A STRUCTURAL MODEL OF INNOVATIVE LEADERSHIP AFFECTING THE PROFESSIONAL LEARNING COMMUNITY IN SCHOOLS UNDER THE SECONDARY EDUCATIONAL SERVICE AREA OFFICE 25

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Abstract—This study aimed to shed light on linear structural relationship model of innovative leadership and professional learning community in schools under the Secondary Educational Service Area Office 25, Thailand. This study utilized quantitative survey design using questionnaire as an instrument. A total of 380 samples consisted of 17 school administrators and 363 teachers were involved. Findings indicated that school administrators were highly practicing innovative leadership and its dimensions as well as professional learning community practice. In addition, results revealed that the model of relationship between innovative leadership and professional learning community found to be consistent with empirical data, with $\chi^2 = 25.016$, df $= 18$, $p$-value $= 0.1245$, RMSEA $= 0.032$, SRMR $= 0.019$, CFI $= 0.996$, TLI $= 0.993$. On top of that, both total and direct influences of innovative leadership on professional learning community were found to be positive at 0.941, with statistical significance at 0.01 level. Innovative leadership could explain the variance of professional learning community at 88.6 percent.

Index Terms—Innovative Leadership, Professional Learning Community, Structural Equation Model.

I. INTRODUCTION

Innovative leadership refers to creating a different leadership style in school organization to stimulate teachers so that they will produce creative ideas, products, services, and solutions. An innovative leadership approach will be able to support the mission or vision achievement of an organization or group [1]. In order to guarantee schools to continue success and stay competitive, it is an obligation for organization to think innovatively. Use italics for emphasis; do not underline [2][3][4][5]. In other word the changing trend is heading towards an innovation era.

Current education requires school administrators to be a key person to propel quality educational management. Thai government has been taken significant steps to highly emphasize the importance of quality life-long learning among Thai people as indicated in Thai strategic plan for the 2nd Decade of Educational Reform (2009-2018). School based management has been promoted to encourage holistic participation from the society and community in educational administration and management. As a result, teachers’ participation in professional learning community is believed would be a strong foundation to improve the quality of education which in line with the standard and the changing of the society. This is because human resource would be able to develop by promoting a comprehensive and substantial professional learning community [6].

Innovative leadership refers to the impacts of school administrators on the work process of teachers in the school organization for constructing the innovation thus accomplishing the goals that leading to changes in increasing school values. Innovative leadership includes the following five dimensions namely strategic management (MST), creative thinking (CRE), creation of learning environment (OCK), work participation (PART), and risk management (RISK). Strategic management (MST) in this study is defined as innovative leader who is able to give clear vision based on holistic point of view, nurture staff ownership and commitment to adapt for new pedagogies. Creative thinking (CRE) means that cognitive understanding of innovative leader on how to think creatively, optimism, creating positive culture to encourage staff to decide new initiatives freely, and supporting staff’s innovative thinking and actions. Work participation (PART) is referred to innovative leadership which promoting collaboration, challenging professional learning, encouraging staff and community networking, and creating diverse teams to address strategic issues. Creation of learning environment (OCK) is defined as modeling new behavior that facilitate a shift in culture, supporting innovation modeling learning through action research and supportive process, involving teachers in the innovative use of technology, promoting ICT across school curriculum and student centered learning, creating positive learning environment, and promoting learning community using information technology. Risk management (RISK) means innovative leader is able to manage uncertainty issues and believe in change, risk-taking, experimenting and supporting staff to become co-learners, and supporting risk taking.

On the other hand, professional learning community refers to teachers’ collectivistic practice to promote their professional development and further improve their students’ quality development. Professional learning community encompassed four components, namely shared vision (VIS), encouragement and...
shared leadership (LEAD), team and learning network (TEAM), and supportive structure (SUP).

II. PROBLEM STATEMENT

Professional learning community would make teacher be able to reach optional capacity as well as the change of their role from ‘teacher’ to be ‘coach’ or ‘learning facilitator’ and have to work collaboratively [7]. In short, professional learning community is a collective working society which required teachers’ involvement in the process of learning and experiencing professional development together systematically and continuously. Therefore these practices correspond to teachers’ learning hours as emphasized in a comparative study in Japan. However these practices was found to be taken up teachers’ teaching hours, teachers’ resting time as well as the time teachers need to spend for meeting and consulting with their colleagues.

According to the specification of the 1999 National Education Act [8], it is the school administrators’ responsibility to develop, promote, and enhance teachers’ abilities and capabilities as learners in school which is an important institute for human development in order to maintain competitiveness. On this line of reasoning, one of the major components of professional learning community construction is the vital role of school administrator in transferring policy into concrete implementation. To what extent the school administrators are able to guide and support the teachers to be aware of the importance of professional learning community is yet to be questionable. Subsequently, school administrators should be the key persons who dedicate to promote innovation among the teachers of their schools who in turn will create innovation in their teaching and learning process. Therefore school administrators have to equip with innovative behaviors in order to transform the changes and support innovation building under their administration.

III. OBJECTIVES OF THE STUDY

The main objective of this research was to study the linear structural relationship model of innovative leadership of school administrators and professional learning community of the schools under the Secondary Service Area Office 25, Thailand. More specifically, researchers seek to: (i) identify innovative leadership and its dimensions practiced by school administrators and professional learning community of their schools; (ii) test the goodness of fit with the empirical data, and (iii) study the influence of innovative leadership and professional learning community.

IV. METHODOLOGY OF THE STUDY

Researchers employed survey questionnaire as a method to collect quantitative data. Target group were 4,023 school principals and teachers who affiliated to the 84 schools under the administration of Secondary Educational Service 25, Thailand during academic year of 2015. The sample size was obtained per parameter in the ratio of 20:1. Since there were 19 parameter, required sample size was 380 respondents. Multistage sampling technique was administered to select samples according to school size and location, followed by the simple random technique. Structural Equation Modelling (SEM) was utilized in this study in order to fit the model. SEM is a combination of factor analysis and regression or path analysis. The interest in SEM is often on theoretical constructs, which were represented by the latent factor. In this study, there were two types of latent factor namely exogenous latent factors consisted of innovative leadership (INNO) and its dimensions like strategic management (MST), creative thinking (CRE), creation of learning environment (OCK), work participation (PART), and risk management (RISK) and endogenous latent factors comprised of professional learning community (PLC) and its components such as shared vision (VIS), encouragement and shared leadership (LEAD), team and learning network (TEAM), and supportive structure (SUP).

The relationships between the theoretical construct are represented by regression or path coefficients between the factors. The SEM implies a structure for the covariance between the observed variables. In this study, the purpose of SEM is twofold. Firstly, it aims to obtain estimates of the parameters of the model, for example, the factor loading, the variances and covariance of the factor, and the residual error variances of the observed variables. The second purpose is to assess the fit of model, for example to assess whether the model itself provides a good fit to the empirical data. Absolute fit indices determine how well a prior model fits the sample data [9] and demonstrates which proposed model has the most superior fit. These measures provide the most fundamental indication of how well the proposed theory fits the data. Unlike incremental fit indices, their calculation does not rely on comparison with a baseline model but is instead a measure of how well the model fits in comparison to no model at all [10]. Included in this category are the Chi-Square test, RMSEA, GFI, AGFI, the RMR and the SRMR.

SEM provides a very general and convenient framework for statistical analysis that includes several traditional multivariate procedures, for example factor analysis, regression analysis, discriminant analysis, and canonical correlation, as special case. Structural equation models are often visualized by a graphical path diagram. The statistical model is usually represented in a set of matrix equation. Mplus which is utilized in this study allows the model to be specified in a graphical way, by letting the user draw the path
diagram directly in an interactive command window.

V. RESULTS OF THE STUDY

All the 380 distributed questionnaires have been successfully collected, giving a response rate as 100 percent. Table 1 below shows the identification on the level of variables proposed by [11].

Table 1 Interpretation of variable level based on mean score

<table>
<thead>
<tr>
<th>Mean score range</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.50 – 5.00</td>
<td>Highest</td>
</tr>
<tr>
<td>3.50 – 4.49</td>
<td>High</td>
</tr>
<tr>
<td>2.50 – 3.49</td>
<td>Medium</td>
</tr>
<tr>
<td>1.50 – 2.49</td>
<td>Low</td>
</tr>
<tr>
<td>1.00 – 1.49</td>
<td>Lowest</td>
</tr>
</tbody>
</table>

A. Innovative Leadership and Professional Learning Community

Table 2 shows the mean scores and standard deviations of innovative leadership dimensions namely strategic management (MST), creative thinking (CRE), creation of learning environment (OCK), work participation (PART), and risk management (RISK) from school principals and teachers’ perceptions. As indicated in Table 2, the mean score for all the five innovative leadership dimensions ranged from 4.003 to 4.133. Average mean score of innovative leadership was 4.071.

The result of the study revealed that the innovative leadership aspects from respondents’ perceptions were at high level. Considering the first three orders, found that the highest level was strategic management (MST) ( = 4.133, SD = 0.615). The second order was creative thinking (CRE) ( = 4.077, SD = 0.662). The third order was creation of learning environment (OCK) ( = 4.076, SD = 0.645). This is followed by work participation (PART) ( = 4.068, SD = 0.695). The innovative leadership dimension with the lowest level of average value was risk management (RISK) ( = 4.003, SD = 0.672).

Table 2 Innovative leadership practice

<table>
<thead>
<tr>
<th>INNODimensions</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MST</td>
<td>4.133</td>
<td>0.615</td>
</tr>
<tr>
<td>CRE</td>
<td>4.077</td>
<td>0.662</td>
</tr>
<tr>
<td>OCK</td>
<td>4.076</td>
<td>0.654</td>
</tr>
<tr>
<td>PART</td>
<td>4.068</td>
<td>0.695</td>
</tr>
<tr>
<td>RISK</td>
<td>4.003</td>
<td>0.672</td>
</tr>
<tr>
<td>Total</td>
<td>4.071</td>
<td>0.583</td>
</tr>
</tbody>
</table>

B. Factor Loading and Validity of Observable Variables in the Relationship Model

As indicated in Table 4 below, factor loading values of all innovative leadership dimensions ranged from 0.710 to 0.880 are statistically significant at 0.01. Factor loading is the importance of standard factors of each dimension in the relationship model of innovative leadership and professional learning community that had been taken into consideration. The co-variance with innovative leadership was from 50.5 to 77.4 percent. The innovative leadership dimension with the highest factor loading was risk management (RISK). This is followed by creation of learning environment (OCK), work participation (PART) and creative thinking (CRE) respectively. The dimension that had the lowest factor loading was strategic management (MST). As a result, all the exogenous latent factors are found to be important construct of innovative leadership.

On the other hand, as for constructs of professional learning community showed the factor loading values from 0.412 to 0.861 are statistically significant at 0.01. The co-variance with school innovation was from 0.500 to 0.762 percent. The professional learning community component with the highest factor loading was shared vision (VIS), followed by supportive structure (SUP) and encouragement and shared leadership (LEAD) respectively. The professional learning community component receiving the lowest factor loading was team and learning environment (TEAM). All the constructs of professional learning community were important. According to Figure 1, the Pearson correlation coefficients between innovative leadership (INNO)
and professional learning community (PLC) can be assessed in the standard component score (β) as 0.941 which shows significantly high and positive correlations at 0.01. This means that if innovative leadership is high, professional learning community value will be high too. Besides, it was found that the relationship model of innovative leadership and professional learning community has goodness fit with evident data, with $\chi^2 = 25.016, df = 18, \chi^2/df = 1.3898, p = 0.1245, RMSEA = 0.032, SRMR = 0.019, CFI = 0.996, TLI = 0.993$ as shown in Table 4 and Figure 1.

Table 4 Factor loading and validity in the relationship model

<table>
<thead>
<tr>
<th>Component Of Measuring Model</th>
<th>β</th>
<th>SE</th>
<th>t</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>MST</td>
<td>0.710**</td>
<td>0.030</td>
<td>23.864</td>
<td>0.505</td>
</tr>
<tr>
<td>CRE</td>
<td>0.767**</td>
<td>0.026</td>
<td>29.938</td>
<td>0.588</td>
</tr>
<tr>
<td>OCK</td>
<td>0.843**</td>
<td>0.020</td>
<td>42.081</td>
<td>0.710</td>
</tr>
<tr>
<td>PART</td>
<td>0.814**</td>
<td>0.022</td>
<td>37.007</td>
<td>0.662</td>
</tr>
<tr>
<td>RISK</td>
<td>0.880**</td>
<td>0.034</td>
<td>26.054</td>
<td>0.774</td>
</tr>
<tr>
<td>PLC</td>
<td>0.941**</td>
<td>0.028</td>
<td>33.516</td>
<td>0.866</td>
</tr>
<tr>
<td>VIS</td>
<td>0.762**</td>
<td>0.028</td>
<td>27.028</td>
<td>0.581</td>
</tr>
<tr>
<td>LEAD</td>
<td>0.615**</td>
<td>0.035</td>
<td>18.415</td>
<td>0.416</td>
</tr>
<tr>
<td>TEAM</td>
<td>0.500**</td>
<td>0.042</td>
<td>11.834</td>
<td>0.250</td>
</tr>
<tr>
<td>SUP</td>
<td>0.685**</td>
<td>0.032</td>
<td>21.312</td>
<td>0.468</td>
</tr>
</tbody>
</table>

Fig. 1: Coefficient of standard factor loading

C. Direct, Indirect, and Total Influences of Innovative Leadership on Professional Learning Community

Finding revealed that there was direct (DE) and positive influence of innovative leadership (INNO) as 0.941 ($p < 0.01$). In other word, the variable of innovative leadership was able to explain the variance of professional learning community (INOR) as 88.6 percent, as shown in Table 5.

Table 5 Direct, Indirect, and total influences of INNO on PLC

<table>
<thead>
<tr>
<th>Variables</th>
<th>DE</th>
<th>PLC</th>
<th>IE</th>
<th>TE</th>
</tr>
</thead>
</table>
| INNO      | 0.941** | -   | 0.941*

**p<0.01

VI. DISCUSSION

Descriptive finding of innovative leadership practiced by school administrators showed a high mean score. This is because of the Secondary Educational Service Area Office 25 monitored and supported the schools to set visions, strategies and goals that agreed with the organizational needs. The SWOT Analysis both of the internal and external surroundings was conducted. Strategic plans were communicated and translated to concrete implementation with an emphasis placed on work participation. Traditional framework and styles were not necessarily practiced, but chances were given to personnel to propose new ideas in creating innovations according to their interest. Moreover, the organizational atmosphere was openly built in such a way that exchange and share of instructional problems are encouraging. The personnel were encouraged to develop learners’ learning qualities using action research. Community networking also supported school management. In addition, the situation and the arising outcomes have been evaluated so as to create innovations. This finding correlates to the research study of [12] on innovative leadership that affects organizational capacities of the schools under the Secondary Educational Service Area Office 21. The [12]'s study showed that the overall innovative leadership of school principals was at the high level in all dimensions.

The result of this study indicated that professional learning community and its components were at high levels. When considering each aspect, the components, listed from high to low, are as follows: shared vision, supportive structure, encouragement and shared leadership, and team and learning network. This was because the Secondary Educational Service Area Office 25 promoted the professional learning community both within the same school and among schools or other organizations affiliated with the Office of Basic Education. Networks in management and cooperation, instruction, and in-country and overseas research were established. In addition, area development was enhanced in which all sectors participated to improve the school system in the cooperative thinking. The network for educational development functions between one school to the other school, with professional organizations, individuals, and other organizations and societies [13]. This result is found to be correlated to the research work of [14] on the organizational atmosphere that affects the teaching profession learning community in KhonKaen Municipality. [14]’s findings indicated
that the overall and its components, organizational atmospheres were at high level. The major focus of this study was on the importance of standard factor loading of each variable in the relationship model of innovative leadership of school administrators and professional learning community. Findings of this study revealed that all the dimensions of innovative leadership show the factor loading values from 0.710 to 0.880, with statistically significant at 0.01. The co-variance with innovative leadership correlates well with the empirical data with statistical significance [15]. Hence findings also indicated that all the five dimensions of innovative leadership namely strategic management (MST), creative thinking (CRE), creation of learning environment (OCK), work participation (PART), and risk management (RISK) are important for innovative leadership practiced by school administrators. As a result, findings seem to be in accordance with theory and previous research studies.

On the other hand, all the components of professional learning community had the factor loading values from 0.500 to 0.762, with statistical significance at 0.01 (p<.01). The co-variance with professional learning community from 25.0 to 51.8 percent, showing that all the synthesized factor of professional learning communities correlates quite well with the empirical data [15]. As a result, researchers obtained all the four components of professional learning community namely shared vision (VIS), encouragement and shared leadership (LEAD), team and learning network (TEAM), and supportive structure (SUP) and considered as important variables of professional learning community. As a conclusion, this finding is in line with concepts, theories, and past research works to the components of professional learning community.

The degree of correlation between innovative leadership and professional learning community was indicated by the standard factor loading (β = 0.941), which was high and positive with statistically significance at 0.01. Moreover, it was found that the relationship model of innovative leadership and professional learning community correlated very well with the empirical data with statistically significance. This shows that the innovative leadership of school administrators and professional learning community correlated in the same direction. In short, if school administrators have highly practiced innovative leadership, their professional learning community degree will be high too. Nevertheless finding revealed that this model of relationship between innovative leadership and professional learning community was found to be consistent with empirical data with β = 0.941, \( \chi^2 = 25.016, df = 18, \chi^2/df = 1.3898, p = 0.1245, \) RMSEA = 0.032, SRMR = 0.019, CFI = 0.996, TLI = 0.993 as what has been proposed by researchers. As a result, this means that innovative leadership and professional learning community model may explain the relationship between innovative leadership and professional learning community closely. The results of the study of direct, indirect, and total influences of innovative leadership on the professional learning community of the schools revealed that innovative leadership had direct positive influence on the professional learning community at 0.941 (p<.01). The variables of innovative leadership in the model could explain the variance of the professional learning community at 86.6 percent. The observed variable of innovative leadership showing the highest coefficient factor loading in the form of standard score was risk management perspective. The schools summarized the implementation results and evaluated the success of problem and obstacle solving. They also determined ways to improve the school’s operation to correspond to [16] which states that risk management contributes to the capacity of official organizations to plan their operation, aims, and appropriate and efficient implementation.

**CONCLUSION**

The Secondary Educational Service Area Office 25 should promote team working and learning network to drive forward the professional learning community in the school by means of cooperation, promotion, building of learning network with other organizations, encouraging sharing and exchanging of knowledge among teachers, supervising, mentoring, and providing venues for friendly exchanges of successful activities with the network. In addition, the Secondary Educational Service Area Office 25 should promote risk management planning by setting measures or implementation plans that build knowledge and understanding for teachers in order to concretely mitigate, solve, or prevent arising risks. The results of validation of goodness of fit of the empirical model indicated that propelling the professional learning community in a school requires development of all components of innovative leadership. Therefore, organizations related to educational administration should organize integrated development of innovative leadership because the professional learning community in a school is possible through influences of all components of innovative leadership. This study found to have the above mentioned aspects of innovative leadership supported the proposition that innovative leadership associated with professional learning community practices. Innovative leadership aspects emerged as supporting the process of professional learning community practices in the context of this study. The overall findings of this study are useful for the policy makers, educational administrators, educators and practitioners. Empirical development in school organizations largely neglects to recognize innovative as an element of school leadership. This study provides empirical justification that innovative leadership in particular is crucial in the construction of professional learning community.
practices. Such findings establish school organization as a social process rather than as economic logic. The richness and justification of data reveals its valuable contribution of knowledge from an academic prospective. This study also contributes to the work of school administrators in several ways. The findings highlighted the important of innovative, and thus acknowledge the managerial implications of incorporating innovative based professional learning community into the educational administration system.

There were several limitations noted. The general limitation is the scope of the study. Therefore future researchers are encouraged to conduct multiple models where individuals, organizations or educational areas are taken into account. In addition, a research conceptual framework should be developed into a model for instilling innovative leadership of school administrators in order to create effective professional learning community of school organization. A truly application of this significant research results into practices in the future is necessity.

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