DEVELOPMENT OF A MODEL OF ORGANIZATIONAL EFFECTIVENESS EVALUATION FOR FACULTIES OF EDUCATION: AN APPLICATION OF MULTILEVEL CAUSAL ANALYSIS

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Abstract

The objectives of the present research were: (1) to develop an effective evaluation model for faculties of education at higher education institutions in Thailand; (2) to study causal factors at the field and department levels for correlation and effect in effectiveness of faculties of education; and (3) to test invariance of a multilevel causal analysis model of faculty of education effectiveness among public universities and public autonomous universities. A total of 913 samples were stratified randomly, and consisted of 33 deans and administrators, 110 heads of field, 550 faculty members and 220 supporting staff from 4 public autonomous universities and 7 public universities in Thailand. A five-point Likert scale was used to measure the developed instruments, with Cronbach's alphas ranging from 0.780 to 0.978. Statistical analyses were made based on descriptive statistics, and Pearson's product-moment correlation using SPSS version 16.0 for Windows. Multilevel confirmatory factor analysis and multilevel causal model analysis were performed using Mplus version 5.21. The model of organizational effectiveness was described by nine variables, namely: (1) educational satisfaction; (2) academic development; (3) faculty members' satisfaction; (4) professional development; (5) system openness and community interaction; (6) ability to acquire resources and money; (7) goal attainment; (8) internal process management; and (9) learning and development. The research results showed that the perceptions of members in faculties of education in public autonomous universities regarding faculty of education effectiveness were quite high for all variables, except for the ability to acquire resources and money, which was moderate. In the case of public universities, the perceptions of faculty members were quite high for all variables, except for academic development, which was moderate. A comparison between groups of variables showed that the faculty members' satisfaction and goal attainment were higher than the other 7 variables. The proposed multilevel causal model of faculty of education effectiveness fits quite well with the empirical data set (χ^2 = 102.610, df = 71, χ^2 / df = 1.445, CFI = 0.983, TLI = 0.966, RMSEA = 0.040, $SRMR_B$ = 0.016, $SRMR_W$ = 0.003). Statistical analysis further showed that field-level variables, such as policy of management and characteristics of field, significantly affected the faculty members' perceptions of effectiveness. For department-level variables, only policy management of the unit was significant. The predictor variables at the field and department levels accounted for variance of the faculty of education effectiveness of about 75% and 55%, respectively.

Keywords: Evaluation model; Faculty of education effectiveness; Multilevel causal analysis

Introduction

In the higher education system in Thailand, faculties of education are the organizations that have the important role of producing and developing quality teachers. However state university application, out the idea that this occurred with the reform of education system in 1974, which set guidelines that institutions must be independent systems. Not part of the government until the year 1991, the government announced policies to reign in government, choice for university is two ways to remain in office but need to change regulations to streamline efficiency and effectiveness. And more public autonomous university will change is the same each university is free to manage more from the old to the University Affairs. (Commission on Higher Education) has changed the management of their own. University administrators have the power to decide the budget until the administration of academic personnel. Public autonomous university began a fact is more during the economic crisis of 1997 when the International Monetary Fund (IMF) and Asian Development Bank (ADB). This reason drive to the Thai government will have the education process. The reasons that explain the Thai government monetary and fiscal budget to support higher education unnecessarily. On 27 January 1998 the cabinet approved the conditions of the loan from the ADB, which made it clear that all public universities needed to change their status either to "corporate university in the government" or "public autonomous university" by the year 2002.

Performance indicators allow an organization to achieve mission success by evaluating the effectiveness of the organization (Cherrington, 1994). But there are several problems in measuring and evaluating a faculty of education's effectiveness and efficiency. Stufflebeam et al. (1971), Katz and Kahn (1978), Goodman and Pennings (1980), Harrison (1994), and Price and Mueller (1986) determined that these problems included: (1) variables were not covered; (2) variables were too abstract; (3) indicators were not sufficient; (4) the weights of indicators were not suitable; (5) criteria were unclear; (6) analysis was not covered; (7) causal factors were not shown; and (8) models were not sufficient.

Limitations of past research. First, the research methodology used in developing the model, regardless of realities, organization of the relationship between the levels in descending order, especially educational organization which could not determine the influence caused by variables in the level and how much of volume. Second, problems in selecting appropriate units of analysis are not made estimate the standard error is less than the true and tested statistically significant discrepancy of type 1 (type one error) over the set.

In this research multilevel causal analysis was used in the developed model with normative approach. This approach uses the principle of causal analysis and the actual state of the organization to define domain, and to develop a model for collecting data from stakeholders and other interested groups using modern evaluation techniques.

Objectives

1) To develop an effective evaluation model for faculties of education at higher education institutions in Thailand.

2) To study causal factors at both field and department levels for correlation and effect in effectiveness of faculties of education.

3) To test invariance of a multilevel causal analysis model for effectiveness of faculty of education between public universities and public autonomous universities.

Conceptual Frameworks

The meaning of the effectiveness of a faculty of education is defined as its successful operation in terms of awareness of the organizational missions by the administrator, faculty members, and support staff. The main missions include teaching, research, academic services to the community, and fostering arts and culture. Other missions are human development and exploration of an improved quality of life leading to a better, more peaceful society through educational reform and sustainable development of local communities. The researchers applied multilevel causal analysis with a normative approach for the developed model. This approach is based on the concept and principles of rational analysis of actual conditions, and an educational organization that has set the scope for developing a model study with relevant groups (stakeholders), or a system-wide evaluation of data from several groups (multi-group evaluators). Such approaches would be based on modern evaluations (Kanjanawasee, 2550) to study variables that apply to an organization's effectiveness (Steers, 1977; Birnbaum, 1992; Simmons, 1993; Judge, 1994; Gibson, lvancevich and Donnelly, 2000; LaRocco, 2003; and Rosser, Johnsrud and Heck, 2003) and use the concept of a multidimensional evaluation model (Cameron 1978, 1986; Clott, 1995; Kwan and Walker, 2003; Sowa, Selden and Sandfort, 2004) for developing the model and setting the weight score effectiveness of faculties of education at institutions of higher education in Thailand. These guidelines, as well as the Malcolm Baldrige National Quality Award (MBNQA), European Foundation for Quality Management (EFQM), and Balanced Scorecard (BSC), can be used to develop a framework of research ideas, as shown in Figure 1.

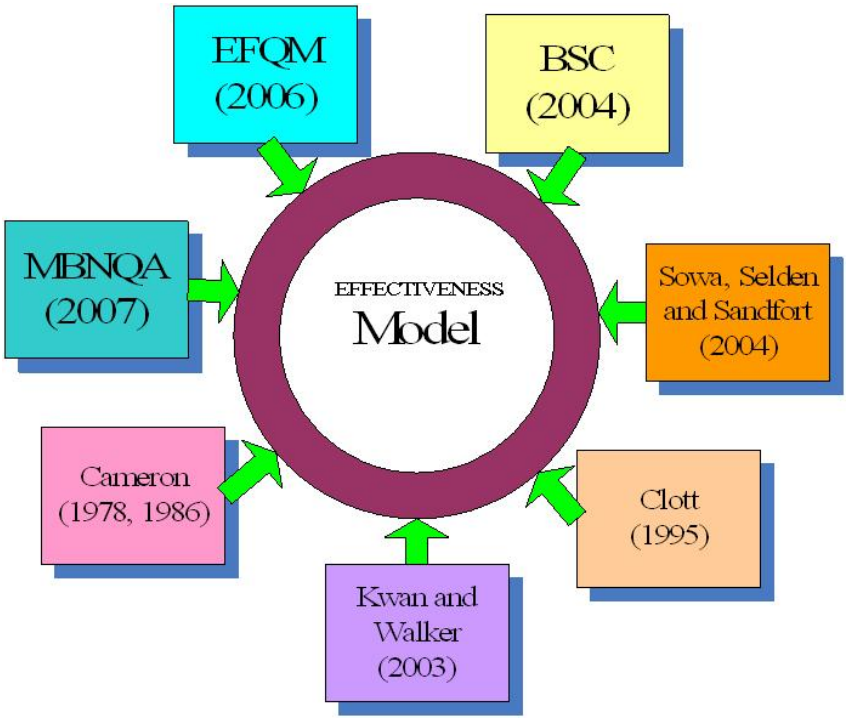

Figure 1: Conceptual framework for developed model

The conceptual framework for a multilevel causal analysis of faculty of education effectiveness displays 9 independent variables at the field and department levels, including: (1) educational satisfaction (ES); (2) academic development (AD); (3) faculty members' satisfaction (FES); (4) professional development (PD); (5) system openness and community interaction (SOCI); (6) ability to acquire resources and money (ASM); (7) goal attainment (GA); (8) internal process management (IPM); and (9) learning and development (LD). This is shown in Figure 2.

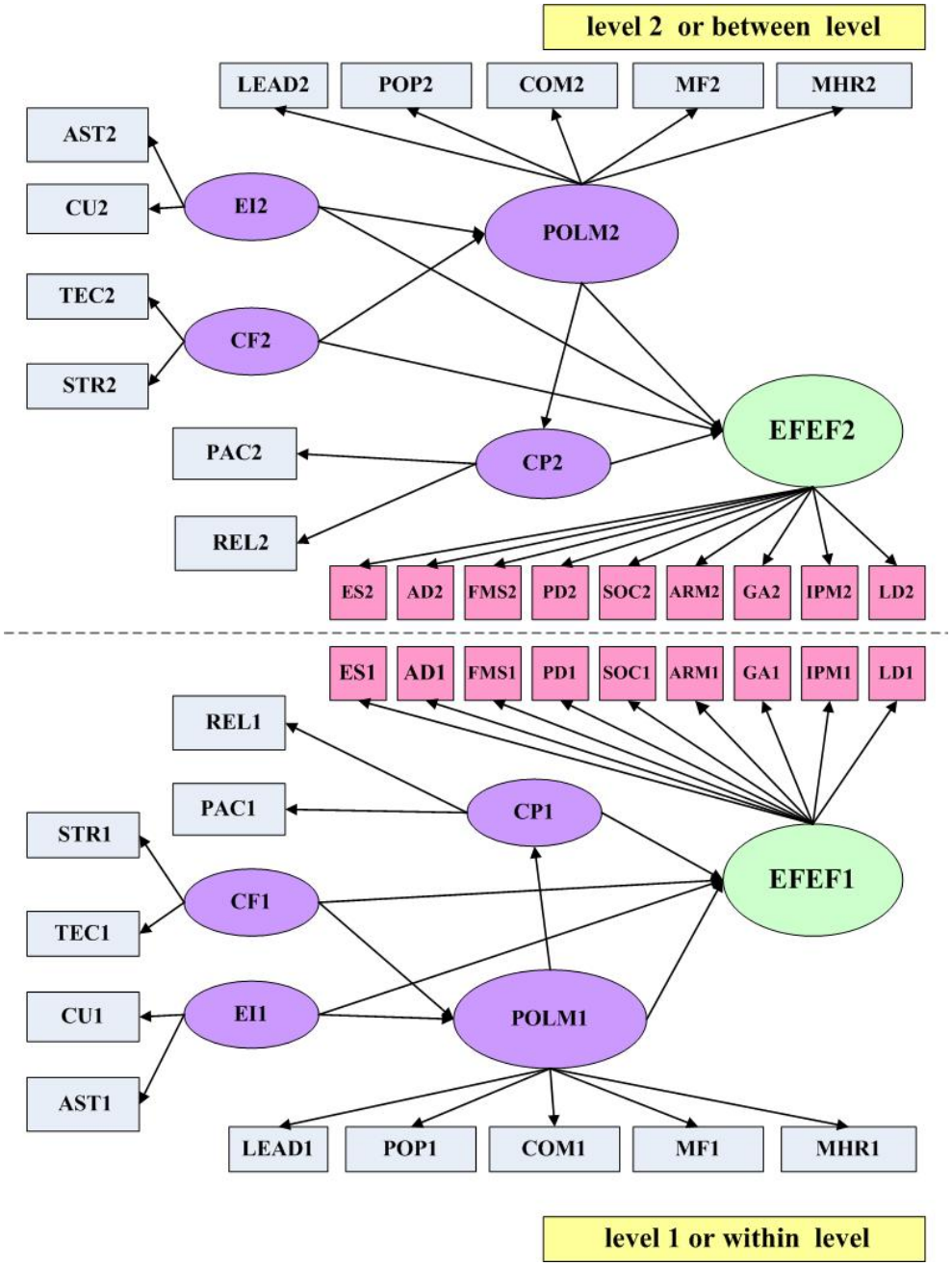

Figure 2: Conceptual framework for multilevel causal analysis

Methods

Procedure

Research and development that was used for the procedure consisted of two steps.

Step 1: Develop a conceptual framework, and a faculty of education effectiveness evaluation model based on: the MBNQA Excellence model; the EFQM Excellence model; the Balanced Scorecard model; the Cameron model; the Clott model; the Kwan and Walker model; and the Sowa, Selden and Sandfort model.

Step 2: Try out using the model with empirical data and test factors of multilevel causal analysis; check for conformation of variables in the effectiveness evaluation model; test the invariance of samples among faculties of education in Thailand; and reach a conclusion.

Participants

A total of 913 samples were stratified randomly, and consisted of 33 deans and administrators, 110 heads of field, 550 faculty members and 220 supporting staff from 4 public autonomous universities and 7 public universities in Thailand.

Instrumentation

In this study, a survey questionnaire was adopted as the research instrument. The researcher also interviewed some administrators of faculties of education in order to improve the quality of the questionnaire, which was divided into three sections, described briefly as follows:

Part 1: Demographic information – categorized questions about selected demographic variables: gender, education, academic position, work position, experience, number of research studies per year, and times of seminars. This part served as reference information for the study.

Part 2: Relationships and factors influencing the effectiveness of the disciplines of the faculty of education – a total of 120 items measured on a five-point Likert scale, with Cronbach's alphas ranging from 0.780 to 0.808.

Part 3: Effectiveness of education – 9 variables (a total of 54 items) measured on a five-point Likert scale, with Cronbach's alphas ranging from 0.810 to 0.978.

Statistics

Statistical analysis was conducted using SPSS 16.0 for Windows for analysis of Pearson's product-moment correlation. Multilevel confirmatory factor analysis and multilevel causal model analysis were performed using Mplus version 5.21.

Results

The research results showed that the perceptions of members of faculties of education in public autonomous universities towards the faculty of education's effectiveness were quite high for all variables, except for the ability to acquire resources and money, which was moderate. In the case of faculty members in public universities, perceptions were quite high for all variables except academic

development, which was moderate. A comparison between the groups of variables showed that faculty members' satisfaction and goal attainment were higher than the other variables, as shown in Table 1.

Table 1: A comparison of variables at public autonomous universities and public universities

Variables	MEAN	SD	CV%	MIN	MAX	SK	KU
Public autonomous universities (N = 332)							
1) Educational satisfaction (ES)	3.818	0.366	2.570	2.120	5.000	0.626	3.818
2) Academic development (AD)	4.039	0.387	2.330	1.000	5.000	1.498	4.039
3) Faculty members' satisfaction (FMS)	4.243	0.621	2.600	1.000	5.000	0.924	4.243
4) Professional development (PD)	3.767	0.609	1.880	1.000	5.000	0.182	3.767
5) System openness and community interaction (SOCI)	3.823	0.527	2.330	0.000	5.000	-0.509	3.823
6) Ability to acquire resources and money (ARM)	3.133	0.730	1.600	1.000	5.000	-0.555	3.133
7) Goal attainment (GA)	4.103	0.577	2.000	1.000	5.000	-0.375	4.103
8) Internal process management (IPM)	3.742	0.576	2.000	1.000	5.000	-0.065	3.742
9) Learning and development (LD)	3.737	0.670	2.000	1.000	5.000	-0.573	3.737
Public universities (N = 581)							
1) Educational satisfaction (ES)	3.882	0.366	2.857	1.578	4.571	-0.565	3.882
2) Academic development (AD)	3.171	0.395	2.667	1.000	4.667	-0.787	4.071
3) Faculty members' satisfaction (FMS)	4.372	0.449	3.600	1.000	5.000	-1.148	4.372
4) Professional development (PD)	3.806	0.677	2.375	1.000	4.875	-0.047	3.806
5) System openness and community interaction (SOCI)	3.610	0.489	2.500	1.000	5.000	0.434	3.610
6) Ability to acquire resources and money (ARM)	3.604	0.462	2.600	1.000	4.400	0.324	3.604
7) Goal attainment (GA)	4.127	0.508	3.000	1.000	5.000	0.190	4.027
8) Internal process management (IPM)	3.824	0.367	3.000	1.000	4.286	-0.734	3.824
9) Learning and development (LD)	3.818	0.611	3.000	1.000	5.000	-0.815	3.818

Note 1. Public autonomous universities $SE_{SK} = 0.101$ $SE_{KU} = 0.202$

2. Public universities $SE_{SK} = 0.134$ $SE_{KU} = 0.267$

The proposed multilevel causal model of faculty of education effectiveness fits quite well with the empirical data set ($\chi^2 = 102.610$, $df = 71$, $\chi^2 / df = 1.445$, CFI = 0.983, TLI = 0.966, RMSEA = 0.040, $SRMR_B = 0.016$, $SRMR_W = 0.003$). Statistical analysis further showed that field-level variables, such as management policy, and field characteristics significantly affected the faculty members' perceptions of effectiveness. For department-level variables, only policy management of the unit was significant. The predictor variables at the field and department levels accounted for variance of effectiveness of about 75% and 55%, respectively (details shown in Table 2).

Table 2: Weighted values of the element indicators in the multilevel causal model of faculty of education effectiveness

Observed variables	Field-level (within groups: W)				Department-level (between groups: B)				Intraclass Variable Correlation (ICCs)	Intercepts or average group means
	β	SE	Z	R^2	β	SE	Z	R^2		
Measurement model of faculty of education effectiveness										
1) Educational satisfaction (ES)	0.793	0.308	3.876	0.504	0.818	0.101	8.068	0.670	0.594	3.910
2) Academic development (AD)	0.662	0.150	4.410	0.464	0.658	0.177	5.328	0603	0.438	4.434
3) Faculty members' satisfaction (FES)	0.681	0.195	1.958	0.645	0.748	0.156	4.787	0.560	0.532	4.370
4) Professional development (PD)	0.637	0.360	3.491	0.688	0.611	0.295	2.053	0.597	0.459	4.057
5) System openness and community interaction (SOCI)	0.631	0.187	2.765	0.609	0.697	0.158	4.421	0.486	0.549	3.758
6) Ability to acquire resources and money (ASM)	0.621	0.222	2.797	0.786	0.659	0.190	3.459	0.634	0.649	3.219
7) Goal attainment (GA)	0.769	0.225	2.755	0.729	0.579	0.175	3.316	0.736	0.391	4.087
8) Internal process management (IPM)	0.723	0.177	2.130	0.541	0.917	0.048	19.157	0.840	0.666	3.832
9) Learning and development (LD)	0.701	0.190	2.003	0.610	0.937	0.069	13.541	0.878	0.557	3.795
Measurement model of internal environment										
1) Atmosphere (AST)	0.994	-	-	0.544	0.537	-	-	0.737	0.005	4.221
2) Culture (CU)	0.237	-	-	0.445	0.651	-	-	0.531	0.031	5.528

Observed variables	Field-level (within groups: W)				Department-level (between groups: B)				Intraclass Variable Correlation (ICCs)	Intercepts or average group means
	β	SE	Z	R^2	β	SE	Z	R^2		
Measurement model of characteristics										
1)Technology (TEC)	0.737	0.000	25.889	0.989	0.771	-	-	0.795	0.008	3.662
2) Structure (STR)	0.741	0.007	31.614	0.056	0.457	-	-	0.409	0.008	3.959
Measurement model of personnel										
1) Professional and academics (PAC)	0.623	-	-	0.641	0.417	-	-	0.740	0.031	5.170
2) Relationship (REL)	0.421	-	-	0.510	0.737	-	-	0.778	0.010	5.274
Measurement model of policy and management										
1) Leadership (LEAD)	0.523	0.018	1.230	0.641	0.814	0.054	21.007	0.713	0.001	4.087
2) Policy and planning (POP)	0.601	0.050	3.103	0.410	0.811	0.056	12.141	0.718	0.023	4.649
3) Communication (COM)	0.723	0.177	2.130	0.541	0.917	0.048	19.157	0.840	0.016	3.916
4) Management of finance (MF)	0.701	0.190	2.003	0.610	0.937	0.069	13.541	0.878	0.012	5.329
5) Management of human resources (MHR)	0.601	0.150	2.803	0.520	0.717	0.109	12.541	0.678	0.002	4.197

$\chi^2 = 102.610$, $df = 71$, $p = 0.1062$ $\chi^2 / df = 1.445$, CFI = 0.983, TLI = 0.966,

RMSEA = 0.040, $SRMR_B = 0.016$, $SRMR_W = 0.003$ *(Mplus 5.21 standardized estimates)*

R^2 of causal model faculty of education effectiveness (field-level) = 0.751

R^2 of causal model faculty of education effectiveness (department-level) = 0.552

Average cluster size = 36.704 Number of departments = 51

Conclusion

This research was to develop an effective evaluation model for faculties of education at institutions of higher education in Thailand. The validation model for faculties of education in public autonomous universities was quite high for all variables, except for the ability to acquire resources and money, which was moderate. But the perceptions of faculty members in public universities were quite high for all variables, except for academic development which was moderate. A comparison between groups of variables showed that the faculty members' satisfaction and goal attainment were critical variables (Cameron, 1978, 1986; Clott, 1995; Kwan and Walker, 2003; Sowa, Selden and Sandfort, 2004; Balanced Scorecard, 2004; European Foundation for Quality Management, 2006; and Malcolm Baldrige National Quality Award, 2007).

The proposed multilevel causal model of faculty of education effectiveness fits quite well with the empirical data set. Statistical analysis further showed that the field-level variables, such as policy of management, and characteristics of field significantly affected the faculty members' perceptions of the faculty's effectiveness. In the case of department-level variables, only policy management of the unit was significant (Steer, 1977; Gibson, lvancevich and Donnelly, 2000). The predictor variables at the field and department levels accounted for variances of effectiveness of about 75% and 55%, respectively.

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