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Full Length Research Paper

Developing necessary leadership characteristics indicators of Secondary Basic School Administrators in Thailand

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This research aimed to develop the necessary leadership characteristics indicators of the secondary basic school administrators in Thailand. The samples were grouped into four including: (1) 10 specialists in the secondary educational administration, (2) 10 secondary school administrators of the educational quality assessment and its result with the best level, (3) 120 participants in the exploratory group and (4) 986 participants in the experimental group. The research instruments were the interview form and the questionnaires. The statistics for analyzing the data covered the descriptive statistics and the factor analysis. The exploratory factor analysis resulted in 5 factors and 51 indicators, as follows: 12 indicators of skills, 6 indicators of knowledge, 12 indicators of leadership, 11 indicators of characteristics, and 9 indicators of working style. A second order confirmatory factor analysis was administered using Mplus Version 7.2. The results showed that the construct validity of the factor analysis model was correlated with the empirical data at a relatively high level. Also, the necessary leadership characteristic having the highest factor value loading coefficient in decision making was leadership ($\beta = 0.999$), ($R^2 = 0.998$).

Key words: Leadership characteristics, indicators, secondary basic school.

INTRODUCTION

For the education reform, Office of the Nation Council, Thailand (2019) organized the meeting for raising the blueprint drafts in the school administrators' competencies in the new-era. As the main purposes, the chairman of the Independent Committee for the Educational Reform proposed for the consideration in the main theme of the school administrators' competencies focused on the school-center in the educational reform.

Therefore, the school administrators became the important goal factor, for the fulfillment emphasized on the administrators' competencies, on the ground that the administrators must be the master over the new-era organization leaders. This point includes 3 major competencies comprising 1) learning leader, competency 2) brain and behavior, and competency, and 3) change and challenge. Besides, the importance of this is stated in

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the Nation Education Plan during the years 2017 to 2036 E.D. drafted by Office of the Nation Council, Thailand (2017) as mentioned in Strategy 6: the efficient development of education management system including that the administrators: 1) have the system of managing structures, roles and education management system containing agility and clarity enabling to inspect, 2) have the educational management system to cause the efficiency and effectiveness affecting the educational quality and standard, 3) must promote every social sector to participate in the educational management response to people and areas, 4) must seize the law and the management model in educational resources to support different characteristics of learners, schools, and the needs of the national labor, and 5) must have the personnel management systems of teachers and the educational personnel to have the fairness so as to create the morale and promote fully working potential.

From the importance and necessity of the education reform, stating that the school administrators are responsible for leading the school organizations to achieve their goal, Thai Teachers Council (2018) also regulated the school administrators' necessary leadership characteristics as the rules indicating the school administrators' professional standard and ethics. Hence, the administrators have to establish their standard of knowledge and experience, covering different administration duty affairs in academy, business, finance and materials, personnel, students, quality assurance, information technology management, public relation and community relationship. Additionally, the professional administrators have to obtain the necessary training for the professional ethics, self-disciplines, self development, personality, vision and general characteristic attributes. Nevertheless, as in the current education system, Office of the Nation Council, Thailand ONCE (2017) proposed the problems facing the educational management. Especially at the school level, there have been a variety of problem cases, comprising management quality and standard in every educational level, as well as inappropriate educational management in schools lacking agility, equality in opportunity and educational equality. Moreover, there are also ethical problems, lack of awareness in the importance of having disciplines, honesty, and public mind, influencing the educational system in connection to the lower educational evaluation results.

In assessing school management quality, Patipunt et al. (2013) pointed out that educational institutions as schools have become major human production resources, and as such, there must be administrators with high leader characteristics that will enable them lead the organizations to keep pace with changes both in technology and solving conflicts between school personnel. Mainly, the administrators act as motivators for all school subordinates to be devoted and be willing to work successfully. As a mentioned necessity, the

administrators must be capable of developing new things and ideas alongside continual self-development for subordinates' beliefs and acceptance leading to final working success. Apart from the mainly important roles of administrators, the external quality assessment results assessed by the Office of Standard Guarantee and Educational Quality Assessment (SGEQA) given by Runcharoen (2013) as first report for 17,362 basic school administrators, summarily indicated that the administrators' assessment results passed the criterion in only 45% and was below the criterion in 55% of the administrator numbers. From the stated assessment data, they imply that the educational system still encountered the problems. One significant problem factor indicated that the school administrators were not effective enough to establish the educational quality in the academic excellence and other affairs. Additionally, Muangthong et al. (2013) studied the factors influencing the school management effectiveness and found that the overall management effectiveness of the school was revealed in the most level; however, the aspect of the administrators' educational leadership was lower than the other aspects. When analyzing the factors affecting effectiveness, it found the positive correlation between the school management effectiveness and the administrators' educational leadership at the statistical significance level of 0.01. Finally, the report from the Thailand Research Fund, concluded by Pantasen (2017) also specified that the problems on the educational administration became the significant factor detaining the education reform in association with the school administrators. The main point was that the administrators were not ready to work in terms of the academic disadvantage because they lacked the academic leadership, did not improve the current curriculum to be update and finally, did not promote the academic development.

As for the problem earlier stated, the administrators became the major factor in educational development in Thailand context. Also, the mentioned reason indicated that the administrators' necessary educational leadership correlated to the school management effectiveness. As for the crucial administrators' potentials and duty roles as Patipunt et al. (2013) early stated in the necessary leadership characteristics indicators of school administrators, they also expressed that the qualified school administrators' requiring the leadership characteristics should include the major domains in skills, knowledge, leadership practices, characteristics and working style enabling the school to attain the school quality management. Finally, the study of Amdonkloi (2015) reported that the proposed idea in the school administrators' roles in the 21st century summarized that the educational leadership model explaining the administrators' leadership characteristics focused on qualities, knowledge and skills.

From the importance and necessity of the factor

concerning the school administrators' educational leadership, the current research focuses on the necessary educational leadership enabling the educational management quality. Particularly, the school administrators become the main performers to develop different learners' competencies as regulated in the 2017 Basic Education Core Curriculum, comprising knowledge in every learning area, learner characteristics, life skills, creative thinking and communication. Furthermore, the secondary school administrators became the harder performers to administrate the schools with the secondary learners who are teenagers with full potentials aimed at further study of the upper educational level as higher education or entering the professional institutions. Hence, the administrators' necessary educational leadership characteristics can be the crucial factor in school administration to effectively achieve the secondary education goal. Herein, the researcher is interested in the study of the development of the necessary educational leadership characteristics indicator of Basic School Administrators under the Office of Secondary Education Area during the National Education Plan B.E. 2560 – 2579, wishing to find the indicators capable of collecting the information data and framing it into the current educational policy in the administrator development. For the sake of development, the higher administrators may be able to take the indicator results to regulate the policy plans and to develop and reform the educational quality. Additionally, the indicators can be used for problem determination or decision making, in association with the secondary school administration as a plan for problem solving guidelines to effectively move the education administration in Thailand forward.

The objective of this study is to study the development factors of the necessary leadership characters indicators of the secondary basic school administrators in Thailand, and confirm the developmental factors of the necessary leadership characters indicators of the secondary basic school administrators under the Office of Secondary Education Area in Thailand along with the empirical data.

Hypothesis

It is hypothesized that the necessary leadership characteristics indicators of secondary basic school administrators that the researcher constructed and developed are consistent with the empirical data when tested for the consistency of the structural relationship model of the necessary leadership characteristics indicators of secondary basic school administrators in Thailand.

Conceptual framework

The framework contents of the study included the

leadership characteristics derived from the analyzed and synthesized documents, theoretical concepts and related research involving the necessary leadership characteristics of the secondary basic school administrators in Thailand, covering 5 domains of: 1) skills, 2) knowledge, 3) leadership, 4) characteristics and 5) working styles. However, the leadership characteristics are based on the theoretical concepts in the National Education Plans during 2017 - 2036 B.E., and the Thai educational concepts in the 21st Century in case of the administrators' necessary leadership characteristics. As for the research conduct, this had been performed beginning from April 1, 2018 until May 30, 2019. Conclusively, the major concepts involved are subsequently stated.

Study indicators

Indicators' herein represents information on the relationship quantity, implying the state of measurement by taking the data, variables or facts to be co-correlated, and generating the values that enables highlighting the situation to be studied and explained. The obtained information can be the messages or observed values; hence in this research, it involves taking the variables to be co-correlated to find the necessary leadership characteristics of the desirable secondary basic education administrators.

Roles of administrators in the 21st Century

As the Office of the Nation Council, Thailand ONCE (2017) regulated, the roles of the educational administrators in the 21st Century comprise working knowledge, skills and experiences, including: 1) effective learning and teaching management, supervision, integration and implication of new technological innovation, 2) supporting the ICT utilization and e-learning, 3) managing the learner-center environment management to add up the opportunity in the development of thinking skills, life skills, professional skills and preparing learners for future working.

Necessary leadership characteristics of school administrators

Necessary leadership characteristics of the school administrators by Nontanatorn (2013) and Chaihong (2015) stated that the school administrators' characteristics refer to the extra characteristics of the new-era leaders aimed at fulfillment and progress in working. The required characteristics include normal occurrence or trends in human behaviors that administrators behave as their acting because of the

characteristic strength they occupy with specific unique difference from followers; having proper physical characteristics, social background, wisdom and personality. Specifically in this study, the secondary school administrators' leadership characteristics signify the characteristics in having knowledge, intelligence, skillfulness, leadership, and working styles.

Factor analysis

Generally, this deals with discovering the latent variables beneath the observed variables with the statistical data analysis assisting the researchers to create the factors from different variables. Overall, the related variable groups become the same factor and each variable can be the latent variables of the characteristics the researchers intend to study. The factor analysis method is classified into two traits containing: 1) exploratory factor analysis (EFA) for use when researchers cannot identify in advance how many factors will appear in explaining the co-correlation of variable groups, question item groups, or indicator groups; 2) confirmatory factor analysis (CFA) to be used when having the hypothesis or theory identified in advance that the factors, indicator groups or question items constructed, containing how many factors or dimensions to confirm the hypothesis and construct the instruments covering every dimension as the theories adopted. The factor analysis includes 4 steps as follows: 1) preparing relationship matrix, 2) intercepting primary factors, 3) rotating axis and 4) creating factor variables and factor scale (Sriphai, 2017).

METHODOLOGY

Participants

Participants serving as the population comprised the administrators and teachers under the Secondary Education Service Area Office 42 (SESAO) covering 2,351 schools in 2018 Educational Year. As for the samples, they were selected from the population with different steps and techniques as the following.

The first group included 10 eminent persons in educational administration with the educational backgrounds doctoral degree, or an academic position of associate professor, or positioning higher educational administrators, or lecturing in the higher education institution and being specialists in the educational administration for an interview with the structured form to create indicators.

The second group for collecting the data in necessary leadership characteristics indicators, comprised 10 secondary education administrators of the basic schools in Thailand with the passed-level assessment of educational quality, assessed by the Office of Standard Guarantee and Educational Quality Evaluation in the best level found to have collected the data by the deep-structured interview for developing indicators.

This group collects the data with the questionnaires to analyze the Exploratory Factor Analysis (EFA) of indicators, containing 120 school administrators and teachers selected from the multi-stage random sampling technique.

The final group which responds to the questionnaires to analyze the second-order Confirmatory Factor Analysis (CFA), consisted of

986 school administrators or deputy administrators and teachers, also selected from the multi-stage random sampling technique.

Variables

This research intends to verify the variables composing of: 1) independent variables, namely, necessary leadership characteristics of the administrators in the secondary basic education schools and 2) dependent variables, for instance, the indicators of necessary leadership characteristics of the secondary basic school administrators in Thailand, theoretically grouped in 5 domains, that is, 1) skills, 2) knowledge, 3) leadership, 4) characteristics and 5) working styles.

Research instruments

The instruments for collecting the data consist of two types of the structured interview form with 58 questions, and the questionnaires with 51 items. The subsequent explanation intends to illustrate how to construct and assess their efficiency as further discussed.

Structured interview form

To form this instrument, the documents and related research were studied based on the leadership characteristics from a total of 21 different sources of institutional departments, educators, and researchers within the domestic and overseas sources. Basically, the first-stepped construction focused on the research conceptual framework used for the interview data of 58 questions in the necessary leadership characteristics indicators of school administrators. After constructing the interview form, the performer had it assessed as the subsequent steps: firstly, assessing its validity by proposing to all 3 research advisors to check its question items, covering the completeness as in the content structures and using appropriate language writing; secondly, improving by correcting following the advisors' suggestions; lastly, taking the approved form for an interview trial with 5 outside-grouped samples of this study meant for investigating the question item consistency and the interviewee. After the trial, the data gained had been proposed to the advisors for constructing the forward final draft structured-interview.

Questionnaires

While constructing the questionnaire form, emphasis was placed on the documents and related research work in necessary leadership characteristics indicators. After its completion with the different required contents meant specifically for the interview, the questionnaires with 58 items enclosing the mentioned indicators were presented to 10 experts for examination, and where necessary, proffer some recommendations that were then used to improve the questionnaire form. After the specified process, 67 indicators were identified in the instrument construction. Later, those indicators were corrected and improved by in-depth interview with the related groups of 10 administrators and teachers in the schools alongside passing the educational quality and standard evaluation in the best level. Eventually, the recommendations were re-checked and improved to create the indicators, which later implied 54 desirable indicators.

To assess the efficiency of the questionnaire, an examination was done that likely revealed the required factors and indicators analyzed by the Exploratory Factor Analysis (EFA) with 120 samples from the multi-stage random sampling technique. Principal component analysis gave the analytical results as follows: 1)

considering the value of Kaiser-Meyer-Olkin Measures of Sampling Adequacy (KMO), 2) factor extraction, 3) factor rotation with orthogonal in the Varimax method and 4) concluding the factor analysis, revealing that the KMO value equaled 0.905 higher than 0.50 approaching 1.0. This possibly leads to the conclusion that it was appropriate that the existing data be used alongside the factor analysis technique with the Barlett's Test of Sphericity in the statistical significance of 0.01 (Approx. Chi-square = 6.261, Sig. = 0.000). The result proved that different factors correlated the appropriateness of using the factor analysis for the next analysis, and implying the discriminative value of 0.428 - 0.766, calculated by the Pearson Product Moment Correlation and the overall reliability with the Cronbach's Alpha Coefficient which equaled 0.981.

Data collection

As regards instrument efficiency from the analysis, the questionnaires with 51 items were used to collect the data with 1,000 samples. In this step, the researcher had the official letters from the graduate school to ask for help from the samples to respond to the questionnaires. Eventually, the questionnaires were collected back from 986 samples with 98.60%.

Data analysis process

Data collection based on the research objectives can be classified into two types of analytical data: 1) the qualitative data from the structured interview analyzed by the content analysis with the analytical and synthesizing processes for obtaining the conceptual framework to create the indicators, and 2) the quantitative data from the questionnaires with the statistical techniques which included the percentage, mean (\bar{x}), standard deviation, and the hypothesis testing was analyzed by using the second order confirmatory factor. Besides, the detailed analysis of the mixed methods with sequential-equivalent design, in harmony with the qualitative research method and followed by the quantitative research method comprises the following 4 steps.

Step 1: the analysis for creating indicators and assessing the quality of the structured interview form obtained from the theoretically conceptual framework was the interview data conclusion conducted with 10 experts in higher educational administrators which showed 67 indicators.

Step 2: the analysis of developing necessary leadership characteristics indicators of the school administrators involves in-depth interview with 10 administrators and teachers in the schools who passed the educational quality and standard evaluation in the best level showing 54 indicators.

Step 3: the analysis of the quantitative research data was calculated by the principal component analysis and the results are presented in terms of: 1) considering the value of KMO: Kaiser-Meyer-Olkin Measures of Sampling Adequacy 2) factor extraction, 3) factor rotation with orthogonal in the Varimax method, and 4) concluding the factor analysis, revealing 5 factors with 51 indicators.

Step 4: Investigating the correlation between the measurement models of secondary schools' necessary leadership characteristics indicators as in the hypothesis and the empirical data which was calculated by the Second Order Confirmatory Factor using the program of Mplus Version 7.2. The investigative findings implied the necessary leadership characteristics indicators with the structural validity or the consistency of the empirical data in fairly high level. That is to say, the factor standard and every indicator in the model became the standardization and major indicators and were correlated to each other.

For interpreting the findings, the statistical symbols are shown and represented with the following meanings: χ^2 as harmony investigation index of Chi-square, *SE* as standard errors, *ES* as parameter estimation, R^2 for coefficient of determination, *df* as degree of freedom, *p-value* as difference values among population group, *C.V.* as distribution coefficient, *Sk* for skewness value, *Kur* as kurtosis value, *b* as factor weight value or regression coefficient value, β as standard factor weight value or standard regression coefficient value, *TLI* for appropriateness measurement level without criterion of Tucker-Lewis Index, *CFI* as comparative fit index, *SRMR* as standardized root mean squared residual, *RMSEA* for root mean squared error of approximation, and lastly, *Z* symbolized the value from the statistical hypothesis testing with the Z-test.

RESEARCH FINDINGS

Analyzing the Secondary Order Confirmatory Factor Analysis (SOCFA) of the necessary leadership characteristics indicators of the administrators in the secondary basic schools in Thailand revealed the structural validity model which confirmed that the indicator measurement model was structurally valid, or correlated to the empirical data in the fairly high level. Summarily, every indicator in the model was important, correlated and supported each other. The statistical finding details are illustrated in Table 1.

From Table 1, it can be observed that the findings from the model validity investigation of the Second Order Confirmatory Factor Analysis (SOCFA) of the necessary leadership characteristics indicators by the administrators in the secondary basic schools in Thailand disclosed the model with structural validity based on the statistical values including: $\chi^2 = 777.893$, *df* = 839, *p-value* = 0.9349, *CFI* = 1.000, *TLI* = 1.002, *RMSEA* = 0.003, *SRMR* = 0.019 and $\chi^2/df = 0.927$. The findings revealed that the indicator measurement model contained in fairly high level, the structural validity or consistency with the empirical data, pointing out that every indicator in the model became major indicators, was correlated and supported each other. Detail of this harmonization with the explanation is shown in Figure 1.

In Figure 1, more symbols for explaining the findings are as follows: CL represents necessary leadership characteristics of the school administrators in the secondary basic education in Thailand; A refers to skills; B refers to knowledge; C is for leadership characteristics, and E is for working styles. Additionally, the interpretation of the symbols are as follows: A1 is for having the skills in working co-ordination inside organizations and other sectors; A2 implies ability in the data analysis and synthesis; A3 is the leader in team works; A4 is ability to motivate teachers, educational personnel, learners and communities for taking parts in the educational excellence management; A5 is ability to communicate in English; A6 is ability to systematically analyze and solve problems; A7 implies skillfulness in promoting learning

Table 1. Statistical value analysis of second order confirmatory factor analysis of necessary leadership characteristics indicators of Secondary Basic School Administrators in Thailand.

Factor domain	Factor weight values (b)	Standard factor weight values (β)	SE	Z	R ²
Skills	1.000**	0.904**	0.009	102.999	0.817
Knowledge	1.070**	0.839**	0.012	70.772	0.704
Leadership	1.035**	0.999**	0.006	178.928	0.998
Characteristics	1.072**	0.906**	0.009	106.311	0.821
Working styles	0.889**	0.899**	0.010	91.075	0.808

$\chi^2=777.893$, $df = 839$, $\chi^2/df = 0.927$, $p\text{-value} = 0.9349$, $CFI = 1.000$, $TLI = 1.002$, $RMSEA = 0.003$, $SRMR = 0.019$. SE represents standard error; Z symbolizes the value from the statistical hypothesis testing of Z-test R2 represents coefficient of determination.

and teaching as teachers' needs; A8 implies skillfulness in effective management as in principles of adequacy economics; A9 is for decision making focused on the organizational goals occurring for teachers, educational personnel, learners, community and related persons; A10 is ability for creatively analyzing and criticizing; A11 implies creating good human relationship for teachers, learners, guardians as well as communities; A12 implies decision or diagnosis updated to different events; and A13 implies promoting and raising teacher professional level. Also, B symbolized with numbers illustrates: B14 as knowledge in educational quality assurance; B15 as knowledge in educational administration law; B16 implies knowledge and skills in information technology management; B17 implies knowledge in school management; B18 stands for psychology and strategy in administration; and B19 represents seeking and bringing information to be utilized in organizational development. C symbolized with numbers shows: C20 as opinions and suggestions up to changes; C21 represents creating morale and promoting for teachers and educational personnel to fully work potentials; C22 refers to love in the progress of working duties; C23 as leader in changes and continual organizational development; C24 stands for attention in environment; C25 represents living in ways of adequacy and exemplifying for other people; C26 is for distributing leadership in school management and administration; C27 representing self-conduct for good examples for subordinate personnel; C28 stands for creating learning communities; C29 as attention for co-worker development; C30 as developmental leader in communities and capability in creating development leaders; and C31 stands for creating new things up to current events. D symbolized with numbers implies that: D32 represents transparency with capable inspection; D33 refers to emotion maturation; D34 represents emotion quotient; D35 stands for self-disciplines and promoting co-workers for discipline continuation; D36 represents continual enthusiasm and alertness; D37 stands for self-ethics related to organizational ethics; D38 implies keeping official secrets; D39 refers to high responsibility; D40 implies sacrifice for publicity; D41 refers to humble courtesy and honoring others; and D42

represents attention for performing as professional ethics. Finally, E symbolized with numbers are presented as: E43 referring to communicating and utilizing technology in different channels; E44 as administration using Bhomwiharn 4 Dhamma principles; E45 referring to attention to achieve the task goals; E46 for self-confidence; E47 as ideals to be local developers; E48 representing independence and freedom in reasonable thoughts; E49 as sympathizing with others; E50 implying authorization and responsibility to work with appropriate performers; and E51 referring to acceptance of other people' opinions.

DISCUSSION

The research objectives thus present two main points as follows.

The study in the necessary leadership characteristics indicators of the secondary school administrators under the basic school education in Thailand indicated that the necessary leadership characteristics included 5 factors, namely skills, knowledge, leadership, characteristics and working styles. This might imply that the school administrators viewed the necessity and major roles in the educational development, especially the fact that they became the crucial persons in the learner quality development to reach the standardization as the goals and mission in National Education Plans in 2018 - 2036 B.E., intending to develop effective learning process and affecting educational effectiveness. As stated in the conceptual framework, the Office of the Nation Council, Thailand (2017) regulated the roles of the educational administrators in the 21st Century which comprised the major competencies as working knowledge, skills and experiences, including effective learning and teaching management, supervision and integration and implication of new technological innovation, supporting the ICT utilization and e-learning, and inevitably, managing the learner-center environment management to add up the opportunity for developing thinking skills, life skills, professional skills as well as preparing learners for future working. Eventually, the mentioned general administrators'

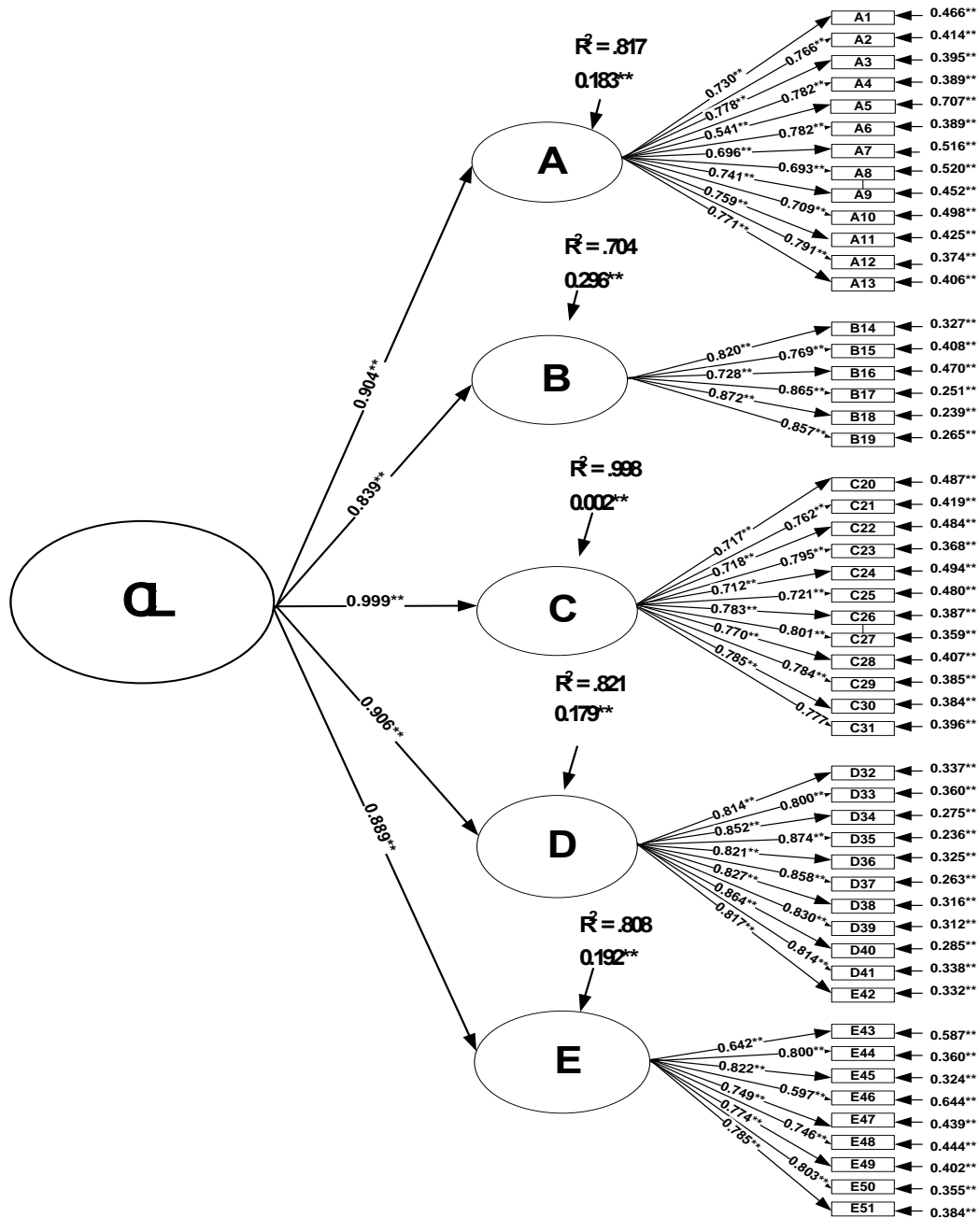


Figure 1. Investigation of model validity with second order confirmatory Factor Analysis of Secondary Basic Education Administrators in Thailand. $\chi^2=777.893$, $df = 839$, $p\text{-value} = 0.9349$, $CFI = 1.000$, $TLI = 1.002$, $RMSEA = 0.003$, $SRMR = 0.019$ and $\chi^2/df = 0.927$. **Significant level of 0.01.

characteristics could cover the necessary leadership characteristics found in this study, containing the characteristic domains of skills, knowledge, leadership, characteristics and working styles, aiming to influence on the efficiency and effectiveness of the school educational management in Thailand. The findings of this study can be referred to as important for the educational management in the factor of skills, with the internal indicator as leader for the team work skill in organizations

relating to the research finding of Kangpeng and Patipunt (2017) stating that the administrators' necessary characteristics should have been the skills in the administration in terms of work assignment and communication with workmates. Besides, Ploenjit (2015) research finding indicated that educational administrators had to be able to co-operatively work on thinking, decision making, responsibility and potentials in coordinating with educational networks for learning

management, and for enabling excellence and internalization. The mentioned educational management can be effective because of the administrators' skillfulness in administration and management. As for the knowledge factor, this refers to the background knowledge on information technology management, seeking and taking the information to be utilized in organizational development. From the aforementioned description, it was related to the leadership characteristics that Thai Teachers Council (2018) regulated and in the study of Kosumsiri (2015) in case of knowledge standard factor, stating that the administrators should have had the knowledge on information technology, public relation and the relationship with communities. Additionally, the leadership factor covers the indicators explaining that the leadership distribution in the education management and school administration that the administrators should have attended in co-worker development correlated to the leadership characteristics as Runcharoen (2013) viewed, implying that administrators should have had good leadership and capable of creating leaders. They should have had every co-worker coordinate in working as well as regulating plans and policies for school management because school administrators become major leaders to reach the educational administration achievement. The factor of characteristics consist of internal indicators as having attention to work since the professional ethics and self-ethics was consistent with the regulation of Thai Teachers Council (2018) and the study result of Wanakul (2013) which mentions the administrators' professional ethics, self-discipline, self-development, personality, vision and general characteristics of professional administrators. These characteristics can be personal learning and self-conduct that the administrators in the new era should acknowledge leading to fulfillment of their work goal. Finally, the factor of working styles found the indicator as the working authority and responsibility for work performers as appropriateness. The mentioned indicator was related to the study of Numnim and Witchayo (2013) emphasizing that the administrators had the working characteristics as the decentralization, and work assignment for the personnel's responsibility. In this working style, the administrators could be led to administrate for effective educational management resulting to onwards educational quality and standardization.

Due to the 2nd research objective, the Second Order Confirmatory Factor Analysis for necessary leadership characteristics of the basic school administrators under the Office of Secondary Educational Service Area during the Nation Education Plans in 2560 - 2579 B.E. with the empirical data could imply that the factor analysis model was correlated to the empirical data in fairly high level. This meant that every factor and indicator in the model could be standardized along with major indicators; also, those factors and indicators could be related and supported each other, as confirmed from the statistical

values calculated including the values of $\chi^2=777.893$, $df = 839$, $p\text{-value} = 0.9349$, $CFI = 1.000$, $TLI = 1.002$, $RMSEA = 0.003$, $SRMR = 0.019$ and $\chi^2/df = 0.927$. The specified analysis values had been implied because the administrators during the early ten years up to the present time and the government sector as well as the educational development departments expected the school administrators to better improve themselves towards creating leadership characteristics relating to the educational theories and different research findings that help to ascertain the administrators' characteristic behaviors. This was consistent with the policies of the educational personnel development emphasized by the Administrator Training Department. Responsible for the development was the Training Institute of Teachers and Educational Personnel (2019). This institute established the policies and guidelines for managing the training curriculum for school administrators, deputy administrators, teachers and educational personnel in both self-development in working and positioning. The Ministry of Education in Thailand foresaw that the major objective is to improve the educational quality and standardization focusing on school administrators, a very important factor for the nationally educational reform. Thus, it has contributed to creation of highly qualified administrators plus leaders with vision, leaders of changes and administrative competencies, correlated to the policy of Developmental Institute of Teachers and Educational Personnel (2018), aimed at developing both administrators and teachers. Additionally, for the administrator development, the Office of Basic Education Commission OBEC (2015) has been managing the intensive development program for administrators in the course of Thai education reform so as to raise the national education quality until nowadays. Eventually, as the same development target for developing educational administrators, the Office of Thai Teachers Council (2018) responsible for scrutinizing the teachers and administrators' professional certificates, had regulated the education administrators' competency level. This was for adding the new-generation of administrators to supplement their skillfulness, knowledge, leadership, characteristics and working styles so that they would be able to effectively work in schools for higher educational quality and standardization. That is to say, this research revealed the appropriate model of the factors and indicators due to the developmental process explained in this study which focused on empirical theoretical framework as in different educational sectors aiming to reach the similar goals in Thai educational reform. Finally, the research result in this part implied that the target factors and indicators help to develop the secondary school administrators.

Generally, the model of Second Order Confirmatory Factor Analysis in the secondary basic school administrators' leadership characteristics under Office of Secondary Education Service Area during the 2560-2036

B.E. National Education Plans which comprises 5 factors with 21 indicators. For this point, the focused results can be an advantageous model for constructing the measurement forms meant for assessing the administrators' leadership characteristics or the personnel related for supplementing educational working plans of the educational departments, especially in the secondary education level. Also, the information gained from this study can be supplemented for other education level departments.

Conclusion

The research findings based on the research objectives are as follows: The development results of necessary leadership characteristics indicators of the school administrators in the secondary basic education in Thailand revealed overall 5 major factors and 51 indicators as follows: 12 indicators of skills, 6 indicators of knowledge, 12 indicators of leadership, 11 of indicators of characteristics, 9 indicators of working style. The results of the second order factor analysis proved from investigating the model validity of Second Order Confirmatory Factor Analysis for necessary leadership characteristics of the secondary basic school administrators in Thailand indicated that the model contained the structural validity confirmed from the statistical values calculated including the values of $\chi^2 = 777.893$, $df = 839$, $p\text{-value} = 0.9349$, $CFI = 1.000$, $TLI = 1.002$, $RMSEA = 0.003$, $SRMR = 0.019$ and $\chi^2/df = 0.927$. Summarily, the model was standardized and necessary leadership characteristics indicators of the secondary basic school administrators in Thailand implied the structural validity or correlation with empirical data in a fairly high level. Thus, the standard factor and every indicator became standardized along with major indicators, were correlated and supported each other. Also, the factor discovery of leadership characteristics indicators revealed that the factor with the most weight value was factor 3 of leadership ($\beta = 0.999$), the second rank was factor 4 of characteristics ($\beta = 0.906$), the latter comprised factor 1 of skills ($\beta = 0.904$), factor 5 of working styles ($\beta = 0.899$) and factor 2 of knowledge ($\beta = 0.839$).

RECOMMENDATIONS

To implement the research findings, the mixed methodology of this research was calculated in the sequential equivalent design that can be used to create the reliability and correlation of administrators' leadership characteristics. In addition to this, the research was conducted only in the secondary education level, so the research process in the future study can be conducted in other education levels during the 2560 - 2579 B.E. National Education Plans. Finally, the necessary

leadership characteristics indicators containing 5 factors with 51 indicators and every item was 0.01 and significantly correlated to each other in almost the same value; therefore, if implementing, every factor and indicator should be approved to get the framework of development.

As this research questionnaires focused on samples respondents from only the Northeast of Thailand, future research design should be done in different contexts or regions, in case new factors and indicators might occur for the development of secondary school administrators. Besides, there should be comparison of necessary leadership characteristics of the administrators in different contexts, regions or educational departments. Lastly, this is to indicate that there should be factors affecting necessary leadership characteristics indicators in the 2560 – 2579 B.E. Nation Educational Plans.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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