

Examining the effects of leadership orientations on knowledge innovation and teaching efficiency of teachers

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Abstract

Schools are closed institutions compared to enterprises. Overall, a leader is the key person in command of school operations. A leader must develop an instructional environment with good team interaction and improve team members' cooperation and communication. A good work environment for teachers relies on mutually supportive teaching and administrative teams to reduce teacher work pressure, increase teacher job satisfaction and job involvement. These, in turn, help the organization achieve the educational objectives. The research results can be summarized as follows. 1. The education administration should strengthen the training courses for school leadership and leaders' professional leadership skills to keep up with the developing educational environment and promote the effectiveness of school. 2. School leadership should promote teachers' participation in school leadership strategies as well as encourage their experience sharing and knowledge innovation. 3. A leader should show affinity and keep the communication channels open with flexible and contingent negotiation and adjustment; in this way school leadership effectiveness can be increased and teachers can be motivated to learn to enrich school knowledge resources. According to the results, the present study is expected to propose comprehensive suggestions for relevant units improve and promote school effectiveness in education reform to reach a competitive advantage for the school.

Subject Classification: 91B42, 91B99, 91E30.

Keywords: Leadership orientation, Creativity, Knowledge innovation, Classroom climate, Patent.

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1. Introduction

For the pursuit of superiority and self-actualization are important indicators of human education. When the organizational culture changes, the leader plays the triggering role. When organizational strategies and social culture and process change, leadership is still the key in the changing the environment. A leader's behavior is generally represented with Leadership orientations. A Leadership orientation is a specific behavior that is emphasized by a leader to motivate the organization or team members to spend efforts to achieve the organizational goals. Leaders with different personality traits, education and qualifications, value of life, and educational beliefs practice different Leadership orientations and incentives. For this reason, leaders must practice appropriate Leadership orientations to effectively lead teachers to take responsibility, promote individual job satisfaction, and reduce work pressure. Compared to enterprises, a school is a closed institution that can be referred as an "ivory tower" [1]. Along with the wave of education reform spilling over to universities and the strengthening of parent involvement, the leader is still the key person in the operation of the school. The role of leadership is the success factor in school operations. Despite of any organizations, enterprises, units, institutions, departments, teams, or groups, a supervisor's management ability determines the success. A leader's Leadership orientation is therefore emphasized. Nevertheless, school administration is becoming more and more complicated that school matters cannot simply be handled with the wisdom and talent of a leader. In the organization of school, the interaction between leaders and members is getting closer and closer, so a leader needs to develop the teaching environment with good team interaction and promote team members' cooperation and communication. Accordingly, this study aims to understand the correlations among school Leadership orientation, teachers' knowledge innovation, and teaching efficiency. The effect of school Leadership orientation on knowledge innovation and teaching efficiency are therefore discussed in this study, expecting to propose comprehensive suggestions for the improvement of relevant units and enhancement of overall school effectiveness to develop the competitive advantages of schools.

2. Literature review and hypotheses

Jesson [2] explained leadership as the behavioral process of a leader exerting his/her influence, using various strategies, fully utilizing various

organizational resources of manpower and materials, increasing members' work motivation, meeting members' demands, helping team members step towards organizational goals during the leader-member interactions, and as a result of these achieving organizational goals or changing the organizational structure. Poels et al. [3] referred Leadership orientation as a leader's explicit leadership behavior that results from the interaction of personality traits, social experience, organizational culture, and interpersonal relationships, and brings the individual concept and educational beliefs to the organization of school to motivate organizational members and achieve established goals. Bush [4] considered leadership as a factor with dynamic effects in the interaction process between an individual and the organization [5]. The leadership support and assistance can promote the smooth development of knowledge innovation [6]. A manager's ability to develop the management function obviously depends on leadership. Farchi and Tubin [7] mentioned that the importance of leadership in modern knowledge management has increased. They added that the importance of knowledge leadership exceeded the knowledge management and it includes interpersonal communication, self-organization, and knowledge development in an organization [8]. In other words, it is not enough to expand the effectiveness of knowledge management and promote knowledge innovation through effective knowledge management alone, but also it should be based on a climate of knowledge sharing and build mutual trust among members [9]. It is about Leadership orientation and emphasizes the importance of Leadership orientation. As a result, it is assumed in this study that;

- **Hypothesis (H1):** Leadership orientation presents positive correlations with knowledge innovation

Prenger, Poortman, and Handelzalts [10] found that teachers rated knowledge innovation and perceived teaching efficiency higher than average [11]. A high correlation between knowledge innovation and teaching efficiency was found, and knowledge innovation showed significant predictability on teaching efficiency. Ye [12] considered teachers' knowledge innovation as a systematic program and valued patent. In addition to presenting various theoretical and practical knowledge innovation and patent, teachers had to apply information technology ability to externalize the implicit knowledge and create a high-quality learning situation with knowledge innovation [13], transformation, and to promote teaching efficiency. Akram [14] found positive correlations

between teachers' knowledge innovation and teaching efficiency. Teachers with better knowledge innovation showed better teaching efficiency [15]. Teachers' knowledge innovation showed reasonable predictability on teaching efficiency. The tests showed that the results were significant [16]. It was found out that "personal knowledge", "learning motivation", and "teaching skills" in teachers' knowledge innovation showed better predictability on teaching efficiency [17]. In this respect the following hypothesis was proposed in this study.

- **Hypothesis (H2):** Knowledge innovation shows positive correlations with teaching efficiency.

Sousa and Rocha [18] stated that emphasizing students' individual differences lead to a broader and more comprehensive representation of teaching efficiency. Two ability beliefs were uncovered applying Bandura's Self-Efficacy Theory to teachers' teaching efficiency [19]. Personal teacher efficacy, which stems from Bandura's Self-Efficacy Theory, refers to the evaluation of a teacher's ability to guide student learning. General teacher efficacy, based on Bandura's outcome expectancy view, refers to the degree of teachers' beliefs in the control over teaching situation [20]. In other words, it refers the degree of to which students are instructed, taking into account the factors of family background, intelligence quotient, and school environment. Jamil and Mohd-Hamzah [21] found that the higher the transformational leadership behavior, the higher job involvement in teachers' service morale as well as higher teaching efficiency can be. Coun et al. [22] pointed out significant positive correlations between Leadership orientations of "high initiating, high consideration", "low initiating, low consideration" and teachers' teaching efficiency. Additionally, positive correlations between transformational leadership behavior, transactional leadership behavior and teachers' teaching efficiency was found. Accordingly, that the present study proposes the following hypothesis.

- **Hypothesis (H3):** Leadership orientation reveals positive correlations with teaching efficiency.

3. Methodology

I. The Conceptual Framework of This Study

To summarize the above literature review, the conceptual framework of this study (as shown in Figure 1) is drawn up. The framework helps

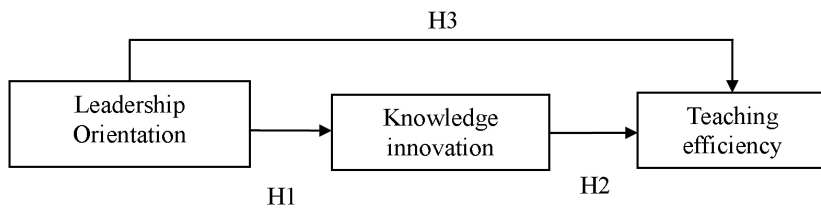


Figure 1
Conceptual Framework

explore the Effects of Leadership Orientations on Knowledge Innovation and Teaching Efficiency of Teachers

II. Operational definition

(1) Leadership orientation

In this study, based on Yang's [1] definition, Leadership orientation was defined to include four dimensions as "work advocacy orientation", "interpersonal care orientation", "knowledge vision orientation", and "charismatic influence orientation".

1. Work advocacy orientation: This refers to a leader's focusing more on the content of the work and performance output in the operation of school administration, the leader emphasizes the reaching goals, not concerning too much about the members' individual demands, preferring to be in power, and keeping distance from members.
2. Interpersonal care orientation: This refers to a leader's focusing more on harmonious interpersonal care and interaction, accepting members' opinions about school change, listening to members' suggestions through various meetings, and coordinating different concepts in the operation of school administration.
3. Knowledge vision orientation: This refers to a leader's focusing more on future development and vision attainment, being able to lead and plan the entire development of the school, encouraging members to propose diverse suggestions for school vision, and finding out problems in unrealized plans and developing relative strategies in the operation of school administration.
4. Charismatic influence orientation: This refers to a leader's focusing more on leadership characteristics and responding to needs in school management, being able to lead, being bold in making innovation,

win members' trust, and positively affecting members with positive thinking and behavior in the operation of school administration.

(2) Knowledge innovation

According to Lee, Idris, and Tuckey [23], four dimensions are proposed for measuring knowledge innovation.

1. Strategic innovation: This refers to understand whether school strategies are innovative and move with the trend of time.
2. Learning vision: This refers to understand whether the school presents a clear learning vision.
3. Knowledge spiral: This refers to understand whether school knowledge is mutually beneficial.
4. Innovative idea: This refers to understand whether the school encourages the members' concept innovation.

(3) Teaching efficiency

According to Wen, Suang, and Hou [24], three dimensions are proposed for measuring teaching efficiency.

1. Material presentation: Teachers' research and development of material organization and application focusing on the effects of material organization and presentation on students' learning.
2. Instructional strategies: Teachers' research focusing on instructional strategies indicate that highly effective teachers can apply the scientific spirit and teaching method of teaching in the teaching process to motivate learners, focus on learners' basic competence and learning traits, improve the effectiveness of learning, and achieve predetermined instructional objectives.
3. Classroom climate: During the teaching process, teachers increase the interaction opportunity in the created concerning and warm instructional environment, where teachers change from traditional teachers to learning facilitators to promote students' willingness to learn and concentration.

III. *Participants of the study*

The sampling for this study involved university faculty members in China. A total of 320 faculty members were surveyed; after deducting invalid questionnaires, 264 valid questionnaires remained, resulting in a

response rate of 83%. The schools address and contact person are first confirmed to ensure the samples conforming to the proportion of population and the sample size being able to represent the main population. To ensure the questionnaire retrieval, the schools are first requested for the intention to distribute the questionnaire, which is then personally sent or posted after receiving the promise of the school. The contact person then passes it on to teachers for the response. The samples would try to averagely cover teachers with different gender, seniority, teacher grade, but not concentrate on single background or community variable. The written notice is attached for the delivery.

1. Gender: 151 males, 113 females.
2. Teaching seniority: 83 under 10 years, 106 in 11~20 years, and 75 above 20 years.
3. Teacher grade: 78 professors, 117 associate professors, and 69 lecturers.

VI. *Reliability and validity test*

Structural Equation Modeling (SEM) is applied to analyze the goodness-of-fit and test the model. Amos18.0 is further utilized for testing the correlations among school Leadership orientation, teachers' knowledge innovation, and teaching efficiency.

Confirmatory factor analysis (CFA) is a crucial component of data analysis, used to ensure validity and reliability. This study employed AMOS software for CFA analysis, using a two-stage model. First, the measurement model was tested, followed by a structural model evaluation. Only after the measurement model's fit was acceptable did the second-stage model evaluation proceed. The CFA dimensional analysis results in this study showed that the composite reliability values ranged from 0.75 to 0.95, factor loadings from 0.60 to 0.90, and the mean explained variance from 0.60 to 0.80. These results indicate convergent validity for the dimensions if the following criteria are met: 1. Factor loadings should be greater than 0.5; 2. Composite reliability values should be greater than 0.6; 3. Mean explained variance should be greater than 0.5.

4. Results of the study

I. *Structural model analysis*

In summary, this study used the chi-square degrees of freedom ratio test to assess model fit. The results show that (Table 1) the chi-square

degrees of freedom ratio of our model is less than 3 (1.63). A lower value is better. GFI and AGFI indices should be as close to 1 as possible; however, there is no absolute standard for judging model fit. When the test results show $GFI > 0.9$ and $AGFI > 0.8$, it is within the acceptable range. $AGFI = 0.88$. RMSEA of 0.05-0.08 indicates a good model fit. The RMSEA of our model is 0.03. $CFI > 0.9$ is also considered acceptable. The CFI of our model is 0.95. NFI should be at least higher than 0.9. The NFI of our model is 0.93. Overall, the goodness-of-fit indices meet the standards, so the results of this study are acceptable. Therefore, the data from this study can be used to interpret actual observational data.

Based on the previous overall model fit, it can be claimed that the research model has favorable fit with observed data. This showed that the theoretical model can fully explain the observed data. In this respect, the correlation coefficient and coefficient estimate of Leadership orientation to innovation and teaching efficiency can be further understood, after the model fit test.

Table 1
Research model fit analysis

Fit Indices	Acceptable range	This research model	Model fit judgment
χ^2 (Chi-square)	The smaller the better	19.24	
χ^2 -degree of freedom ratio	<3	1.63	match
GFI	>.9	0.97	match
CFI	>.9	0.95	match
NFI	>.9	0.93	match
AGFI	>.8	0.81	match
RMSEA	<.08	0.02	match

II. Theoretical model discussion

Figure 2 shows the research results. Using Structural Equation Modeling to test the relations among specific variables, the significance of the standardized path estimate of parameters is observed. The empirical analysis shows that the relations among all variables are less than 0.05, achieving the significance. Figure 1 reveals remarkably positive relations between Leadership orientation and knowledge innovation that H1 is

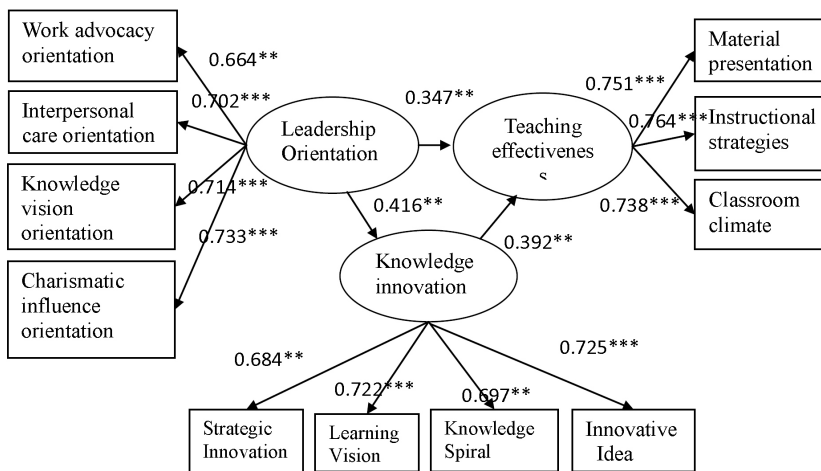


Figure 2
Path diagram

supported. Knowledge innovation appears notably positive relations with teaching efficiency that H2 is supported. Leadership orientation presents significantly positive relations with teaching efficiency that H3 is supported.

5. Discussion

Along with time change, work reveals high proportion in people's life to become an important factor in individual physical and mental health [25] [26]. For an organization, management covers "people" and "affairs" and expects to attract outstanding talents, build excellent teams, and further create good productivity, creativity, performance, and profits, the mostly concerned by an organization [27] [28]. Teachers in the 21st century "knowledge-based economy" face different challenges compared to traditional teachers, and professional knowledge/competencies and content is more diversified. To cope with educational reform and societal change, administrators should encourage schools to move toward learning organizations and spend effort to enrich knowledge and competencies in creative teaching, problem solving, knowledge management, information technology, communication and coordination, and collaborative learning. In this way, the vision of lifelong learning can be supported and improved through knowledge management. A successful leader knows how to motivate staff and create a sense of team as well as guides the development

vision of the school. A school leader therefore should create quality school culture, construct appropriate school vision and specific educational objectives, as well as well know and use people to enhance the practice of leadership in various levels [29] [30]. With knowledge spread and application, teachers are encouraged the creative thinking to make adjustment along with changing environment of educational organization and develop the ability of self-change [31] [32]. For this reason, the administration should strengthen the empowerment and training program of Leadership orientation so that leaders can adapt to the changes in the organization of school and the trend of education site. They consider and concern about the life and welfare of faculty and staff, show the necessary respect, keep colleagues together with the team, and promote the willingness to cooperate to promote teaching efficiency [33]. In future training courses, the knowledge and skills at work and professional leadership competence should be reinforced to supervise the leaders who present this quality in training to ensure that the future work go smoothly. Many teachers can take up teaching positions after the internship. Similarly, the internship system as a preparation process of leaders for the deanship might reduce the time for independent exploration and provide the skills for school leadership more quickly. In this respect, experienced, excellent, or retired leaders can be recruited to be the masters or instructors during the training to share experiences and improve leaders' practical experience. Furthermore, schools should think of promoting teachers' responsibility sharing and enhancing teachers' mutual cooperation to achieve the application of diverse knowledge and further reach school's knowledge innovation [34][35].

6. Conclusion

The research results reveal that H1: Leadership orientation shows positive correlations with knowledge innovation, H2 Knowledge innovation reveals positive correlations with teaching efficiency, and H3: Leadership orientation appears positive correlations with teaching efficiency are supported. The leadership can affect teaching efficiency. As a result, educational administrators should strengthen the training of school leaders. The education process should integrate the theory and practice of Leadership orientation and knowledge innovation, and reinforce leaders' professional leadership ability to keep up with the changing educational environment and promote school effectiveness. In implementing leadership in school administration, it should maintain the

participation of teachers in school leadership strategies. Teachers should be encouraged in terms of experience sharing and innovation, and development of appropriate teaching strategies for different students to improve the effectiveness of learning. Teachers' individual needs and distinct specialization or students' different economic conditions and family environment should be considered in this process. It should even provide teachers and students with sufficient equipment and budget to continuously develop teachers' professional teaching and students' learning, and further promote the effectiveness of teaching at school. Besides, school leaders should not merely highlight the achievement of school's performance objectives and stay in power, but they should also present sympathy and make use of communication channels. In addition, they should establish a flexible and contingent negotiation environment and do the necessary arrangements to develop the effectiveness of school leadership, motivate teachers' learning, enrich school knowledge resources, and encourage teachers' participation in professional workshops to solve teaching problems and promote the effectiveness of teaching. Furthermore, the education administration authorities should refine the corresponding educational laws and regulations to complete school development reference indicators and list the effectiveness of school Leadership orientation, innovation, and effectiveness of teaching. These guidelines should be used in the evaluation of school performance in terms of the achievement of expected school objectives for relevant units. The purpose of this evaluation should focus on the advantages and disadvantages as well as proposing maintenance and improvement.

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