Mutilevel Causal Relationships of Organizational Effectiveness for Universities in Cambodia

ความสัมพันธ์เชิงสาเหตุพหุระดับของประสิทธิผลองค์การสำหรับมหาวิทยาลัยในประเทศราชอาณาจักรกัมพูชา

Pattrawadee Makmee
ภัทราวดี มากมี

Cognitive Science and Innovation Research Unit: CSIRU, College of Research Methodology and Cognitive Science, Burapha University 169 Long-Hard Bangsaen Road Saen Sook Sub-district Mueang District, Chon Buri 20131, Thailand
หน่วยวิจัยวิทยาการปัญญาและนวัตกรรม วิทยาลัยวิทยาการวิจัยและวิทยาการปัญญา มหาวิทยาลัยบูรพา
169 ถนนลงหาดบางแสน ตำบลแสนสุข อำเภอเมือง จังหวัดชลบุรี 20131
Corresponding author, e-mail: pattrawadee@gmail.com
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Abstract

The objectives of this research were: (1) to develop a public organizational effectiveness measurement model for Universities in Cambodia , and (2) to study multilevel causal factors influencing public organizational effectiveness for Universities in Cambodia at individual and discipline levels.A total of samples were randomly stratified for 400 students. The instrument used was a questionnaire of organizational effectiveness. Statistical analyses were made based on descriptive statistics and Multilevel Structural Equation Model. The results were as follows: (1) The proposed multilevel causal model of public organizational effectiveness for Universities in Cambodia fitted well with the empirical data ; and (2) The model of public organizational effectiveness for Universities in terms of students' perceptions indicated that for both levels, all variables were important for representing the effectiveness. At the individual level, the most important variable was the student personality development while, at the discipline level, the most important variable was the staff employment satisfaction. However, organizational health was less important at both levels

Keywords: Measurement model, Organizational effectiveness for universities in Cambodia, Multilevel Structural Equation Model (MSEM)

บทคัดย่อ

วัตถุประสงค์ของการวิจัยเพื่อ 1)พัฒนาโมเดลการวัดประสิทธิผลองค์การสำหรับมหาวิทยาลัยในประเทศราชอาณาจักรกัมพูชา และ 2) ศึกษาปัจจัยเชิงสาเหตุพหุระดับที่มีอิทธิพลต่อประสิทธิผลองค์การภาครัฐที่เป็นมหาวิทยาลัยในระดับบุคคล และระดับสาขาวิชาในประเทศราชอาณาจักรกัมพูชา จำนวนกลุ่มตัวอย่างเป็นนิสิต/นักศึกษาได้มาจากการสุ่มแบบหลายขั้นตอน จำนวน 400 คน เครื่องมือที่ใช้ในการวิจัยคือแบบสอบถามประสิทธิผลองค์การ สถิติที่ใช้ในการวิเคราะห์ข้อมูลใช้สถิติบรรยาย และการวิเคราะห์โมเดลสมการโครงสร้างพหุระดับ ผลการวิจัย ปรากฏว่า 1) โมเดลเชิงสาเหตุพหุระดับประสิทธิผล

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ภาครัฐที่เป็นมหาวิทยาลัยมีความสอดคล้องกลมกลืนกับข้อมูลเชิงประจักษ์ และ 2) โมเดลประสิทธิผลองค์การตามการรับรู้ของนักศึกษาในระดับบุคคลและระดับสาขาวิชาตัวแปรทุกตัวมีความสำคัญอยู่ในระดับใกล้เคียงกัน สำหรับระดับบุคคลตัวแปรที่มีความสำคัญมากที่สุดคือการพัฒนาบุคลิกภาพนิสิต/นักศึกษา ในขณะที่ตัวแปรระดับสาขาวิชาที่มีความสำคัญมากที่สุดคือความพึงพอใจในการปฏิบัติงานของบุคลากร อย่างไรก็ตามสุขภาพขององค์การมีความสำคัญน้อยที่สุดทั้งระดับบุคคลและระดับสาขาวิชา

คำสำคัญ : โมเดลการวัด ประสิทธิผลองค์การสำหรับมหาวิทยาลัยในประเทศราชอาณาจักรกัมพูชา
โมเดลสมการโครงสร้างพหุระดับ

Introduction

Organizational effectiveness is important to the development of the universities sector. However, many problems in effectiveness assessment were found by many researchers such as Katz & Kahn (1978), Goodman & Pennings (1980), Harrison (1994), Price & Mueller (1986), and Makmee (2016). They stated that the problems were: 1) incomprehensive variable; 2) abstract variable assessment; 3) insufficient indicator; 4) uncovered analysis; 5) last measurement and assessment not showing the causes; and 6) insufficient model and incomplete model. These problems were recommended to be solved in further research in the future.

In previous research, we found that there were 20 studies relating to the development of organization effectiveness assessment model. We used the concept of Cameron (1978, 1986) as the guideline for the concept of the development of universities organizational effectiveness assessment as introduced in the previous statement.

We can see that the assessment model used for research in Thailand and foreign countries in relation to the development of an organization's effectiveness of universities at the institutional level are rarely found. According to the reasons of importance mentioned above, the researcher has foreseen the importance of learning and developing the model of organizational effectiveness in the universities sector and educational institutions. To do the research on this topic could provide us new knowledge. Also, the previous research has never directly studied an assessment model which considered the factors that influenced organizational effectiveness of the universities sector. Those studies had two main interesting issues. Firstly, there was a limitation because the research methodology was not based on the real status of organization that related in descending order, especially education organization such as individual level, discipline level or universities organization level, which higher organization had more power than the lower one. This methodology was unable to define which variables it caused or how much it influenced on. Secondly, most research faced the problem of selecting a suitable analysis. (Makmee, 2016).

If the organization was related in descending order, only personnel analysis level might make incorrect result or standard might get lower than it should be. This statistical significance might be type one error, higher than specified. On the other hand, if analysis in higher level, that mean personnel

variable was needed to find average for used as higher variable, this would result in bias and ineffectiveness. To solve the problems mentioned above, the researcher turned interest to develop universities' effectiveness assessment model in the context of Thai and Cambodia society. This emphasized the factors that influenced on effectiveness to the universities sector. This was divided by the nature of educational data consisting of small groups integrated into the bigger organization. For example, teachers were in a group of major or major was in the group of faculty. Therefore, data analysis about universities' effectiveness should be multilevel data so that we would know how the difference of influences of variables in different levels. It is necessary to use an analysis technique multilevel data.

Applying the Multilevel Structural Equation Modeling could help describe which variables were related. The structural equation model is related directly and indirectly to effectiveness of the universities sector. This model was used as a guideline to specify the policy of subject and major. This effectiveness assessment model was a modern model to keep up to date of Cambodia's education and it could be based in the development of other major's effectiveness assessment model. The researcher has applied Multilevel Structural Equation Modeling which used normative model development. This means learning about attitude, theory, logical analysis and real situations of an organization and applied it to be a scope for developing an education model with the stakeholder.

The principle of a new measurement and assessment, in order to find influential variables on organizational effectiveness was a concept of Steers (1977) and Gibson et al. (2000) consisting of background of information provider, organization nature, environment, personnel, and policy and education management. This would be beneficial for an organization to manage effectively. Moreover, the multidimensional integration model (Cameron, 1978, 1986) which measured and assessed effectiveness of universities by multi-dimension indicator was widely used in America, England, Australia and Canada. This was properly adapted to use with Thai educational nature so that it might meet requirements of the society and sustainable efficiency and kept up to date with rapid changes. We expected that the research result would be a guideline to develop a universities' effectiveness model. This is an important mechanism leading to the development of education management which is to lift up education standards to be acceptable at an international level. This would affect the progress of doing academic research and further organizational development in Cambodia.

Research Objectives

1) To develop a measurement model of public organizational effectiveness for universities in Cambodia.
2) To study multilevel causal factors influencing public organizational effectiveness for universities in Cambodia at individual and discipline levels.

Research Framework

Effectiveness assessment model of university from the research of Cameron (1978, 1986) which assessed university effectiveness by a multidimensional indicator which was widely used in America, England, Australia and Canada, was suitably applied with Cambodia 's university and also developed a

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multi-dimension integration model and a multilevel structural equation model which related and influenced on universities' effectiveness divided into two levels – individual and discipline levels. This is to find the root causes or influence of organizational effectiveness according to the concept of Steers (1977) and Gibson et al. (2000).

For the concept idea for researching the multilevel structural equation model of universities' effectiveness, it showed variable as effectiveness in individual and discipline levels for nine indicators as follows: 1) Student educational satisfaction (SS); 2) Student academic development (SD); 3) Student career development (SC); 4) Student personality development (SP); 5) Staff employment satisfaction (SE); 6) Staff professional development (SPD); 7) System openness and community interaction (SO); 8) Ability to acquire resources (AR); and 9) Organizational health (OH). A conceptual framework of research. As shown in the Figure 1.

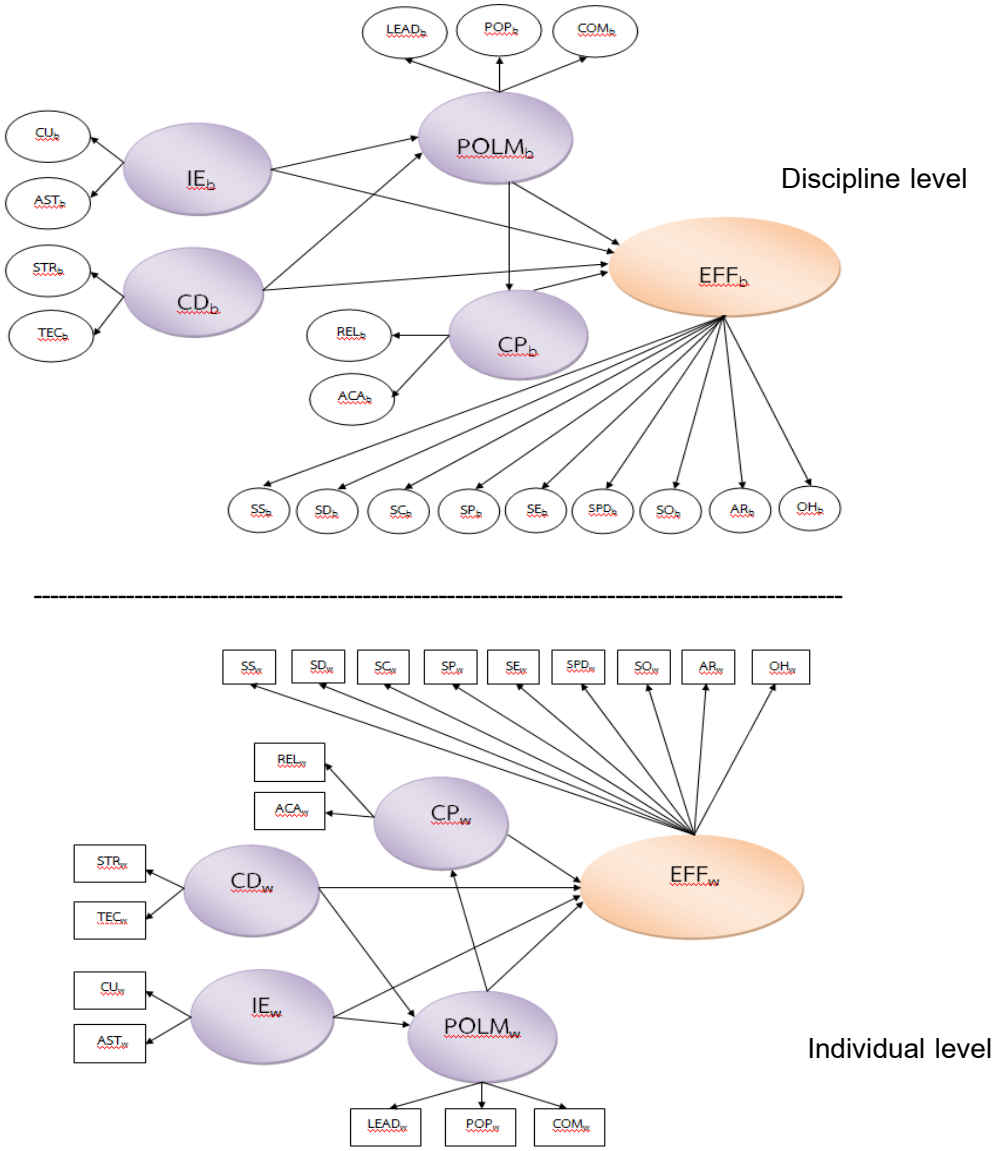

Figure 1 Conceptual Framework

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Research Hypotheses

According to the synthesis and analysis of the relationship between each factor in the individual and discipline levels that influence universities' effectiveness from concept or related documents, the researcher has set the hypotheses as following.

1. Multilevel structural equation model for measuring organizational effectiveness in accordance with empirical data.

2. Factor variables in individual and discipline levels could significantly predict effectiveness of Cambodia universities.

Research Methodology

Research design used descriptive research to develop an effectiveness assessment model of the universities sector zone. By applying analysis of multilevel structural equation model of organizational effectiveness for universities in Cambodia. The research was undertaken in two phases as follows.

Phase 1 was the development of the research concept idea, to develop an assessment model of effectiveness for universities in Cambodia which applied by effectiveness assessment the guideline for effective assessment of Cameron's (1978, 1986) model as the objective of research item 1. In order to develop an assessment model of organizational effectiveness of universities in Cambodia.

Phase 2 Model testing in the field with experimental data and test for stability. In these phases, we used the model by studying factors of multilevel structural equation model to check the accordance of effectiveness assessment model and stability test of data providers in the universities sector in Cambodia and concluded the research result as the objective in item 2. To investigate the factor of multilevel structural equation model in individual and discipline levels which had relationship and influences on organizational effectiveness of universities and item

Population: Students of universities in Cambodia for two organizations including Phanomphen University, and University of Management and Economics for 40 disciplines

Sample group: Randomly selected participants from 400 persons including students in Cambodia universities**.**

Instrument: Instruments used in research were a questionnaire for students for five levels which had Content validity index (CVI), that a scale with excellent content validity composed of I-CVIs of 0.78 and S-CVI/UA and S-CVI/Ave of 0.8, respectively and reliability in cronbach 's coefficients of 0.712 – 0.823.

Data analysis: Using SPSS programme for descriptive statistic and program Mplus (Muthén & Muthén, 2012) for analyzing Confirmatory Factor Analysis, multilevel component and multilevel causal analysis.

Results

The research results found that: 1) Effectiveness assessment model of the universities sector as perceived by students found that all indicators were closely important in individual and discipline levels. For individual level, the most important indicator was the student personality development while, at the

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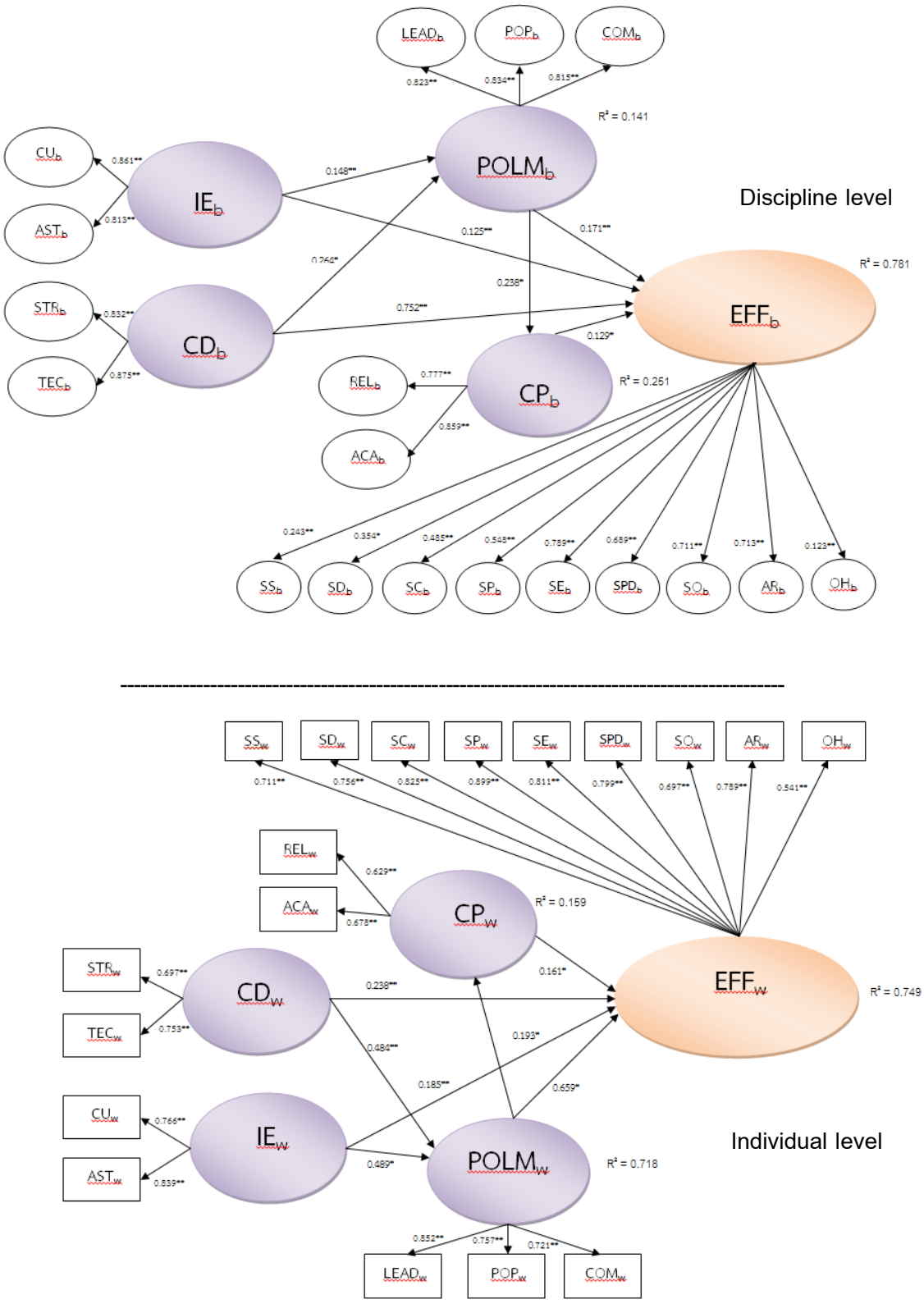
discipline level, the most important variable was the staff employment satisfaction. However, organization health was less important in both individual and discipline levels; 2) Multilevel casual effectiveness model of universities sector was according to empirical data (χ^2 = 120.103, *df* = 68, *p* = 0.069, χ^2 / *df* = 1.766, CFI = 0.973, TLI = 0.995, RMSEA = 0.045, $SRMR_w$ = 0.034, $SRMR_B$ = 0.027). Predicted variable set in individual level could describe the effectiveness variance of universities sector at individual and discipline levels 74.90% and 78.10 % respectively. A suggestion for further research would be to learn more about the multilevel structural equation model of universities organization in Cambodia and increase the quality of data to find out how to develop in the future. These results are shown in detail in Table 1 and Figure 2.

Table1 Factor loading of indicator in Multilevel Structural Equation Model of Cambodia universities effectiveness.

Observable variable	(within groups: w)				(between groups: b)				ICCs	Intercepts or average group means
	β	SE	t	R^2	β	SE	t	R^2		
EFF										
1.SS	0.711	0.021	33.857**	0.506	0.243	0.012	20.250**	0.059	0.089	3.783
2.SD	0.756	0.019	39.789**	0.572	0.354	0.169	2.095**	0.125	0.087	3.636
3.SC	0.825	0.025	33.000**	0.681	0.485	0.078	6.218**	0.235	0.091	4.129
4.SP	0.899	0.028	32.107**	0.808	0.548	0.049	11.184**	0.300	0.069	3.916
5.SE	0.811	0.023	35.261**	0.658	0.789	0.059	13.373**	0.623	0.085	3.813
6.SPD	0.799	0.041	19.488**	0.638	0.689	0.158	4.361**	0.475	0.086	3.875
7.SO	0.697	0.032	21.781**	0.486	0.711	0.034	20.912**	0.506	0.078	3.772
8.AR	0.789	0.045	17.533**	0.623	0.713	0.037	19.270**	0.508	0.123	3.886
9.OH	0.541	0.049	11.041**	0.293	0.123	0.045	2.733**	0.015	0.076	4.038
CD										
1.STR	0.697	0.016	43.563**	0.486	0.832	0.174	4.782**	0.692	0.073	3.486
2.TEC	0.753	0.03	25.100**	0.567	0.875	0.011	79.545**	0.766	0.095	3.838
IE										
1.CU	0.766	0.014	54.714**	0.587	0.861	0.012	71.750**	0.741	0.130	3.612
2.AST	0.839	0.016	52.438**	0.704	0.813	0.128	6.352**	0.661	0.125	3.781
CP										
1.REL	0.629	0.058	10.845**	0.396	0.777	0.006	129.500**	0.604	0.186	3.516
2.ACA	0.678	0.032	21.188**	0.460	0.859	0.009	95.444**	0.738	0.099	3.728
POLM										
1.LEAD	0.852	0.024	35.500**	0.726	0.823	0.006	137.167**	0.677	0.084	3.485
2.POP	0.757	0.01	75.700**	0.573	0.834	0.125	6.672**	0.696	0.126	3.856
3.COM	0.721	0.014	51.500**	0.520	0.815	0.109	7.477**	0.664	0.089	3.915

** $p < .01$



χ^2 = 120.103, *df* = 68, *p* = 0.069, χ^2 / *df* = 1.766, CFI = 0.973, TLI = 0.995, RMSEA = 0.045,

$SRMR_W$ = 0.034, $SRMR_B$ = 0.027

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

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Discussion

According to the research results, it was in line with the hypothesis as follows.

1. Conformity between research result and development concept of multilevel structural equation model to measure universities 's organization effectiveness

1.1 Development of multilevel structural equation model of public organizational effectiveness of universities in Cambodia

The research result found that multilevel structural equation model for measuring the organizational effectiveness of universities in Cambodia was conformed with empirical data and in accordance with the research's conceptual idea. The model was developed from theory and related research. This showed that the selective variables which were the main causes were the organization's characteristic, internal environment, personal characteristic and policy and management. Those variables which influenced organizational effectiveness of universities included major effectiveness of organization of university which is achievement of major subject from viewpoint of related person (Steers, 1977; Gibson et al., 2000). This model of effective assessment used the concept of Cameron (1978, 1986) as the guideline to specify organizational effectiveness in universities measured by 51 dimensions (components) and nine indicators. To be in accordance with the basic agreement of the sample group of multilevel structural equation model, we changed to 51 indicators and nine items which was the perception model of students to achieve the main missions in terms of the educational institute including education, research, academic management and culture maintenance.

1.2 Examining result of multilevel structural equation model

The research result found that there was conformation with empirical data in individual level and found the most effective policy variance and management in the major level on organizational effectiveness of universities . This was in accordance with the research of Cameron (1978, 1986) that research on effectiveness and variance or factors that influenced the organizational effectiveness of universities and in accordance with the concept of Steers (1977) and Gibson et al. (2000). This variance was called "managerial strategies" and it was the factor mostly impacted on effectiveness of a university. We can see that the research result was in accordance with the concept of Steers (1977) and Gibson et al. (2000) who stated that organizational effectiveness would be successful or developed when the manager has used managerial strategies in accordance with the organization (Kao-ian, 2018).

2. Relationship of structural equation influence on public organizational effectiveness in individual and discipline levels in universities of Cambodia

According to the hypothesis that individual and discipline levels factors could significantly predict organizational effectiveness of universities in Cambodia, we found that it was in accordance with the hypothesis. The research result found that the multilevel structural equation model for measuring organizational effectiveness of universities was harmonious with empirical data and in line with the research concept. That means the factors influencing background in individual and discipline consisted of: 1) organization nature (CD), 2) internal environment (IE), 3) personal characteristic (CP), and 4) policy and

management (POLM) according to the concept of Steers (1977), and Gibson et al. (2000). This reflected different organizational effectiveness (Makmee, 2016; Kao-ian, 2018).This relationship of structural culture factor impacted on organizational effectiveness of universities shall describe effect size on organizational effectiveness of universities based on individual level because it was the factor influenced on the discipline level background as individual level. However, organizational health was less important at both levels because organization's ability to function effectively, to cope adequately, to change appropriately, and to grow from within Cambodia was less on individual and discipline levels according to the results of Makmee (2016).

Conclusion

Organizational effectiveness is important to the development of the university in Cambodia. According to the research result, we found that the factor influencing Cambodia universities organization at individual and discipline levels the most was policy and management factor consisting of leadership, policy and strategic planning and communication. Therefore, if Cambodia universities need to develop organizational effectiveness, they should improve policy and management first and in terms of students' perceptions indicated that for both levels, all variables were important for representing the effectiveness. At the individual level, the most important variable was the student personality development while, at the field level, the most important variable was the staff employment satisfaction. However, organizational health was less important at both levels

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References

Cameron, K. S. (1978). Measuring organizational-effectiveness in institutions of higher-education. *Administrative Science Quarterly*, *23*(4), 604-632.

Cameron, K.S. (1986). A study of organizational effectiveness and its predictors. *Management Science*, *32*(1), 87-112.

Gibson, J. L., Ivancevich, J. M. & Donnelly, J. H. (2000). *Organizations: behavior, structure, processes*. (10th ed.). Boston: McGraw-Hill.

Goodman, P. S. & Pennings, J. M. (1980). Critical issues in assessing organizational effectiveness. In Lanler, E. E., & Seashore, S. E. (eds.). *Organizational assessment perspective on the measurement of organizational behavior and the quality of work life*. New York: John Wiley & Son.

Harrison, M. I. (1994). *Diagnosing organizations methods, models and process*. London: Sage Publications.

Katz, D. & Kahn, R. L. (1978). *The social psychology of organizations*. (2nded.). New York: John Wiley & Son.

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Kao-ian, J. (2018). The development of model for administrative good governance of administrators in islamic private schools in multicultural society. *Journal of Yala Rajabhat University, 13*(1), 27-40. (in Thai)

Makmee, P. (2016). Multilevel structural equation model of universities effectiveness in Thailand. *ASEAN Journal of Management & Innovation*, *3*(1), 43 -53.

Muthén, L. K. & Muthén, B. O. (2012). *Mplus: The comprehensive modeling program for applied researchers user's guide, Version 7.00.* Los Angeles, CA: Muthén & Muthén.

Price, J. L. & Mueller, C. W. (1986). *Handbook of organizational measurement*. Massachusetts: Pitman.

Steers, R. M. (1977). *The organizational effectiveness: a behavioral view.* Santa Monica: Goodyear Publishing.