



A model of academic management of public primary schools under the Nakhon Pathom Primary Educational Service Area Office 2

Juthamas Booranamanus*, Arisara Leksansern†

Educational Management, Department of Education, Faculty of Social Sciences and Humanities, Mahidol University, Phutthamonthon, Nakhon Pathom 73170, Thailand

Article Info

Article history:

Received 24 November 2021

Revised 14 January 2022

Accepted 18 January 2022

Available online 12 October 2022

Keywords:

academic management,
education,
model,
public primary school,
school

Abstract

The objectives of this study were to develop a model for academic management and to evaluate the applicability of the model for academic management in public primary schools under the Nakhon Pathom District Educational Service Area Office 2. This included a qualitative and quantitative phase. Five experts were invited for an interview on the scopes and aspects of academic management for public primary schools. Quantitative data on the feasibility and current situation were collected from 316 participants. The qualitative part was analyzed using content analysis, while the quantitative data were analyzed using frequency, percentages, mean, standard deviation and paired *t*-test. The findings revealed that the model of academic management consists of: curriculum development; learning process development; assessment and evaluation development; research for education development; media, innovation, and technology development; learning resources development; education supervision; education counselling; internal quality assurance system development; academic knowledge promotion for communities; academic development cooperation with other schools; and promotion of academics to individuals, families, organizations, agencies, and other schools. Each aspect must use the PDCA Cycle, which starts with plan, do, check, and act. The feasibility of the model was evaluated. The evaluation revealed that the sample stated that all the twelve aspects of academic management can be implemented at the highest level, whereas the data on the current situation of academic management revealed that schools' academic management work is performed at a high level. The research recommends implementing the academic management model from this study since it could improve the school's academic management.

© 2022 Kasetsart University.

* Corresponding author.

E-mail address: juthamas.booranamanus@gmail.com (J. Booranamanus).

† Co-first authors.

E-mail address: drarisara@hotmail.com (A. Leksansern).

Introduction

There is a lot of competition in the current era. One of the aspects that countries around the world are competing in both the past and now is the economy. Countries do not just compete in terms of the current economy, but they also compete in the economy of the future. The economy of the future depends on the children of today. Children will help the economy in the future since children are also viewed as the country's resources or human resources (Kuehn, 2012). Children are human resources that can be developed through education (Sudprasert, 2013).

Instruction, methods, and materials are required for teaching, but they cannot be changed immediately. It takes time since it is a process. Furthermore, it is impossible for just teachers to ensure that the change process occurs. Teachers need support, which is usually given by their immediate supervisors or the school principals or administrators. This does not mean that the support from supervisors at the Ministry of Education does not matter, but the impact it has on supporting teachers to help students develop skills is less than the impact that school administrators or principals play as can be seen in many researches, which found that principals affect students' academic achievement (Hallinger, 2011; Kythreotis et al., 2010; O'Donnell & White, 2005). Many researchers believe that principals do influence student achievement indirectly by affecting teachers and creating an environment that is supportive of learning (Dinham, 2005; Jacobson, 2011; Robinson, 2008; Sammons et al., 2011). In addition, Okpala et al. (2011) stated, "quality administrators provide effective leadership for quality instruction. To understand the characteristics of an effective school leadership, it is essential to examine variables that foster the development of leadership expertise." Therefore, the management of schools must change for it to be able to fully support and facilitate teachers in fostering required skills in students.

Generally, educational management in primary schools under the Nakhon Pathom District Primary Educational Service Area Office 2 does not emphasize the students' development in the areas of body, emotion, society, and intelligence since school administrators please parents by emphasizing students' ability to read and write fluently (Sudprasert, 2013). In addition, the Nakhon Pathom Primary Educational Service Area Office 2 also faces other problems. Sudprasert (2013) also stated that the problems in this area are there is not enough teachers, teachers do not teach the subject that they hold a degree in, there are problems with teachers' distribution

and transfer, new teachers that are hired to replace retired teachers lack experiences, lessons do not follow achievement indicators, and schools' internal quality assurance process does not follow the steps it should. Furthermore, in the O-NET results for Primary 6 students for 2019–2020, the average for both years were below 50 percent Nakhon Pathom Primary Education Service Area Office 2 (n.d.). According to Murnane (1981) and Hallinger and Murphy (1985), student achievement in reading and math are often used as a criterion to measure school effectiveness.

Table 1 2012–2016 Learning achievement at elementary levels

Subjects	Percentage of Average Score/ Academic Year	
	2019	2020
Thai	49.43	57.96
English	29.88	38.17
Math	32.39	29.76
Science	34.88	39.89
Average	36.65	41.44

Source: Adapted from Nakhon Pathom Primary Education Service Area Office 2 (n.d.).

Research on educational leadership does not entail specific, effective indicators and behaviors for implementation in schools (Bossert et al., 1981; Brookover et al., 1978; Friesen & Duignan, 1980; Hallinger, 1981; Hallinger & Murphy, 1985; Murphy et al., 1983; Rowan et al., 1982).

Due to these problems, the researcher was interested in conducting research entitled "A Model of Academic Management for Public Primary School in Nakhon Pathom Primary Educational Service Area Office 2" so that data gained from the research could be used to develop an academic management model for primary schools in Nakhon Pathom. The research objectives were to develop a model for academic management in public primary schools under the Nakhon Pathom District Educational Service Area Office 2 and to evaluate the applicability of the model for academic management in public primary schools under the Nakhon Pathom District Educational Service Area Office 2.

Literature Review

Importance of Academic Management

Academic management can be considered the core of a school. The quality of a school is largely dependent on

academic management. It is the most important aspect of the four aspects of educational management. The four aspects of educational management according to the Office of Basic Education Commission (OBEC, 2004) are academic affairs, budget management, personnel management, and general affairs. Teachers, principals, and stakeholders must understand, prioritize, and participate in operations of academic affairs. Operations of academic affairs include determining operation approach, evaluation, and improvement that is systematic and continuous.

Wonganootroj (2003, p. 33) discussed the importance of academic management. Academic management emphasizes the development of potential, morality, ethics, attitudes, and values of the students. This is to ensure that the students will turn out to be talented, good people that live happily in the society. It also determines the workload of the school. This means that the workload of the school increases with the amount of work in academic management. It also determines the school's procurement of resources. These resources include budget, material, and teaching materials. The number of needed resources is also dependent on the amount of work in academic management. In addition, academic management is an indicator of the quality of a school. The quality of a school depends on the method the school uses and "product" the school produces with academic management. Furthermore, academic management is also an indicator of the administrator's success and abilities. This is because academic management is the school's main job. Hence, the administrator must stimulate and encourage teachers to work together to develop the school academic work constantly. Therefore, the administrator must plan, communicate, control, instruct, and assign work appropriately to achieve the goals of the curriculum.

Scope of Academic Management

The Office of Basic Education Commission (OBEC, 2004) drafted a guideline for academic affairs management. It has twelve aspects, namely, curriculum development; learning process development; development assessment and evaluation; research for educational development; media, innovation, and technology development; learning sources development; education supervision; educational counseling, school's internal quality assurance system development; academic knowledge promotion for communities; academic development cooperation with other schools; and promotion of academics to individuals, families, organizations, agencies, and other schools.

According to the Ministry of Education, all schools must have a structural arrangement that contains all the above twelve aspects, but each school has the freedom to choose the practices for each aspect. The process of academic management for each aspect are: indicate the target; plan; implement the plan; encourage, supervise, monitor, and follow-up; audit and evaluate; and report.

Sergiovanni et al. (2009) proposed an academic management that has both similarities and differences to the one proposed by the Ministry but are coined differently. They proposed that the five aspects are; develop education philosophy and objective for management, establish projects to achieve goals, conduct constant curriculum and instruction assessments, create a school environment that is conducive to learning, and provide sufficient teaching materials.

Phetmalaikul's (2018) research on academic management in the 21st century revealed that the scope of academic management are curriculum development; learning process development; media, innovation, and technology development; education supervision; assessment, and education development; education development research; learning sources development; education counseling; academic documents production; academic management for other agencies; meetings; policies; instruction for special needs students; information technology; language center; and sports development; and encourage students to develop their potential.

A research entitled "Academic Administration and Learning Management Made to Enhance 21st Century Learners' Characteristics and Skills in Basic Education Institutes: Mixed Quantitative to Qualitative Analysis" by Phetmalaikul (2018) found that the aspects of academic management are like that stated in the National Education Act, but there are also some differences. The aspects that are the same are curriculum development; learning process development; media, innovation, and technology development; education supervision; assessment and evaluation development; education counseling; and academic management for other agencies. But the aspects that Phetmalaikul (2018) discovered that are not stated in the National Education Act are academic documents production, meetings, policies, instruction for special needs students, language center, sports development, and encourage students to develop their potential. The research also revealed that principals spend most of their time on academic management and the level that academic management is performed ranges from moderate to high.

Instructional Leadership

Instructional leadership is focused teaching and learning, unlike other types of leadership that are more general (Sheppard, 1996). According to Dong and Seong (2014), there are a total of four frameworks for instructional leadership. Glickman (1985) proposed that it has six dimensions, which are direct assistance to teachers, group development, staff development, professional development, curriculum development, and action research. Andrews and Soder (1987, p. 9) proposed that a principal has four broad roles, namely, resource provider, instructional resource provider, communicator, and visible presence. Hallinger and Murphy (1985) proposed a model with three dimensions which are define the school mission through framing school goals, and communicating school goals; manage instructional program through supervising and evaluating instruction, coordinating curriculum, and monitoring student progress; and promote positive school learning climate through protecting instructional time, promoting professional development, maintain visibility, providing incentives for teachers, enforcing academic standards, and providing incentives for students. Robinson et al. (2008) proposed that there are five main dimensions, namely, establish goals and expectations; strategic resourcing; plan, coordinate, and evaluate teaching and curriculum; promote and participate in teacher learning and development; and ensure orderly and supportive school environment.

PDCA Cycle

The PDCA cycle is used for problem solving where the steps are plan by defining a problem and hypothesizing the causes and solutions, do by implementing the solution, check by evaluating the results, and act by making necessary adjustments before starting the cycle again (Moen & Norman, 2010).

Model

Keeves (1988) and Satapornwajana (2006) stated that the characteristic of a good model is it must show the relationship of the factors it studies, make predictions with empirical data, clearly explain the reasoning of the relationships, create new knowledge, and is consistent with old theories on the topic.

Research on documents, textbooks, principles, concepts, theories, and related research resulted in concepts and theories related to academic management

and concepts and development of models. A conceptual framework that includes the components needed to develop an academic management model for schools is illustrated in the following diagram, [Figure 1](#).

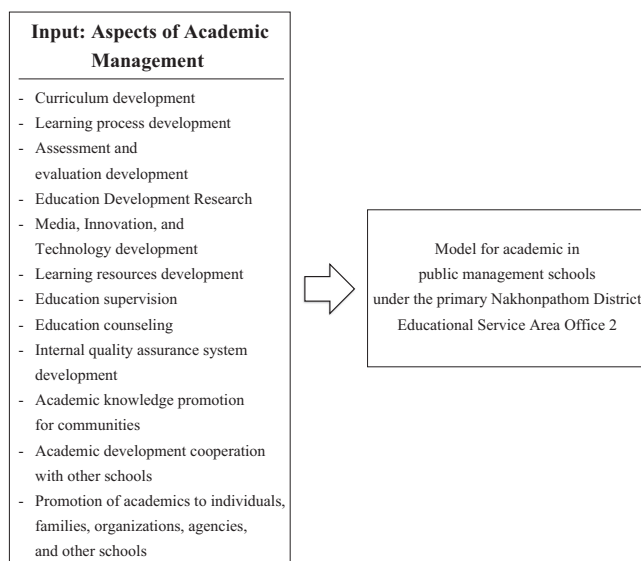


Figure 1 Theoretical framework

Methodology

Develop a Model for Academic Management in Public Primary Schools

Participants

For this objective, in-depth interviews were conducted. The participants were five experts on the scopes and aspects of academic management for public primary schools under the Nakhon Pathom Primary Educational Service Area Office 2. The researcher used purposive sampling to select key informants for the interviews. The criterion for informants was that they had to be supervisors working at the Nakhon Pathom Primary Educational Service Area Office 2.

Data collection

Data were collected using an interview guideline developed from the literature review. The guideline was checked for validity by four experts in the field of education.

Data analysis

Data were analyzed using content analysis to determine and group recurring topics.

Evaluate the Applicability of the Model

Participants

A survey using questionnaire was conducted to answer this objective. The calculated sample size of participants, teachers, and school administrators under the Nakhon Pathom Primary Educational Service Area, was 316 participants using the Taro Yamane formula, where the sampling error is at .05.

Data collection

A questionnaire was developed based on the literature review on aspects of academic management. It inquired about the appropriateness of each construct and the level each construct is performed by principal. Each of the items uses a 5-point Likert Scale that measures the degree of agreement with the statement. Each item is scored from 1 being “very inappropriate” or “perform the least” to 5 being “very appropriate” or “perform the most.”

Content and construct validity was evaluated by three experts in the field of education. The Item Objective Congruence (IOC) of each item in the questionnaire was ≥ 0.50 . The reliability of the questionnaire was also tested. The questionnaire was pretested with 30 teachers among the population to determine the reliability using Cronbach’s Alpha Reliability Coefficients to search for the confidence value ($\geq .70$). The calculated Cronbach’s Alpha Reliability Coefficients for the questionnaire was .995.

Data analysis

Data were analyzed using descriptive statistics, which are frequency and percentages, while the applicability of the model and the level that academic management was performed were analyzed using mean and standard deviation. An analysis statistic, paired t-test, was used to compare the results of the applicability level of the model and the level that academic management was performed to evaluate the applicability of the model of academic management.

The procedural diagram is illustrated below, [Figure 2](#).

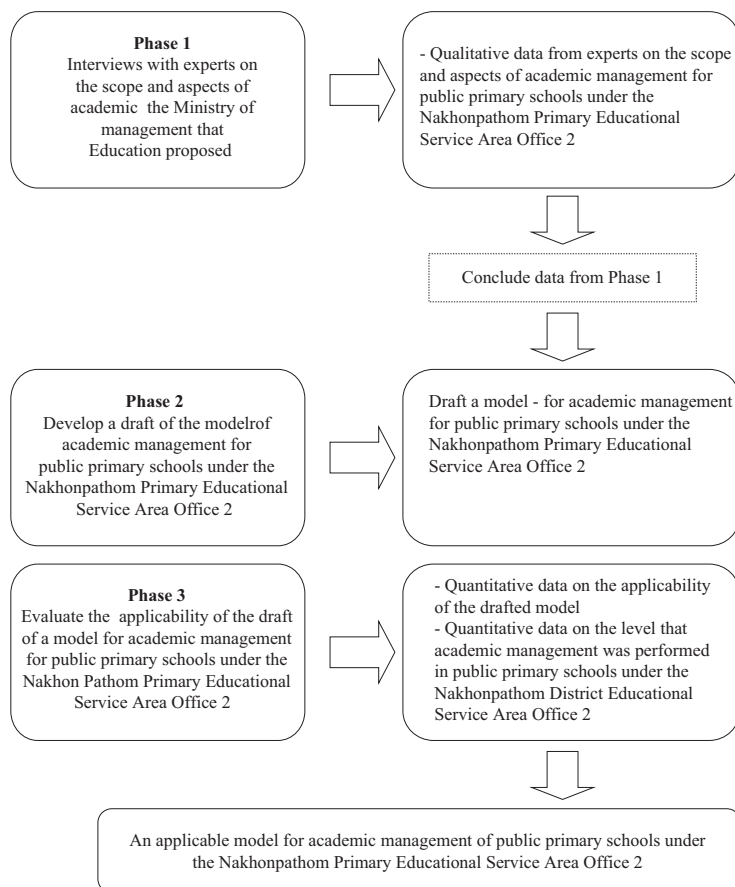


Figure 2 Research procedure

Results

Model for Academic Management

After analyzing the twelve aspects of academic management in documents, an interview guideline was developed. Then, five experts were invited for an interview since they are key informants on the information needed to develop a model for academic management for public primary schools under Nakhon Pathom Primary Educational Service Area Office 2. All five experts interviewed agreed that the twelve aspects of academic management were appropriate for implementation in public primary schools. Then, a draft of the model for academic management for public primary schools under Nakhon Pathom Primary Educational Service Area Office 2 was developed from the previously gathered data. The model should consist of 6 stages, namely, indicate the target; plan; implement the plan; encourage, supervise, monitor, and follow-up; audit and evaluate; and report. In addition, it must also consist of the twelve components of academic management. Each of the twelve components has its own details.

Applicability of the Aspects of Academic Management

The total number of respondents was 316 in the quantitative phase and 316 questionnaires were completed and returned. The sample rated the applicability of the model for academic management for public

primary schools under Nakhon Pathom District Primary Educational Service Area Office 2 for all twelve aspects to be at the highest level of applicability, where the mean was 4.22. The applicability ranged from high to highest. The aspect that had the highest mean was internal quality assurance system development, where the mean was 4.40. The aspect with lowest mean was academic knowledge promotion for communities, where the mean was 3.98. The means and standard deviations for all the aspects are shown in [Table 1](#).

[Table 2](#) shows that the sample believes that all twelve aspects of academic management are implemented or performed in public primary schools under the Nakhon Pathom District Educational Service Area 2 at a high level, where $\bar{x}$ is 4.04. The aspect with the highest mean is internal quality assurance system development, where $\bar{x}$ is 4.24. The aspect with the second highest mean is assessment and evaluation development, where $\bar{x}$ is 4.21. The aspect with the third highest mean is curriculum development, where $\bar{x}$ is 4.16. The aspect with the lowest mean is academic knowledge promotion for communities, where $\bar{x}$ is 3.82.

Comparison of the schools' Applicability of Implementing the Model and the Level of Academic Management Performed

The results of the comparison of the schools' applicability of implementing the model and the level of academic management performed in public primary schools under the Nakhon Pathom District Educational Service Area Office 2 is shown in [Table 3](#).

Table 1 Applicability level of the aspects of academic management

(n = 316)			
Aspects of Academic Management	$\bar{x}$	SD	Applicability Level
1. Curriculum development	4.30	0.46	Highest
2. Learning process development	4.34	0.50	Highest
3. Assessment and evaluation development	4.38	0.51	Highest
4. Education Development Research	4.09	0.61	High
5. Media, Innovation, and Technology development	4.13	0.59	High
6. Learning sources development	4.30	0.56	Highest
7. Education supervision	4.26	0.55	Highest
8. Education counseling	4.19	0.56	High
9. Internal quality assurance system development	4.40	0.56	Highest
10. Academic knowledge promotion for communities	3.98	0.67	High
11. Academic development cooperation with other schools	4.14	0.67	High
12. Promotion of academics to individuals, families, organizations, agencies, and other schools	4.08	0.61	High
Total	4.22	0.46	Highest

Note: Mean 1.00–1.08 Lowest Applicability Level; 1.81–2.60 Low Applicability Level; 2.61–3.40 Moderate Applicability Level; 3.41–4.20 High Applicability Level; 4.21–5.00 Highest Applicability Level.

Table 2 The mean and standard deviation of the level of academic management performed

Aspects of Academic Management	(n = 316)		
	$\bar{x}$	SD	Level Performed
1. Curriculum development	4.16	0.56	High
2. Learning process development	4.15	0.57	High
3. Assessment and evaluation development	4.21	0.58	Highest
4. Education Development Research	3.88	0.69	High
5. Media, Innovation, and Technology development	3.91	0.65	High
6. Learning sources development	4.07	0.62	High
7. Education supervision	4.15	0.65	High
8. Education counseling	4.01	0.66	High
9. Internal quality assurance system development	4.24	0.63	Highest
10. Academic knowledge promotion for communities	3.82	0.78	High
11. Academic development cooperation with other schools	4.00	0.75	High
12. Promotion of academics to individuals, families, organizations, agencies, and other schools	3.86	0.72	High
Total	4.04	0.55	High

Note: Mean 1.00–1.08 Performed at the Lowest Level; 1.81–2.60 Performed at a Low Level; 2.61–3.40 Performed at a Moderate Level; 3.41–4.20 Performed at a High Level; 4.21–5.00 Performed at the Highest Level.

Table 3 Comparison of the schools' applicability of implementing the model and the current situation of academic management in public primary schools

Aspects of Academic Management	(n = 316)					
	Applicability Level		Level Performed		<i>t</i>	<i>p</i>
	$\bar{x}$	SD	$\bar{x}$	SD		
1. Curriculum Development	4.30	0.46	4.16	0.56	6.39	.000*
2. Learning Process Development	4.34	0.50	4.15	0.57	8.97	.000*
3. Assessment and Evaluation Development	4.38	0.51	4.21	0.58	8.18	.000*
4. Education Development Research	4.09	0.61	3.88	0.69	8.58	.000*
5. Media, Innovation, and Technology Development	4.13	0.59	3.91	0.65	8.61	.000*
6. Learning Sources Development	4.30	0.56	4.07	0.62	9.82	.000*
7. Education Supervision	4.26	0.55	4.15	0.65	5.16	.000*
8. Education Counseling	4.19	0.56	4.01	0.66	7.60	.000*
9. Internal Quality Assurance System Development	4.40	0.56	4.24	0.63	6.51	.000*
10. Academic Knowledge Promotion for Communities	3.98	0.67	3.82	0.78	6.31	.000*
11. Academic Development Cooperation with Other Schools	4.14	0.67	4.00	0.75	5.38	.000*
12. Promotion of Academics to Individuals, Families, Organizations, Agencies, and Other Schools	4.08	0.61	3.86	0.72	9.21	.000*
Total	4.22	0.46	4.04	0.55	10.54	.000*

Note: * $p < .01$.

Table 3 shows that schools' applicability of implementing the model, which is the thing that the schools should be implementing, is different from the level of academic management performed in public primary schools, where there is a statistically significant level of .01. The null hypothesis for all the twelve aspects of academic management was accepted. The aspect that had the highest *t*-value was learning sources development, where the *t*-value was 9.82. The mean of the applicability level was 4.30, while the mean of the level performed was

4.07. The aspect that had the second highest *t*-value was promotion of academics to individuals, families, organizations, agencies, and other schools, where the *t*-value was 9.21. The mean of the applicability level was 4.08, while the mean of the level performed was 3.86. The aspect that had the third highest *t*-value was learning process development, where the *t*-value was 8.97. The mean of the applicability level was 4.34, while the mean of the level performed was 4.15. The aspect that had the lowest *t*-value was education supervision,

where the t-value was 5.16. The mean of the applicability level was 4.26, while the mean of the level performed was 4.15. This shows that schools should be encouraged to appropriately implement the model of academic management in public primary schools under the Nakhon Pathom District Educational Service Area Office 2 to further develop the schools' capability so that the level of academic management performed will be equal to or greater than the level of applicability.

Discussion

The research found that a model for academic management in public primary schools under the Nakhon Pathom District Educational Service Area Office 2 consists of the twelve aspects of academic management. The twelve aspects are curriculum development; learning process development; assessment and evaluation development; research for education development; media, innovation, and technology development; learning sources development; education supervision; education counseling; internal quality assurance system development; academic knowledge promotion for communities; academic development cooperation with other schools; and promotion of academics to individuals, families, organizations, agencies, and other schools. This is supported by the research conducted by Sudprasert (2013), which revealed that academic management consisted of the twelve aspects, and similar to Phetmalaikul (2018) findings except this study did not reveal the aspects of encourage students to develop their potential, academic documents production, meetings, policies, instruction for special needs students, information technology, language center, and sports development. The model should also consist of 6 stages, which are (1) indicate the target, (2) plan, (3) implement the plan, (4) encourage, supervise, monitor, and follow-up, (5) auditing and evaluating, and (6) report, which is like the PDCA Cycle (Moen & Norman, 2010).

This research employed both quantitative and qualitative methods to obtain clear and accurate empirical data. Data collected were used to determine the main factors of the model of academic management for public primary schools under the Nakhon Pathom District Primary Educational Service Area 2 accurately according to theories. It could also clearly explain the topic of study. This is consistent with the concepts of Keeves (1988) and Satapornwajana (2006) that state that the characteristic of a good model is it must show the relationship of the factors it studies, make predictions with empirical data,

clearly explain the reasoning of the relationships, create new knowledge, and is consistent with old theories on the topic.

The research procedures yielded a model for academic management that consists of six steps and twelve aspects. The process of academic management is important to the academic management model because it makes it clear. School administrators and teachers see the guideline and can manage academic affairs that would result in quality education. Academic affair is considered a school's main job since it is directly related to developing students according to the school goals. Hence, school administrators emphasize academic work the most especially the aspect of curriculum development, learning process development, and evaluations and assessments development. This is consistent with the Ministry of Education's Primary Education Handbook (MOE, 2003) and Phetmalaikul (2008). The level of academic management performed is also similar to Phetmalaikul (2008) in the aspect of education counselling and education development research, while the other aspects performed contradicts with this study since this study found that it ranges from high to highest, but Phetmalaikul (2008) found that it ranged from moderate to highest. A possible explanation for the difference between appropriateness and level performed could be due to this study randomly selecting both teachers and administrators and not intentionally collecting data from both teachers and administrators separately for comparison. This is consistent with researches by Hallinger and Murphy (1985), Heneman (1974), Latham and Wexley (1981), Teel (1978), and Thornton (1980). The reason that there is a statistically significant difference between appropriateness and level performed could be due to administrators lacking confidence in integrating the curriculum into their instruction. Hallinger and Murphy (1985) stated that this could be due to academic management having areas that overlap with teaching and learning, so administrators are reluctant to get overly involved due to fear of overstepping their boundaries. Therefore, administrators must be determined to develop academic work to develop students to the best of their potential.

Conclusion and Recommendation

The applicability study, which is the things that the schools should be implementing, was compared with the results from the level of academic management performed study. The results of the comparison showed that there is a difference between the level of academic management

performed in public primary schools and the applicability where there is a statistically significant level of .01. This shows that schools should be encouraged to appropriately implement the model of academic management in public primary schools under the Nakhon Pathom District Educational Service Area Office 2 to further develop the schools.

Recommendations

This research recommends that school administrators should indicate the target; plan; implement the plan; encourage, supervise, monitor, and follow; audit and evaluate; and report results when performing all aspect of academic management. It is essential that school administrators must implemented the model to fit with the context of the school. A school's academic quality is its success indicator, which reflects the quality of the school.

The limitations of this study are that it did not collect questionnaire from teachers and administrators separately, or conduct a pre-model implementation and post-model implementation using academic achievement to evaluate whether the model would help improve academic management.

Future studies should evaluate the implementation of this academic management model to see whether it is effective or not, evaluate the implementation of this academic management model to see whether it affects teachers' performance or not, evaluate the implementation of this academic management model to see whether it affects students' achievement or not, study the factors that affect the success of academic management of school administrators, conduct a correlation study on the academic management model of schools with other aspects of school management for the development of new innovations that are beneficial for school development in every aspect, study the disparity between the applicability of this model and the actual academic management performed, and study the cause of the difference between the applicability results in this study and the actual level of academic management performed.

Conflict of Interest

The authors declare that there is no conflict of interest.

Acknowledgments

The authors are thankful to all the participants and personnel at the Faculty of Graduate Studies, Mahidol University who made this article possible.

References

- Andrews, R., & Soder, R. (1987). Principal instructional leadership and school achievement. *Educational Leadership*, 44(6), 9–11.
- Bossert, S., Dwyer, D., Rowan, B., & Lee, G. (1981). *The instructional management role of the principal: A preliminary review and conceptualization*. Far West Laboratory for Educational Research and Development.
- Brookover, W. B., Schweitzer, J. H., Schneider, J. M., Beady, C. H., Flood, P. K., & Wisenbaker, J. M. (1978). Elementary school social climate and school achievement. *American Educational Research Journal*, 15(2), 301–318. <https://doi.org/10.3102/00028312015002301>
- Dinham, S. (2005). Principal leadership for outstanding educational outcomes. *Journal of Educational Administration*, 43(4), 338–356. <https://doi.org/10.1108/09578230510605405>
- Dong, N. T., & Seong, D. N. F. (2014). Applying the Rasch Model to investigate Singapore principals' instructional leadership practices. *Leading and Managing*, 20(2), 1–26. https://www.researchgate.net/publication/272158734_Applying_the_Rasch_Model_toInvestigate_Singapore_Principals'_Instructional_Leadership_Practices
- Friesen, D., & Duignan, P. (1980). How superintendents spend their working time. *The Canadian Administrator*, 14, 1–5.
- Glickman, C. D. (1985). *Supervision of instruction: A developmental approach*. Allyn & Bacon.
- Hallinger, P. (2011). Leadership for learning: Lessons from 40 years of empirical research. *Journal of Educational Administration*, 49(2), 125–142. <https://doi.org/10.1108/0957823111116699>
- Hallinger, P., & Murphy, J. (1985). Assessing the instructional management behavior of principals. *The Elementary School Journal*, 86(2), 217–247. <https://doi.org/10.1086/461445>
- Hallinger, P. (1981). *Review of research on school effectiveness* (Unpublished report). Carnegie Foundation for the Advancement of Teaching.
- Heneman, G. (1974). Comparisons of self and superior ratings of managerial performance. *Journal of Applied Psychology*, 59(5), 638–642. <https://doi.org/10.1037/h0037341>
- Jacobson, S. (2011). Leadership effects on student achievement and sustained school success. *International Journal of Educational Management*, 25(1), 33–44. <https://doi.org/10.1108/09513541111100107>
- Keeves, P. J. (1988). *Model and model building educational research methodology and measurement: An international handbook*. Pergamon Press.
- Kuehn, L. (2012). "21st century learning:" A contest to define an education Meme. Retrieved February 23, 2018 from https://www.policyalternatives.ca/sites/default/files/uploads/publications/National%20Office/2012/02/osos106_21stCentury_Learning.pdf
- Kythreotis, A., Pashiardis, P., & Kyriakides, L. (2010). The influence of school leadership styles and culture on students' achievement in Cyprus Primary Schools. *Journal of Educational Administration*, 48(2), 218–240. <https://doi.org/10.1108/09578231011027860>

- Latham, G., & Wexley, K. (1981). *Increasing productivity through performance appraisal*. Addison-Wesley.
- Ministry of Education. (2003). *2003 Primary education handbook*. Ladprao Teachers Council.
- Moen, R. D., & Norman, C. L. (2010). Circling back. *Quality Progress*, 43(11), 22–28. <https://deming.org/wp-content/uploads/2020/06/circling-back.pdf>
- Murnane, R. J. (1981). Interpreting the evidence on school effectiveness. *Teachers College Record: The Voice of Scholarship in Education*, 83(1), 19–35. <https://doi.org/10.1177/016146818108300106>
- Murphy, J., Hallinger, P., & Mitman, A. (1983). Problems with research on educational leadership: Issues to be addressed. *Educational Evaluation and Policy Analysis*, 5(3), 297–305. <https://doi.org/10.3102/01623737005003297>
- Nakhon Pathom Primary Education Service Area Office 2. (n.d.). 2563 O-NET Results for Nakhon Pathom Primary Educational Service Area Office 2. Retrieved December, 20, 2017 from <https://bit.ly/3xslKtY> [in Thai]
- O'Donnell, R. J., & White, G. P. (2005). Within the accountability era: Principals' instructional leadership behaviors and student achievement. *NASSP Bulletin*, 89(645), 56–71. <https://doi.org/10.1177/019263650508964505>
- Office of Basic Education Commission. (2004). *National education act B.E. 2542 (1999)*. Pimdeekarnpim.
- Okpala, C. O., Hopson, L. B., Chapman, B., & Fort, E. (2011). Leadership development expertise: A mixed-method analysis. *Journal of Instructional Psychology*, 38(2), 133–137. <https://link.gale.com/apps/doc/A272616392/AONE?u=anon~13be49f4&sid=googleScholar&xid=c7049fab>
- Phetmalaikul, T. (2018). Academic administration and learning management model to enhance 21st century learners' characteristics and skills in basic education institutes: Mixed quantitative to qualitative analysis. *School of Educational Studies*, 11(1), 126–145. https://so05.tci-thaijo.org/index.php/edjour_stou/article/view/131289 [in Thai]
- Robinson, V. M. J. (2008). Forging the links between distributed leadership and educational outcomes. *Journal of Educational Administration*, 46(2), 241–256. <https://doi.org/10.1108/09578230810863299>
- Robinson, V. M. J., Lloyd, C. A., & Rowe, K. J. (2008). The impact of leadership on student outcomes: An analysis of the differential effects of leadership types. *Educational Administration Quarterly*, 44(5), 635–674. <https://doi.org/10.1177/0013161X08321509>
- Rowan, B., Dwyer, D., & Bossert, S. (1982, March). *Methodological considerations in the study of effective principals* [Paper presentation]. The Annual Meeting of the American Educational Research Association, New York, NY.
- Sammons, P., Gu, Q., Day, C., & Ko, J. (2011). Exploring the impact of school leadership on pupil outcomes: Results from a study of academically improved and effective schools in England. *International Journal of Educational Management*, 25(1), 83–101. <https://doi.org/10.1108/09513541111100134>
- Satapornwajana, S. (2006). *Participative management model development in basic education institutions* [Unpublished doctoral dissertation]. Chulalongkorn University.
- Sergiovanni, T. J., Kelleher, P., McCarthy, M. M., & Fowler, F. C. (2009). *Educational governance and administration* (6th ed.). Pearson.
- Sheppard, B. (1996). Exploring the transformational nature of instructional leadership. *The Alberta Journal of Educational Research*, 42(4), 325–344.
- Sudprasert, A. (2013). *The organizational diagnose affecting the academic performance of school under Nakornpathom Primary Educational Service Area Office 2: A thesis in educational administration* [Unpublished master's thesis]. Silpakorn University.
- Teel, K. S. (1978). Self-appraised revisited. *The Personnel Journal*, 57(7), 364–367.
- Thornton, G. C. (1980). Psychometric properties of self-appraisals of job performance. *Personnel Psychology*, 33(2), 236–271. <https://doi.org/10.1111/j.1744-6570.1980.tb02348.x>
- Wonganootroj, P. (2003). *Instruction supervision*. Supplementary Media Center.