commitment	.561***	.005	.155***	.002	.716***	.008	.595
IT	Transformational leadership	→	Knowledge management activity	→	Organizational commitment	.572***	.005	.142***	.002	.714***	.004	.592

*** $p<.01$, ** $p<.05$

V. Conclusion and Discussion

1. Summary of Study Results and Considerations

In a fast-changing corporate environment, for the individual and the firm to survive, the acquisition of organizational efficiency in the form of organizational commitment and job satisfaction is critical. Specifically, organizational commitment, which shows the degree to which the member is attached to the firm and how much the member is willing to devote himself to the firm can be a very important performance variable for that organization.

Empirical research to identify the precedent factors that influence organizational commitment can prove meaningful in this regard.

This study has sought to determine what influence transformational leadership has on knowledge management activities and organizational commitment in an empirical manner, and additionally analyze what the differences are as far as the service, manufacturing, and IT industries are concerned. Accordingly, this study conducted a month-long survey, from January 19, 2015 to February 17, 2015, targeting a total of 635 respondents in the service (N = 212), manufacturing (N = 211), and IT (n = 212) industries. Based on the data gathered, a statistical analysis was performed using the AMOS structural equation, and the

results of the analysis are summarized as follows.

First, the influence of a leader's transformational leadership on knowledge management activities was found to be positive. When this influence was analyzed on an industry basis, each of the industries, i.e., service ($\beta=.631$, $p<.01$), manufacturing ($\beta=.477$, $p<.01$), and IT ($\beta=.442$, $p<.01$), showed positive influence; the influence was found to be the largest in the service industry.

Second, the influence of knowledge management activities on organizational commitment was found to be positive. Here as well, the influence was positive for each of the industries, i.e., service ($\beta=.401$, $p<.01$), manufacturing ($\beta=.326$, $p<.01$), and IT ($\beta=.320$, $p<.01$); the influence was found to be the greatest in the service industry.

Third, the influence of transformational leadership on organizational commitment was also found to be positive. When this influence was analyzed on an industry basis, the influence was positive for all three industries in the order of IT ($\beta=.572$, $p<.01$), manufacturing ($\beta=.526$, $p<.01$), and service ($\beta=.501$, $p<.01$).

Fourth, the knowledge management activities of the members of the firm were found to have a mediating effect on the relationship between the transformational leadership and organizational commitment. Therefore, transformational leadership improves organizational commitment, and when the level of knowledge management activity was high, it was found that the organizational commitment was even higher. As far as the relationship between transformational

leadership and organizational commitment is concerned, knowledge management activities had the highest indirect influence on the relationship in the service industry ($\beta=.253$, $p<.01$), followed by manufacturing ($\beta=.155$, $p<.01$), and IT ($\beta=.142$, $p<.01$), thus showing a partial mediating effect in all three cases.

Fifth, when the analysis was done on an industry basis, the influence of transformational leadership on the knowledge management activities ($\beta=.631$, $p<.01$), and the influence of knowledge management activities on organizational commitment ($\beta=.401$, $p<.01$) was largest in the service industry. However, the influence of transformational leadership on organizational commitment ($\beta=.572$, $p<.01$) was largest in the IT industry.

Based on the findings of this study, to determine how transformational leadership and knowledge management activities should be managed on an industry-wide basis for the purposes of organizational commitment from the members, the following considerations are made.

First, it was proven that knowledge management activities by the members of the firm were exerting a mediating effect on the relationship between the transformational leadership of the leader and organizational commitment. This result can be interpreted as being similar to the one derived in the study by Ki(2011), which comprehensively analyzed transformational leadership, knowledge management activities, and organizational effectiveness.

On an industry-wide basis, while the mediating effect of the knowledge management activity was confirmed in all three industries,

the effect was found to be the highest in the service industry. This can be attributed to the characteristics of the knowledge management activity within this industry. While the reliance on human capital is high in the service industry, the employment turnover is also very high, and the industry is characterized by the interactions with customers, which essentially define the success of the organization (Bitner, 1990; Spinelli and Canavos, 2000; Hwang, 2003).

Thus, it can be said that this result displays the importance of the mediating effect of knowledge management activity along with leadership for acquiring and ensuring organizational commitment in the service industry by the human resources possessing innovative mindsets that quickly sense the change in markets and come up with appropriate solutions.

However, in this industry, knowledge, including that of the customer, is often shared in the form of tacit knowledge that has been accumulated through the employee's experience. Therefore, when the principal agent of the knowledge management activity, i.e., the member, leaves the organization, the risk of loss of intellectual assets ensues along with the departure. Therefore, in the service industry, it is important to document or manualize such tacit knowledge, such as know-how built based on experience by the member, turn the knowledge into explicit knowledge, and then create and share this knowledge with members, ultimately resulting in knowledge sharing activities that result in this knowledge being used by the members in reality.

Second, the direct influence of transformational leadership on organizational commitment was found to be statistically significant. These results seem to be in line with prior research (Bass, 1985; Oh, 2007; Yang and Choi, 2011; Sung, 2011; Lee and Jeong, 2012; Kim and Kim, 2012; Ryu and Ryu, 2013, etc.).

On an industry-wide basis, all industries in this research were impacted, and the effect was especially pronounced in the IT industry. This can be interpreted in the sense that the influence of transformational leadership is large within organizational commitment in the IT industry.

In this industry, human resources are allocated on a project basis, and operate as a team or task force. Thus, the role of the leader can be seen as larger compared to other industries. The IT industry forms the basis of all industries, helping existing industries become more effective and create new industries, thus resulting in a higher degree of employment creation. The industry is experiencing rapid growth and contributing heavily to the national economy (Shin, 2007). While it is difficult for the manufacturing industry to match the market conditions to build new manufacturing lines and control operating rates, the equivalent of the manufacturing line in the IT industry is human capital, and hence the IT industry is more reliant on the capabilities of human resources compared to the manufacturing industry (Shin, 2007; Joo et al., 2012). However, despite this reliance, effective human capital management in the IT industry is difficult (KISDI, 2007; Kwon

and Lee, 2009; Woo and Hwang, 2010).

Based on the results of this research, to heighten organizational commitment by employees, the strategic utilization of transformational leadership might prove effective in the IT industry.

2. Limitations of the Research and Future Research Directions

This research is significant as it targeted employees serving in large corporations in the service/manufacturing/IT industries, analyzed the influence of transformational leadership on knowledge management activities and organizational commitment, and studied the similarities and differences between these relationships on an industry-wide basis to suggest strategic implications.

However, there are certain limitations of this study. These, along with the future tasks, are mentioned below.

First, according to the research results of Yoon and Kim(2005), the influence of the process quality factor was found to be significant among the preceding factors of knowledge management. Future studies will have to scrutinize whether the quality management activities exert control effects on the relationship between knowledge management activities and organizational commitment.

Second, considering this study has found that the knowledge management activities have a partial mediating effect on the relationship between transformational leadership and

organizational commitment, future studies can be directed towards mediator variables other than knowledge management activities.

Lastly, while organizational commitment was selected as the dependent variable in this study, if future studies were conducted in a comprehensive and multidimensional manner, which would also include dependent variables relating to the organizational effectiveness, such as task satisfaction, trust, and financial performance, then the derived results would be useful in the study of organizational behavior.

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요 약

상사의 변혁적 리더십이 조직몰입에 미치는 영향
: 지식경영활동의 매개변수를 중심으로

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본 연구는 상사의 변혁적 리더십이 지식경영활동과 조직몰입에 어떠한 영향을 미치는지를 분석하였으며, 상사의 변혁적 리더십과 조직몰입의 관계에서 지식경영활동이 매개효과를 나타내는지를 분석한 실증 연구이다. 이를 위한 연구방법으로서 본 논문은 서비스/제조/IT 대기업 종사자 635명을 대상으로 설문조사를 실시하였고, 이를 토대로 산업별 변수간의 관계에 대하여 비교·분석하였다.

본 연구에서 사용한 용어에 대한 정의를 살펴보면, 변혁적 리더십은 목표달성에 그치지 않고 변화와 혁신을 추구하며, 조직구성원들이 지니고 있는 잠재적 역량과 강점을 개발하고 자신감과 열정을 증대시키며, 긍정적 강점을 자극하여 기대했던 것보다 높은 성과를 달성하도록 한다. 이러한 변혁적 리더십은 조직유효성을 증진시키는 선행요인으로 중요하게 인지되었다.

본 연구의 결과를 요약하면 다음과 같다. 첫째, 상사의 변혁적 리더십이 지식경영활동에 모두 유의한 정(+)의 영향을 미치는 것으로 나타났다. 둘째, 상사의 변혁적 리더십이 조직몰입에 모두 유의한 정(+)의 영향을 미치는 것으로 나타났다. 셋째, 지식경영활동도 조직몰입에 유의한 정(+)의 영향을 미치는 것으로 나타났다. 넷째, 상사의 변혁적 리더십이 조직몰입간에 지식경영활동의 매개역할에 관해서 부분매개효과를 나타내는 것으로 분석되었다. 다섯째, 각 집단별로 분석해보면 상사의 변혁적 리더십이 지식경영활동에 미치는 영향에서는 서비스업이 가장 큰 것으로 나타났으며, 지식경영활동이 조직몰입에 미치는 영향에서도 서비스업이 가장 큰 것으로 나타났다. 또한 상사의 변혁적 리더십이 조직몰입에 미치는 영향에서는 IT업이 가장 큰 것으로 나타났다. 마지막으로 위와 같은 분석결과를 토대로, 변혁적 리더십이 지식경영활동과 조직몰입에 미치는 영향에 대한 결과의 의미와 산업별 차이에 대한 의미를 중심으로 시사점을 논의하였고 연구의 한계점도 제시하였다.

핵심주제어: 변혁적 리더십, 지식경영활동, 조직몰입, 집단 간 비교분석

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