

A Study on the Construction of Vocational High School Principals' Leadership Effectiveness Indicators-Based on Competing Values Framework

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The Asian Conference on Education & International Development 2017
Official Conference Proceedings

Abstract

The main purposes of this study were to integrate the theories and researches in leadership effectiveness based on competing values framework, and construct the vocational high school principals' leadership effectiveness indicators; to verify reliability and validity of the indicator questionnaire constructed in this study; and to find out the importance and current situation of vocational high school staff's perception to principals' competing values effectiveness. There were 50 public and private vocational high schools in Taiwan tested by questionnaire in this study. 9 educational staffs were randomly selected in each school, so there are 450 subjects in total. 421 questionnaires were received and 415 of them are valid. The rate of validity is 92.2%. Statistical methods used in this study are descriptive statistic, one-way analysis of variance and linear structural equation model.

The main findings in this study are as follows: 1. vocational high school principals' leadership effectiveness constructed in this study has 4 domains, 12 dimensions and 45 assessing indicators. 2. The internal consistency of the reliability in the questionnaire of this study reaches stability, and has good construct validity. 3. The general performance of principals' leadership effectiveness is above average, and among all of the leadership effectiveness, rational goal has the best performance. Besides, principal's external leadership effectiveness is better than internal leadership effectiveness.

Keywords: competing values framework, leadership effectiveness, competing values leadership effectiveness

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Motive and Purpose

Principal is the soul of the school. The leadership roles which principal play are very important in school development (Bolanle, 2013; Herrera, 2010; Sergiovanni, 1995). As the saying goes, “As is the principal so is the school”, and it’s also believed that good schools aren’t necessarily to have bad principals and bad schools aren’t necessarily to have good principals (Davis & Thomas, 1989; DuFour & Mattos, 2013). Fowler (1991) and The Wallance Foundation (2013) also suggested that where there is an effective school, there is an effective principal. So principals should show their leadership effectiveness and pursue exquisite and excellent education to suit the need of schools’ reform.

Because of the effect of globalization, knowledge-based economy and sub-replacement fertility, there is a tremendous change in educational environment. This causes not only developing countries to have fewer needs of non-skill employees but also Taiwan to have fewer needs of vocational high school students. So the dramatically decrease of recruitment rate in vocational high schools and the crowding out effect from senior high schools to vocational high schools are testing the ability of vocational high school leaders.

Though the theories and researches of leadership keep bringing forth the new through the old, the definition and assessing indicators which researchers apply in the research of leadership effectiveness assessment are based on their own subjective judgement and select the assessing indicators of effectiveness with the fitness of the researches (Yukl, 2002). There is no full and complete tool of leadership effectiveness assessing indicators which makes many different criteria appear when assessing leadership effectiveness.

There is a paradoxical situation that many opposite viewpoints exist at the same time (Denison, Hooijberg, & Quinn, 1995; Yu & Wu, 2009). Yet, in the research or implementation related to organizational issue, schismogenic thinking, which is not enough to cope with the complicated real situation in organizations, is used. The main function of competing values framework is to get rid of linear thinking and single value, and to show many opposite thinking patterns and ideas (O’Neill & Quinn, 1993). Quinn, Bright, Faerman, Thompson, and McGrath (2015) suggested that competing values framework has some kinds of characteristics to balance different or even opposite values and to deal with every phenomenon in organizations effectively and these make it a suitable theory base for the construction of principals’ leadership effectiveness indicators. According to above, competing values framework is applied as a theory base in this study, and related theories and empirical researches are integrated to construct vocational high school principal’s leadership effectiveness indicators which are used to assess principals’ leadership effectiveness. Then we can understand the current situation of principals’ leadership effectiveness and use the indicators as guidelines in self-development and promotion of leadership effectiveness for principals.

Literature Review

1. The basic concept of competing values framework
Competing values framework (CVF) is a meta theory. It originates from competing

values model, and was used to integrate the main indicators in organizational effectiveness at first (Cameron & Quinn, 1999), and as the organizational effectiveness dimension and the test of value. Quinn and Rohrbaugh (1983) integrated the organizational theories and the researchers' viewpoints of effectiveness indicators, then framed a various recognition system and suggested three values of continuous spatial model in organization which includes that the focus of the organization is internal microcosmic or external macroscopic; the focus of organizational structure is stability or flexibility; and organization's methods and purpose. These kinds of competing values are seen as a dilemma in the literature of organizational behavior. Through the competition three values, two orthogonal rotations can be structured. The two ends of horizontal axis are internal-external, while the two ends of vertical axis are flexibility-control. Four models of organizational analyses are integrated and the methods and goals applied in this model are shown in the four quadrants which are formed by these axes integrate. The content and theoretical model of competing values framework are shown in figure 1 (Lavine, 2014; Quinn & McGrath, 1985):

- (1) Rational goal model: Situated on lower-right quadrant, it emphasizes task-based leadership effectiveness. The organizational values of this model are competitiveness and productivity.
- (2) Open systems model: Situated on upper-right quadrant, it emphasizes adaption-based leadership effectiveness. Its main goals are adaption, growth, external supports and resources acquisition, and it puts emphasis on flexibility and external focus, such as innovation and creativity.
- (3) Human relations model: Situated on upper-left quadrant, it emphasizes trust and belonging-based leadership effectiveness. Its main goals are cohesion, participation, morale and communication, and it puts emphasis on flexibility and internal focus.
- (4) Internal process model: Situated on lower-left quadrant, it emphasizes stability and control-based leadership effectiveness. The individual is given a certain role and is expected to follow the rules.

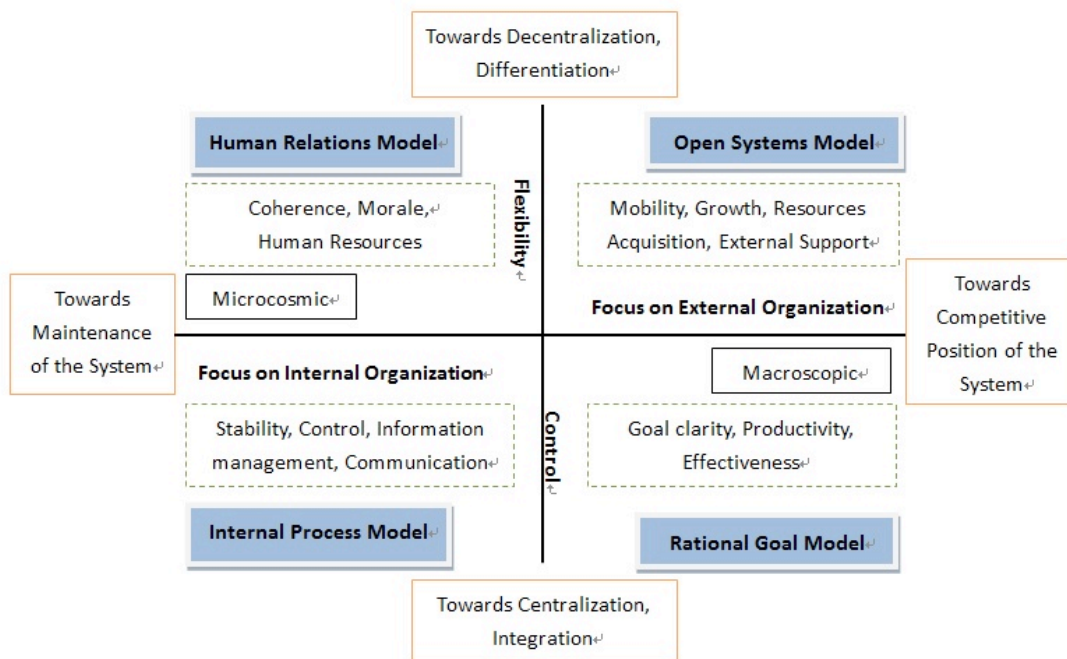


Figure 1: The organization theory model of competing values framework

2. The meaning of leadership effectiveness

Yukl (2009) believed that researchers usually define the meaning of leadership on their personal viewpoints and their interests, so the concept of leadership effectiveness is diverse. Some researchers (Denison, Hooijberg, & Quinn, 1995; Wan, Ghulam, & Muhammad, 2011) suggested that when the environment of organization becomes complicated, it is quite difficult to define the suitable leadership behaviors suitable for all the circumstances. But it's sure that principals' leadership roles and behaviors have close relationship with school effectiveness (Alammar, 2015).

In this study, competing values framework is used as a base to define leadership effectiveness as the process and result of the leader to consider the circumstances of internal and external organization and use the leadership strategy to improve the attainment of the organizational goal and organizational competing advantage (rational goal), to emphasize the adaption of organizational innovation and respond to external needs (open systems), to better the satisfaction of members in the organization and human resources (human relations), and to maintain the stable operation of the organization and good internal integration (internal process).

3. The assessing dimensions of competing values leadership effectiveness

Hooijberg and Denison (2002) used competing values framework as the base and suggested the 4 dimensions of leadership effectiveness, which includes task, adaption, participation and consistency. Lynch (2000) also used competing values framework to deduce the indicators of assessing leadership effectiveness, which is shown in Table 1, based on abilities that every leadership role should require. From the table, we can see that there are 16 indicators of leadership effectiveness in 8 functions of leadership roles constructed by competing values framework. The accomplishment of leader's effectiveness can be assessed through these indicators.

Domain	Role	Function of role	Indicators of Effectiveness
Rational Goal	Producer Guide	Productivity Goal Clarity	Goal Accomplishment Work Compliment Giving Direction Accepting Power
Open Systems	Innovator Broker	Adaption Resources Acquisition	Accepting New Task Creativity and Agility Affecting Budget Making Up for Loss
Human Relations	Assistant Mentor	Conflict Solving Human Development	Cohesion Decreasing Complaint Developing Members Openness
Internal Process	Coordinator Supervisor	Stability Assessment and Evaluation	Organizing Control Obedience Analysis

Table 1: The indicators of competing values framework leadership effectiveness

This study completely constructs the indicators of vocational high school principals' leadership effectiveness based on competing values framework. After referring to related literature (Bolanle, 2013; Management Research Group, 2013; Quinn, et al., 2015; Wan, Ghulam, & Muhammad, 2011), and integrating related studies of leadership effectiveness through 4 organizational models of competing values framework, 4 domains (rational goal, open systems, human relations and internal process) were formed. There are 3 dimensions in each domain, so there are 12 dimensions (confirming direction, rational promotion, goal achievement; external relationship, innovation transcendence, change adaption; taking advice widely, harmonious consensus, stratified morale; internal integration, work assignment, evaluation and feedback). Each dimension has 4 topics, so there are 48 indicators of principals' competing values leadership effectiveness.

Research Method

All 156 public and private vocational high schools in Taiwan are the population in this study. Among them, 50 schools were randomly selected. 9 people, including principal, chief, director, homeroom teacher, full-time teacher and administrative staff, were randomly selected in each school, so there are total 450 school educational staffs that were randomly selected to conduct the questionnaire. 421 questionnaires were received and 415 of them are valid. The rate of validity is 92.2%.

48 topics in this research tool was analyzed, and the critical ratios are all ≥ 3.00 . It shows that the topics in this scale all have good discrimination. After modifying, the correlation coefficient between topics and total score is among .681 and .848. And after the topics are deleted, α factor in the scale is among .939 and .959. The overall result shows that this scale has good internal consistency, so everything was retained to have validity analysis. Factor loadings which are more than .70 were retained in this study, so 3 topics (topic number 15, 28, 44) were deleted. The factor loadings, eigenvalue and explained variation of every domain, dimension and topic are shown in table 2. The good validity and high internal consistency of this research tool can be seen in table 2.

Domain	Dimension	Amount of Topic	Factor Loadings	Explained Variation	Cumulative Explained Variation	Cronbach α
A. Rational Goal	Rational Promotion	4	.785~.826	61.505	70.510	.948
	Goal Accomplishment	4	.808~.823	5.416		
	Confirming Direction	3	.706~.978	3.590		
B. Open Systems	External Relationship	4	.781~.916	61.582	72.456	.945
	Innovation Transcendence	4	.770~.896	7.437		
	Change Adaption	4	.742~.880	3.437		
C. Human Relations	Harmonious Consensus	4	.777~.897	65.104	74.449	.954
	Satisfied Morale	4	.824~.914	4.955		
	Taking Advice Widely	3	.760~.846	4.390		

	Internal Integration	4	.818~.876	68.530		
D. Internal Process	Evaluation and Feedback	4	.839~.862	5.082	76.591	.961
	Work Assignment	3	.712~.837	2.980		

Table 2: The list of factor analysis and reliability analysis of vocational high school principal leadership effectiveness questionnaire

Result and Discussion

1. Confirmatory factor analysis of the importance of vocational high school principals' competing values leadership effectiveness indicators

(1) Overall goodness-of-fit test of test model

When goodness-of-fit test of second order confirmatory factor analysis model was conducted on 4 domains in the scale of vocational high school principals' leadership effectiveness indicators, it was found that most of goodness-of-fit indicators of the 4 domains are bigger than or close to 1, but there are few numerals not reaching the standard. So second modification was conducted, and the situations after second modification are shown in figure 2 to figure 5.

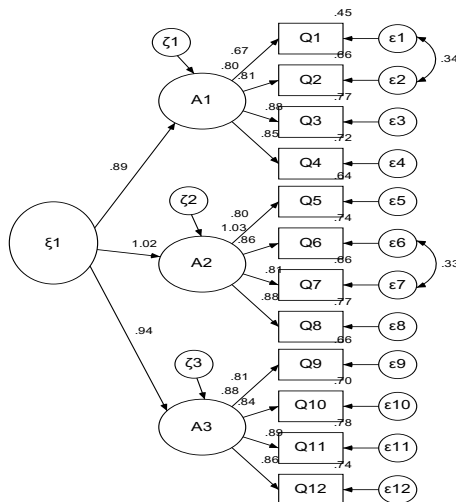


Figure 2: The path diagram and overall goodness-of-fit of open systems indicators modified by second order factor analysis

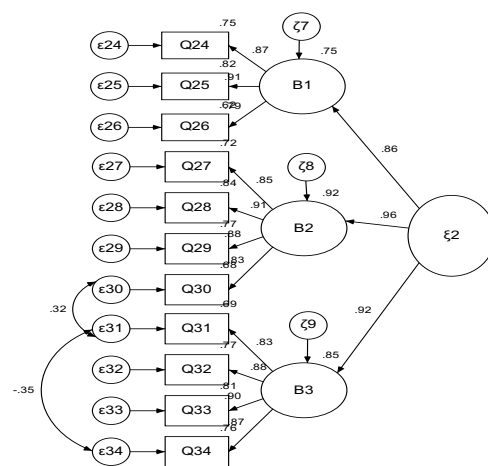


Figure 3: The path diagram and overall goodness-of-fit of human relations indicators modified by second order factor analysis

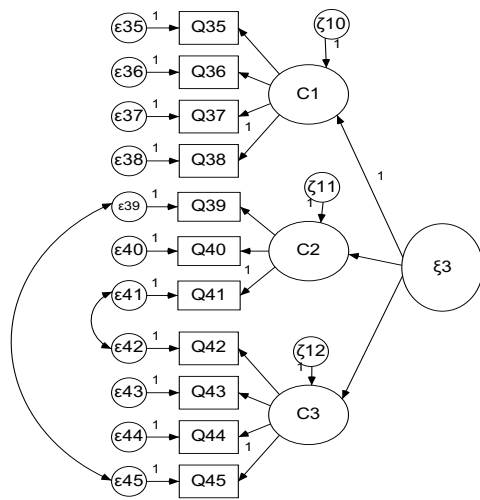


Figure 4: The path diagram and overall goodness-of-fit of internal process indicators modified by second order factor analysis

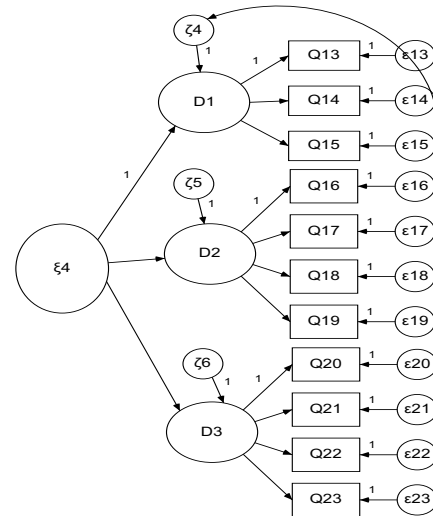


Figure 5: The path diagram and overall goodness-of-fit of rational goal indicators modified by second order factor analysis

From the goodness-of-fit indicators of hypothesis mode shown by the 4 domains in this study, the goodness-of-fit index of open systems, human relations, internal process and rational goal modified by second order factor analysis are shown in table 3. The evaluation of goodness-of-fit is good, and has ideal external quality. Overall, the questionnaire used in this study also has good construct validity.

Fit Index	Goodness-of-fit Index	Result of the Modified Model in This Study				Conclusion
		Open Systems	Human relations	Internal Process	Rational Goal	
X2 (Chi-square)	$p > 0.05$	177.505 P=.000	169.161 P=.000	167.545 P=.000	155.873 P=.000	It's easily affected by sample size.
GFI	> 0.9	.939	.938	.937	.939	This mode has good goodness-of-fit.
SRMR	≤ 0.05	.028	.028	.024	.024	This mode has good goodness-of-fit.
RMSEA	≤ 0.05	.076	.086	.086	.090	This mode has fair goodness-of-fit.
AGFI	> 0.9	.903	.894	.893	.908	This mode has great goodness-of-fit.
CFI	> 0.9	.973	.972	.974	.974	This mode has good goodness-of-fit.
NFI	> 0.9	.963	.964	.966	.965	This mode has good goodness-of-fit.
TLI(NNFI)	> 0.9	.964	.960	.963	.964	This mode has good goodness-of-fit.
PNFI	> 0.5	.715	.684	.685	.702	This mode has good goodness-of-fit.
PGFI	> 0.5	.590	.554	.554	.569	This mode has good goodness-of-fit.

Table 3: The importance of goodness-of-fit for the model of construction of vocational high school principals' competing values leadership effectiveness indicators

(2) Internal goodness-of-fit test of assessing model

The assessing model was evaluated through individual item reliability, composite reliability (CR) of latent variable and variance extracted (VE) of latent variable in this study. All the factor loadings of individual item in the importance of construction of vocational high school principals' leadership effectiveness indicators are between 0.671 and 0.914. All of them are above the standard, 0.5, and have statistical significance. About the CR of latent variable, the CR of the first order latent variable are between 0.872 and 0.971, and reach the standard, 0.6. The CR of the second order latent variables, ξ_1 , ξ_2 , ξ_3 and ξ_4 are 0.927, 0.938, 0.933 and 0.864, and they are all above the standard, 0.6. This shows the internal consistency of the model in this study is good. As for the VE of latent variable, the VE of first order latent variable are between 0.651 and 0.919. The VE of the second latent variables, ξ_1 , ξ_2 , ξ_3 and ξ_4 are 0.809, 0.835, 0.823 and 0.864, and they are all above the standard, 0.5. This shows that the internal consistency of the model in this study reaches stability. Thus, it is proved that the assessing indicators of vocational high school principals' leadership effectiveness constructed in this study have good reliability and validity.

2. The current situation and the analysis of variances of vocational high school principals' competing values leadership effectiveness

The mean and standard deviation of the whole and every dimension of vocational high school principals' competing values leadership effectiveness are as shown in table 4. As for overall principals' leadership effectiveness, the mean is 4.74 (6-point scale) which shows that vocational high school principals' leadership effectiveness is above average. After the repeated measures analysis of variance test and post hoc comparison were conducted, it was found that the order of the domains from high to low is rational goal, open systems, internal process and human relations. The highest effectiveness of principals' leadership effectiveness is rational goal, while human relations is the lowest, that is, the school staff agree that principals' performances in the effectiveness of school goal achievement is the best, but human interactions between colleagues and satisfaction of members' needs should be improved.

In the rational goal and open systems which are the highest in the 4 leadership effectiveness, "exterior" is the common characteristic that is emphasized in both of them, that is to say, external effectiveness is better than internal effectiveness in the leadership effectiveness shown by vocational principals. Cheng, T. F., & Wu, H. C. (2009) used primary school principals as subjects to conduct the study, and it was found that primary school principals have higher performances in the effectiveness of rational goal and internal process. The reason of it may be the different characteristics of primary school and vocational high school. Vocational high school has heavier stress from performance competition and external resources development, so the performances of rational goal and open systems are higher. However, the result of this study is the same with Cheng, T. F.'s other study (Cheng, T. F., 2010).

As for each dimension of leadership effectiveness, vocational high school principals has higher performances on confirming school's direction, rational promotion and goal achievement compared with other dimensions of effectiveness. The mean of overall competing values leadership effectiveness is 4.74, and the mean of every

dimension is between 4.66 and 4.80. To sum up, most vocational high school principals can balance with every dimension of leadership effectiveness into consideration and most of them fit the two core beliefs, “altitude” and “balance”, promoted in competing values framework.

Competing Values Leadership Effectiveness	Mean	Standard Deviation	Amount of the Topic	Average Score of Each topic	F	Post Hoc Comparison
A1. External Relationship	19.21	3.75	4	4.80		
A2. Innovation Transcendence	18.88	3.99	4	4.72	19.071***	A1>A3>A2
A3. Change Adaption	19.09	3.86	4	4.77		
B1. Taking Advice Widely	14.00	3.21	3	4.67		
B2. Harmonious Consensus	18.98	4.19	4	4.75	62.637***	B2>B1>B3
B3. Satisfied Morale	18.29	4.37	4	4.57		
C1. Internal Integration	18.65	4.27	4	4.66		
C2. Work Assignment	14.52	2.87	3	4.84	76.001***	C2>C3>C1
C3. Evaluation and Feedback	19.00	4.09	4	4.75		
D1. Confirming Direction	14.58	2.94	4	4.86		
D2. Rational Promotion	19.02	3.93	3	4.75	32.746***	D1>D3>D2
D3. Goal Achievement	19.25	3.86	4	4.81		
A. Overall Open Systems	57.17	11.09	12	4.76		
B. Overall Human Relations	51.28	11.24	11	4.66		
C. Overall Internal Process	52.17	10.76	11	4.74	21.779***	D>A>C>B
D. Overall Rational Goal	52.85	10.30	11	4.80		

Table 4: The summary of mean and standard deviation of the current situation in principals competing values leadership effectiveness (N=1298)

Conclusion and Suggestion

1. Conclusion

(1) The reliability of the competing values leadership effectiveness constructed in this study reaches stability in internal consistency, and has good constructed validity. The research tool “questionnaire of vocational school principals’ competing values leadership effectiveness” was tested by item analysis, exploratory factor analysis and internal consistency α test, and all the original 48 topics reach the level of significant and have good discrimination and internal consistency. After tested by validity analysis, 45 topics have good validity.

Then, the research tool was tested by SEM confirmatory factor analysis. The result of overall goodness-of-fit assessing model shows that the tool has ideal external quality, so it has good constructed validity. And from the result of internal goodness-of-fit test, we can understand that the tool fits evaluation standard, which shows that the internal consistency reaches stability.

(2) Overall vocational principal competing values leadership effectiveness is above average. Rational goal of the leadership effectiveness is the highest and “external leadership effectiveness” is better than “internal leadership effectiveness”.

Overall vocational principals’ competing values leadership effectiveness is above average. The order of every domain from high to low is rational goal, open systems, internal process and human relations. Because both rational goal and open systems belong to the trend which emphasizes organizational exterior, external effectiveness in the overall leadership effectiveness so they have higher performances compared with others. But, most of them fit the competing values framework characteristics, “altitude” and “balance”.

2. Suggestion

(1) The educational administration can provide proper plans of profession development courses for pre or on-the-job principals based on the vocational high school principals’ competing values leadership effectiveness indicators constructed in this study.

In the postmodern society, change is common. Thus, the development of profession should be regarded as a continuous process because lifelong education is the permanent basis for professionals. The opportunities and methods of profession development for principals has increased a lot in recent years, but there are few profession development courses which use the leadership roles as the core concept. The indicators of competing values leadership roles constructed in this study are based on ability, so it can refine profession development courses for principals if the indicators are used as the concept.

(2) National high school principals can use the indicators of leadership roles constructed in this study to conduct self-examination.

“Principals’ competing values leadership effectiveness indicators” developed in this study are through the integration and test of important theories and empirical researches and they are the perception response of vocational high school educational staff. Principals can use this tool to conduct self-examination of leadership roles. Then it will assist principals to understand their performances in each leadership effectiveness and provide the help of modifying or strengthening the performances of leadership.

(3) Keep strengthening vocational high school principals’ leadership effectiveness, especially in improvement of human relations.

It was found in this study that the performances of vocational high school principals’ leadership effectiveness are above average, but there’s still a space for improvement, especially in “human relations”. To improve every dimension of the vocational high school principals’ competing values leadership effectiveness, principals should notice that the members in the school are supposed to be encouraged not controlled. Members’ encouragement of challenge and cohesion of morale should be paid attention to and they should be encouraged to share and to participate in the decision.

(4) Vocational high school principals should improve conclusive leadership effectiveness, and apply diverse content actively.

It was found in this study that the current vocational high school leadership effectiveness has the most performances on “exterior”, which belongs to the trend of external school and control in rational goal. Thus, in order to promote leadership effectiveness and improve schools’ organizational effectiveness, principals should modify the traditional unified leadership roles, understand the paradoxical needs in the organization, and apply the leadership behaviors that can balance with every dimension with an inclusive idea and action.

(5) Vocational high school principals can select which leadership effectiveness indicators to improve based on schools’ situation and characteristics.

There are 45 vocational high school competing values leadership effectiveness indicators constructed in this study. If vocational high school principals can’t apply every indicator at once, the characteristics of principals, the needs of school and the situation of school development can be taken into consideration to select the needed indicators to fit the practical application.

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