The relationship between risk management and effectiveness in preschools in Taiwan

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Abstract

This study probes into the relationship between risk management and operation effectiveness in preschools as well as the difference in risk management among different preschools and leaders with different characteristics (personality and leadership). Stratified sampling was adopted to select preschool principals for the questionnaire survey according to the proportions of preschools in different regions. In the process, 516 valid samples were collected. After the F test, correlation analysis, confirmatory factor analysis (CFA) and structural equation modeling (SEM), this study came to the following conclusions: (1) there is significant difference in the relevance between the type and risk management between public and private preschools. In the implementation of new operation strategies, private preschools pay much more attention to risk management in policy, finance, market, and human resources than public preschools do; moreover, there is also a difference due to the size of preschools: large preschools pay much more attention to risk management in human resources; (2) principal's characteristics are related to risk management; principals with different personalities and leadership have different focuses on risk management; (3) risk management can predict operation effectiveness, and the risk in education and caring, management, and finance plays the most important role; at the same time, reducing expenses in consideration of cost has negative effects on operation effectiveness. The above research achievements can assist preschool operators in risk management before the implementation of new operation strategies.

Keywords: risk management, preschool, operation effectiveness

I. Introduction

Competitiveness is highlighted in modern society, and "seeking innovation and change" is the principle for the progress of enterprises. In addition to effectiveness, innovation and change may also cause risk. Preschools are no exception. In Taiwan, 70% of preschools are private ones. Like other enterprises, private preschools face the pressure of competition in the market. In recent years, operational competition has become increasingly fierce due to the country's low birth rate (Chen, 2013; Cheng &

Chen, 2013).

To respond to this market trend, many operators want to adjust operation strategies or make new ones, but they are also worried that unplanned change may cause uncontrollable operation risks. As a result, they are hesitant to take action (Chen, 2016; Griffis & Whipple, 2012). How do preschool operators manage risks? What is the difference in risk management among different preschools? Is there any difference in risk management between public and private preschools, between urban and rural ones, and between large and small ones? What is the role of the preschool principal as a leader? Is there any difference in risk management among principals with different personalities and leadership? This study discusses all these questions. Moreover, this study explores the effects of risk management on operation effectiveness and the risk most helpful for the enhancement of operation effectiveness. Through the analysis of representative empirical data, this study aims to answer the above questions and provide a reference for preschool operators in risk management.

According to what has been mentioned above, the research purposes are listed as follows.

1. To find out the difference in operation risk management among preschools of different types (public/private, urban/rural, and large/small).
2. To find out the difference in operation risk management among principals with different personalities and leadership.
3. To discuss the relationship between operation risk management and the effectiveness of preschools.
4. To give suggestions according to the research results to help preschool operators with risk management before the implementation of new operation strategies.

II. Literature Review

1. School type and risk management

Liu and Lin (2013) discussed senior vocational schools' understanding of their risk management in physical education and found that public ones had a significantly deeper understanding of risk management than private schools. Wu, Chu, and Lu (2010) explored the risk management of sports in primary schools and noted that there was a significant difference in risk management among schools of different sizes. Shen (2008) investigated the difference in public perception of infectious disease risk

between urban and rural areas and found that the difference in residence between urban and rural areas might influence risk perception. Lin (2008) studied the understanding of natural disaster risk among indigenous tribes in remote mountainous areas and showed that people living in remote areas had a shallow understanding of risk management due to inadequate information. The above findings present that the type, size, and location of schools may influence risk management. Whether the conclusion is applicable to preschools remains to be explored in this study.

2. Leadership and risk management

Previous studies have shown that a person's variables may influence his/her perception and behavior of risk management (Wu et al., 2010; Liu and Lin, 2013). Principals are the leaders of preschools and have the important right to make decisions; therefore, preschools' perception and behaviors of risk management may vary according to the leadership of principals. Do the personality and leadership of a principal influence the risk evaluation of preschools? Because there is a limited number of studies on this topic, this study will explore it.

3. Risk management and operation effectiveness

Liu and Low conducted a study that involved the markets of Singapore and mainland China and found that risk management and evaluation help ensure operation effectiveness and bring continual competitive strength (Liu & Low, 2009, p170). Pastor (1999) explored risk management of the banking industry in Spain, Jüttner (2005) analyzed the supply chain risk management (SCRM) of many industries in the UK, and Liu (2002) studied the risk management of the agricultural credit department of Taiwan. According to these studies, risk management is related to operation efficiency; higher risk leads to lower operation efficiency; only effective risk management can generate high operation efficiency and competitiveness. Whether the conclusion is also applicable to the operation of preschools remains to be discussed in this study.

III. Research Method

1. Research Structure

According to the research purposes and literature review, this study has proposed the following research architecture and hypotheses.

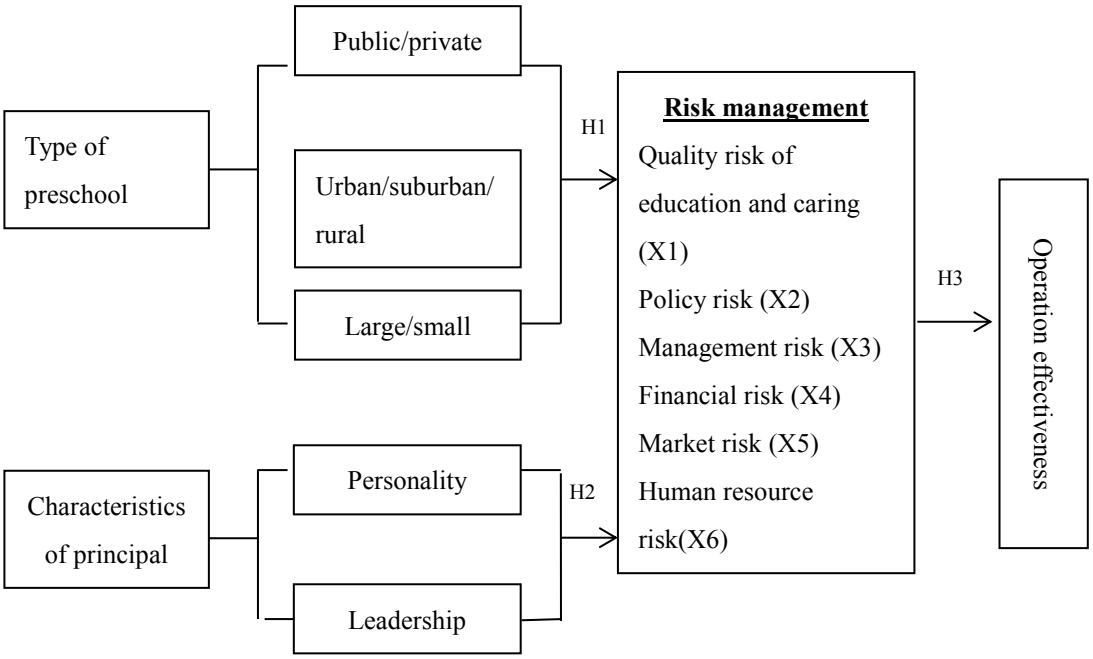

Figure 1 Research Architecture of This Study

H1: There is a significant difference in operation risk management among preschools of different types (public/private, urban/rural, and large/small).

H2: There is a significant difference in operation risk management among principals of different characteristics (personality and leadership).

H3: Operation risk management can predict the effectiveness of preschools.

2. Research Subjects and Sampling

Preschool principals were the subjects of this study. According to the data, there are 6,579 preschools in Taiwan (Ministry of Education, 2013). With a proportion of 10% in the sampling, this study collected a target number (600) of samples. To acquire representative samples, stratified sampling was adopted. First, the samples were collected from four regions (North Taiwan, Central Taiwan, South Taiwan, and East Taiwan), and then the samples were divided into two groups - public preschools and private preschools. After that, the sampling was conducted according to the stratified proportion. An investigation survey was conducted among the selected 600 preschool principals, and invalid questionnaire copies were removed. Finally, 516 valid ones were kept.

3. Research Tools

This study took the self-made **Operation Risk Scale** as the measurement tool. Part 1 of the scale included basic information and such items as "Type of preschool" (public/private), "Location of preschool" (urban/suburban/rural), and "Size of preschool" (small preschool with no more than 3 classes/large preschool with no less than 4 classes). Part 2 was about the characteristics of the principals. The items in this part were based on the classification of the Big Five and adapted from the items proposed by Hamilton (2010) and Chiang (2015). They were then divided into four groups: "Extroverted and amiable", "Moderate", "Cautious", and "Open-minded" (the construct validity stayed between .52 and .83). Part 3 was the leadership of principals, and the items were adapted from the items proposed by Carson, Tesluk, Marrone (2007) and Chen, Chang, Cheng (2008). Moreover, they were classified into three types: "Paternalistic authoritative leadership", "Paternalistic concern-oriented leadership", and "Sharing-oriented leadership" (the construct validity ranged from .62 to .89). Part 4 was about operation risk management, and the items were based on the risk management measurement vectors of preschools proposed by Chen (2016) and fell under six dimensions (construct validity stayed between .64 and .96). Part 5 was about operation effectiveness. The performance of the past three years was taken as the evaluation standard, including the number of students, the total profits, the operation, and the financial situations in the past three years.

IV. Research Results

1. Correlation between the operation risk management of preschools and the type of preschools

According to the statistical data about the six operation risk management dimensions of preschools of different types in Table 1, the difference in mean among most of the F test results was not significant ($p>.05$); the difference between urban and rural areas was totally insignificant; the difference between large and small preschools was insignificant in most cases; and the sole difference was that large preschools paid more attention to the risk management of human resources. There was greater difference between public and private preschools. Private preschools were significantly higher than public ones in the risk management of four dimensions: "Policy risk", "Financial risk", "Market risk", and "Human resource risk". This demonstrates that private preschools pay more attention to the above four dimensions in the implementation of new strategies.

Table 1 The F Test Abstract of the Correlation between the Operation Risk Management of Preschools and the Type of Preschools

Risk	Type	Number	Average mean	Standard deviation	F VALUE	Risk	Type	Number	Average mean	Standard deviation	F VALUE
Quality risk of education and caring	1. Public	195	12.7333	1.70223	.087	Financial risk	1. Public	196	9.8214	4.13661	90.724*
	2. Private	311	12.7846	2.02450			3. Private	315	12.6730	2.63207	
	1. Urban	106	12.8208	1.97507	.638		1. Urban	109	11.4312	3.79904	.161
	2. Suburban	221	12.8643	1.83393			3. Suburban	222	11.6667	3.47801	
	4. Rural	172	12.6512	1.93320			2. Rural	172	11.5698	3.53939	
	1. Small	246	12.7398	1.87066	.319		1. Small	247	11.3077	3.80448	2.695
	2. Large	249	12.8353	1.89252			3. Large	253	11.8300	3.29844	
Management risk	1. Public	193	12.4715	2.53527	1.548	Market risk	1. Public	193	9.9793	3.25794	38.117*
	2. Private	314	12.7548	2.45998			3. Private	313	11.7093	2.93440	
	1. Urban	106	12.8774	2.45222	.635		1. Urban	109	11.0550	3.28812	.054
	2. Suburban	221	12.5430	2.47794			3. Suburban	220	11.0182	3.23079	
	4. Rural	172	12.6453	2.58806			2. Rural	169	11.1243	3.00831	
	1. Small	245	12.4857	2.60139	1.353		1. Small	245	10.7878	3.24982	3.555
	2. Large	251	12.7490	2.43901			3. Large	250	11.3240	3.07651	
Policy risk	1. Public	196	11.4541	2.63759	8.881*	Human resource risk	1. Public	196	10.5714	3.82971	58.381*
	2. Private	314	12.1720	2.65161			3. Private	313	12.7284	2.53812	.275
	1. Urban	108	12.0278	2.73249	.497		1. Urban	109	11.7798	3.35371	
	2. Suburban	221	11.9819	2.50084			3. Suburban	221	12.0317	3.16715	
	4. Rural	173	11.7514	2.78525			2. Rural	171	11.8421	3.35782	
	1. Small	247	11.7206	2.64554	2.201		1. Small	246	11.3089	3.61433	16.637*
	2. Large	252	12.0714	2.63648			3. Large	252	12.4841	2.76931	

* indicates $p<.05$.

2. Correlation between operation risk management of preschools and the leaders of preschools

According to the Pearson relevance analysis in Table 2, the personal characteristics of principals are partly related to operation risk management. The principals of “Extroverted and amiable” and “Cautious” showed significant correlation ($p<.05$) with the six dimensions of operation risk management. In other words, the principals who are more “Extroverted and amiable” and “Cautious” pay more attention to operation risk management and the six dimensions in the implementation of new

strategies. The principals who are more extroverted attach greater importance to risk management in the quality of education and caring, policy and management; and the ones who are more "Moderate" pay more attention to risk management in the quality of education and caring.

The leadership of principals is also partly related to operation risk management. Principals with "Paternalistic authoritative" leadership attach greater importance to risk management in finance and pay less attention to risk management in the quality of education and caring. The ones with "Paternalistic concern-oriented" leadership pay more attention to risk management in the quality of education and caring, policy, management, and human resource. The ones with "Sharing-oriented" leadership give priority to risk management in all the six dimensions except "Financial risk".

Table 2 Relevance Analysis Abstract of the Correlation between the Operation Risk Management of Preschools and the Personality and Leadership of Leaders

Variable	Type	Quality risk of education and caring	Policy risk	Management risk	Financial risk	Market risk	Human resource risk
Characteristics	1. Extroverted and amiable	.198**	.179**	.172**	.161**	.157**	.107*
	2. Moderate	.207**	.020	.082	.021	-.004	.001
	3. Cautious	.197**	.158**	.150**	.126**	.169**	.190**
	4. Open-minded	.151**	.102*	.108*	.077	.065	.075
Leadership	1. Paternalistic authoritative leadership	-.157**	-.004	-.036	.123**	.060	.060
	2. Paternalistic concern-oriented leadership	.270**	.140**	.150**	.069	.080	.143**
	3. Sharing-oriented leadership	.283**	.163**	.186**	.061	.093*	.113*

* indicates p<.05.

3. The role of operation risk of preschools in the predication of the operation effectiveness of preschools

According to Figure 2 and Table 3, structural equation modeling (SEM) was adopted to test the model for the relationship between operation effectiveness and operation

risk management (six main themed risks and 18 secondary themed risks). Operation effectiveness includes: the number of students was increasing in the past three years (s1); the total profits were great in the past three years (s2); the operation was more effective than that of preschools in neighboring areas in the past three years (s3); and the financial situation was positive in the past three years (s4). Operation risk management includes: quality risk of education and caring (X1), policy risk (X2), management risk (X3), financial risk (X4), market risk (X5), and human resource risk (X6). According to the model test results, quality risk of education and caring, management risk, and financial risk have significant influence on operation effectiveness; preschools that pay more attention to risk management in the quality of education and caring and in management have stronger operation effectiveness; however, too much emphasis on financial risk has a negative effect on operation effectiveness.

Table 3 shows the indicators of the model's goodness-of-fit test. According to the data, the goodness-of-fit indicators of the model for the relationship between the operation effectiveness of preschools and the operation risk management all met the evaluation standards. Therefore, the model was supported by the data of this study.

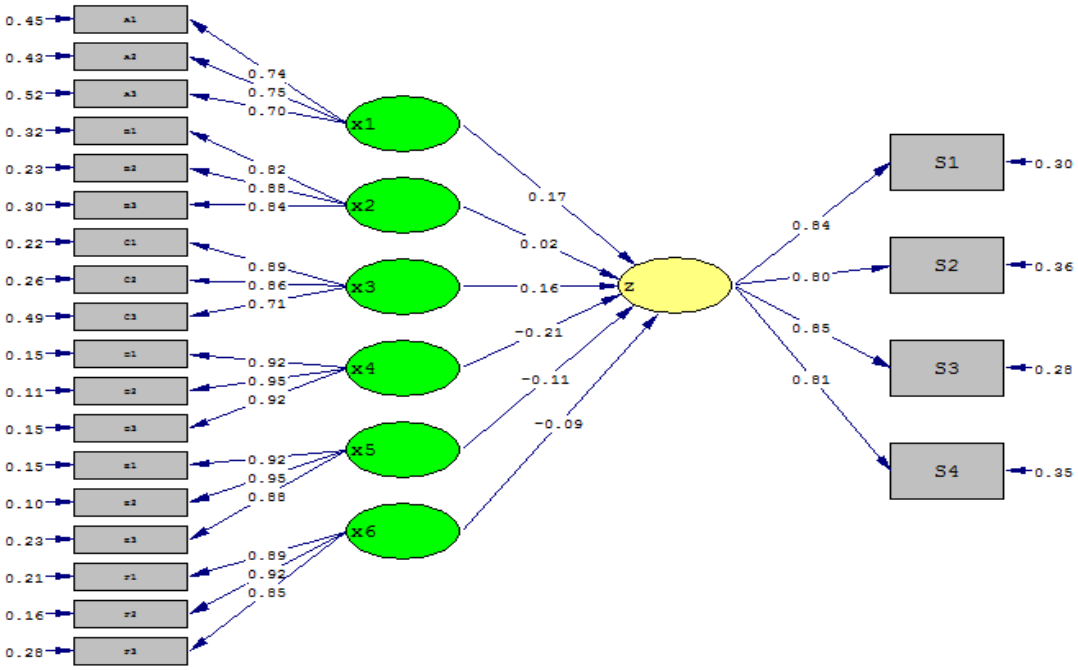

Figure 2: Structural Model of Operation Risk and Operation Effectiveness of Preschools

Description of variables: X1: Quality risk of education and caring; X2: Policy risk; X3: Management risk; X4: Financial risk; X5: Market risk; X6: Human resource risk; Z: Operation effectiveness; a1: Risk in the professionalism of those in charge of education and caring; a2: Risk in the work commitment of those in charge of education and caring; a3: Risk in the workload of those in charge of education and caring; b1: Risk in the quick response to policy change; b2: Risk in the command of policy change; b3: Risk in the interaction with governmental competent institutions; c1: Risk in the response to an emergency; c2: Risk in the safety management of buildings; c3: Risk in incompetent leadership; d1: Risk in personnel expenditure; d2: Risk in financial capital; d3: Risk in debt; e1: Risk in potential competitors; e2: Risk in the performance being poorer than that of competitors; e3: Risk in the inability to highlight strengths; f1: Risk in the failure to recruit appropriate talents; f2: Risk in the inability to retain talents; f3: Risk in the inability to dismiss incompetent employees; s1: the number of students was increasing in the past three years; s2: the total profits were great in the past three years; s3: the operation was more effective than that of preschools in neighboring areas in the past three years; s4: the financial situation was positive in the past three years.

Table 3 Goodness-of-fit Indicators of the Structural Model for Risk Management and Operation Effectiveness

Indicator	Test results	Evaluation standard
Chi square values	429.39	p>.05
GFI(goodness-of-fit index)	.93	>.90 (Hu & Bentler,1999)
IFI(incremental fit index)	.99	>.90 (Hu & Bentler,1999)
NFI(normal fit index)	.98	>.90 (Bentler& Bonett,1980)
NNFI(non- normal fit index)	.98	>.90 (Bentler& Bonett,1980)
CFI(comparative fit index)	.99	>.95 (Bentler,1988)
RMSEA (root mean square error of approximation)	.05	≦.08 (McDonald & Ho, 2002)

V. Conclusion

After the rigorous sampling investigation and the statistical analysis of the relationship between the risk management and operation effectiveness of preschools and that between risk management and characteristics of principals and type of preschools, this study has come to the following conclusions.

1. Risk management can predict operation effectiveness, and so preschools should pay attention to risk management in the quality of education and caring, management, and finance.

According to the research results of this study, quality risk of education and caring, management risk, and financial risk are significantly effective in prediction. Therefore, preschools should pay attention to risk management in the quality of education and caring and in management when implementing new strategies, and that risk management in these two aspects have significant positive effects on operation effectiveness. However, preschools should also pay attention to risk management in finance, because too much emphasis on the management of financial risk and the cost-based reduction of expenditure would have negative effects on operation effectiveness. Hence, it is suggested that preschool operators should manage risk in a prudent and appropriate way.

2. Risk management is related to the type of preschools, and the difference in this aspect between public and private preschools is significant; principals with different characteristics focus on different risks.

According to the research results of this study, preschools of different types have different focuses on risk management for the implementation of new operation strategies, and the difference in this aspect between public and private preschools is significant. Concerning the implementation of new operation strategies, private preschools attach greater importance to policy risk, financial risk, market risk, and human resource risk than public ones do. The size of preschools does not cause much difference in risk management, and the main difference between large and small preschools is in the risk management of human resources. For the implementation of new strategies, large preschools pay more attention to risk management in human resources. As for the difference between urban and rural preschools, this study has found that there is an insignificant difference in the six dimensions of risk management among urban, suburban, and rural preschools.

This study additionally noticed that the characteristics of principals might be related

to operation risk management and thus analyzed the correlation between the personalities and leadership of principals and the six dimensions of risk management. According to the research results, the characteristics of principals are not highly correlated with operation risk management, but the correlation is significant in some parts. For instance, extroverted, amiable, or cautious principals pay greater attention to the six dimensions of risk management in the implementation of new strategies; open-minded principals focus on risk management in the quality of education and caring, policy, and management; while moderate principals only pay attention to risk management in the quality of education and caring. A similar situation can be found in the relationship between the leadership of principals and operation risk management: the correlation is not strong, but some correlations reach a significant level. For example, principals with paternalistic authoritative leadership attach greater importance to financial risk management; those with paternalistic concern-oriented leadership place more emphasis on risk management in the quality of education and caring, policy, management, and human resources; and those with sharing-oriented leadership pay attention to all dimensions of risk management except financial risk. All of the above research results can serve as a reference for preschool principals.

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