

An Investigation on Driving Factors of Innovative School Framework for Basic Education in Thailand: A Need Assessment

Dawruwan Thawinkarn¹ and Keow Ngang Tang²

Abstract

The aim of this study was to explore the need assessment of driving factors of innovative school framework in primary schools under the jurisdiction of the Office of Basic Education Commission, Thailand. A total of 400 school directors and teachers participated in the survey using multi-stage random sampling. The seven driving factors of innovative school framework were investigated, utilizing a 30-items questionnaire. The need assessment results indicated that the innovative personality factor (PNI_{modified} = 0.43) was the most vital driving factor of innovative school framework for basic education. This was followed by challenging shared vision (PNI_{modified} = 0.42), innovative strategy (PNI_{modified} = 0.41), flexible culture and atmosphere (PNI_{modified} = 0.40), open communication (PNI_{modified} = 0.39); and flexible organization structure (PNI_{modified} = 0.34). The least capacity driving factor was innovator team (PNI_{modified} = 0.32). The overall need assessments imply that school directors can promote the innovative school framework by focusing on these seven driving factors. These need assessments are crucial for understanding the specific needs of school directors, teachers, and the broader educational system to foster innovation effectively.

Keywords: Basic Education, Driving Factors, Innovative School Framework, Need Assessment

ACKNOWLEDGMENT

This research is funded by National Research Council of Thailand (NRCT) and Khon Kaen University. This research is under the research and innovation grants program and the research code number is N42A650297.

INTRODUCTION

Innovative schools for basic education focus on transforming traditional educational practices to better prepare students for the challenges of the 21st century. These basic education schools often adopt unconventional approaches in curriculum design, teaching methods, assessment, and the learning environment (Ariratana et al., 2019). This was supported by Nguyen et al. (2021) who indicated that an innovative school organization emphasized personalized learning pathways for students, tailored to their interests, abilities, and learning styles, through differentiated instruction, adaptive learning technologies, and individualized support. Therefore, innovative schools for basic education reimagine the learning experience, moving beyond traditional models to create environments that are adaptable, student-centered, and designed to develop a wide range of skills. These schools often serve as models for broader educational reforms, demonstrating the potential for change in how we approach education at the foundational level (Theerasan et al., 2024a).

A challenging shared vision is one of the crucial factors in the framework of innovative schools, serving as a driving force that aligns all stakeholders, namely teachers, students, parent, and the wider community towards a common goal of educational transformation. It encapsulates the aspirations and commitments of the school community, inspiring continuous growth, and adaptation in response to the evolving educational landscape (Siththisomjin et al., 2018). Another essential factor for an innovative school framework is a flexible organizational structure as it supports the dynamic and evolving needs of the school community. Unlike traditional hierarchical structures, a flexible organizational structure allows for adaptability, responsiveness, and collaboration, which are essential for fostering innovation in education (Theerasan et al., 2024b).

¹ Faculty of Education, Khon Kaen University, 40002 Khon Kaen, Thailand. E-mail: dawtha@kku.ac.th (Corresponding Author)

² Postgraduate Program in Education, Faculty of Business, Hospitality and Humanities, Nilai University, 71800 Nilai, Negeri Sembilan, Malaysia.

According to Srikram et al. (2024), an innovator team is a pivotal factor of an innovative school framework. This team is composed of forward-thinking school directors and teachers who drive the school's innovation efforts by fostering creativity, collaboration, and continuous improvement. Consequently, the innovator team plays a crucial role in designing and implementing new initiatives, ensuring that the school remains at the forefront of educational excellence (Srikram et al., 2024). Bigliardi et al. (2020) highlighted the importance of an innovation strategy as a critical factor to serve as a roadmap for how the school will foster, implement, and sustain innovation across all aspects of its operation. They further explained that innovation strategy provides a structured approach to ensuring that the school's efforts to innovate are purposeful, aligned with its mission, and impactful (Bigliardi et al., 2020).

In addition, Prasertcharoensuk and Tang (2017) mentioned that innovative personalities are essential behaviors and mindsets that are cultivated within an innovative school framework. These personalities, practiced consistently by students, teachers, and school directors to create a culture where innovation thrives. Subsequently, the schools can ensure that innovation becomes a natural and ongoing process rather than a series of isolated events by embedding these personalities into the daily routines and practices of the school community (Prasertcharoensuk & Tang, 2017). Theerasan et al. (2024a) found that a flexible culture and atmosphere is a vital factor of an innovative school model. Theerasan et al. referred to this factor as creating an environment where creativity, adaptability, and collaboration can flourish an innovative organization. This flexibility permeates the school's practices, relationships, and physical spaces, making it conducive to continuous growth and innovation. The final factor is open communication which serves as the foundation for collaboration, trust, and effective decision-making (Narapong et al., 2024). Narapong et al. further explained that open communication is not just a practice but a core value that permeates all aspects of the school environment.

Based on the above literature review, the researchers conceptualized the seven essential factors, namely challenging shared vision, flexible organizational structure, innovator team, innovation strategy, innovative personality, flexible culture and atmosphere, and open communication. This research aimed to explore the need assessments of each driving factor of the innovative school framework for basic education in Thailand.

MATERIALS AND METHODS

Research Design and Instrument

The researchers used a questionnaire as an assessment in a survey research design. The rationale of using surveys was to gather broad perspectives from two groups of stakeholders, including school directors and teachers. The items in the questionnaire were focused on attitudes towards innovation, perceived challenges, readiness for change, and the current level of innovation in schools. In short, the key approach utilized to examine the need assessments of the seven driving factors of innovative organization framework. The questionnaire consisted of 30 items to examine the needs of the seven driving factors for innovative school framework of basic education in Thailand.

The questionnaire was administered in the Thai language to ensure that the respondents could understand all the items. Section A to G of the questionnaire was the need assessment specifically designed to measure the needs of innovative school framework factors in terms of seven factors as follows: Challenging shared vision (4 items), flexible organizational structure (4 items), innovator team (6 items), innovation strategy (4 items), innovative personality (4 items), flexible culture and atmosphere (3 items), and open communication (5 items), giving a total of 30 items.

Population and Samples

A multi-stage sampling technique was employed because it is an effective technique when dealing with large populations with a total of 399,799 students from 30,816 primary schools under the Office of the Basic Education Commission spread across various provinces in Thailand according to the record from the Office of Basic Education Policy and Planning Commission 2021. According to Gay et al. (2009), the multi-stage sampling technique involves selecting samples in multiple stages, often moving from larger to smaller units.

The researchers used Krejcie and Morgan's (1970) formula to determine sample size for a given population size. A total of 400 sample sizes were required and statistically significant and representative as below:

$$S = \frac{\chi^2 \cdot N \cdot P \cdot (1-P)}{d^2(N-1) + \chi^2 P(1-P)}$$

Where:

S = Required sample size

χ^2 = Chi-square value for 1 degree of freedom at the desired confidence level (usually 3.841 for a 95% confidence level)

N = Population size

P = Population proportion (assumed to be 0.5 for maximum sample size)

d = Degree of accuracy expressed as a proportion (e.g., 0.05 for $\pm 5\%$ accuracy)

Pilot Study and Data Analysis

The pilot testing of the questionnaire was then conducted on 30 primary school directors and teachers who were not the samples of the actual study, but they have the same background and structure as the samples of this research. The questionnaire was found reliable and good to use as the Cronbach alpha value was 0.866. The Item-Objective Congruence (IOC) method was used as a technique for evaluating the content validity of survey instruments. It involves assessing the alignment between each survey item and the corresponding objectives or constructs that the survey is intended to measure (Mohamed Ismail & Zubairi, 2022). The researchers used a 3-point rating scale for each item as follows: (i) +1 – The item clearly measures the objective; (ii) 0 – The item is not clear or is neutral in measuring the objective, and (iii) -1 – The item does not measure the objective at all.

The PNI modification calculation was used to measure the gap of need assessment between the current status compared with the desired status. The indication of the need assessment of innovative organization factors is based on the PNI value of at least 0.30, the need factors are more crucial when their number is higher than 0.30. The obtained data commands the factors needed for the development of innovation school framework as follows: $PNI_{\text{modified}} = (1-D)/D$. Moreover, descriptive statistics such as mean score and standard deviation were used to summarize the obtained data. Therefore, the researchers analyzed the mean scores into lists so that we could put the mean score in order to support comprehension. This could help the researchers to interpret the lowest and highest mean scores quickly in a group of ordinal variables. Subsequently standard deviation was used to analyze the data because standard deviation is the most useful index of variability. Standard deviation could tell us the variability of a distribution (Ubi, 2020).

RESULTS AND DISCUSSION

The results of this research are demonstrated in accordance with the research aim as indicated above. A total of 400 questionnaires have been successfully collected after a few times of follow-ups, giving a response rate of 100 percent. The interpretation of current or desired conditions of driving factors of innovative school framework for basic education administration was assessed according to Boomchom's (2014) identification as shown in Table 1.

Table 1: Interpretation of Current or Desired Conditions of Driving Factors of Innovative School Framework

Interval of Mean Value	Interpretation
4.51 to 5.00	Highest
3.51 to 4.50	High
2.51 to 3.50	Moderate
1.51 to 2.50	Low
1.00 to 1.50	Lowest

Overall Need Assessment Index of Driving Factors of Innovative School Framework for Basic Education

The results of the need assessment for driving factors of innovative school framework for basic education indicated that innovative personality is the most essential factor of innovative school framework. Table 2 depicts the details of each driving factor of innovative school framework ranking in order from the most needed to the least are as follows: innovative personality ($PNI_{\text{modified}} = 0.43$); challenging shared vision ($PNI_{\text{modified}} = 0.42$); innovative strategy ($PNI_{\text{modified}} = 0.41$); flexible culture and atmosphere ($PNI_{\text{modified}} = 0.40$); open communication ($PNI_{\text{modified}} = 0.39$); flexible organizational structure ($PNI_{\text{modified}} = 0.34$), and innovator team ($PNI_{\text{modified}} = 0.32$).

Table 2: Overall Need Assessment Index of Driving Factors of Innovative School Framework for Basic Education

Driving Factor of Innovative School Framework	Current status			Desirable status			PNI_{modified}	Ranking
	$\bar{X}$	SD	Level	$\bar{X}$	SD	Level		
Challenging Shared Vision	3.18	0.54	Moderate	4.50	0.50	High	0.42	2
Flexible Organizational Structure	3.36	0.53	Moderate	4.51	0.51	Highest	0.34	6
Innovator Team	3.34	0.56	Moderate	4.45	0.51	High	0.32	7
Innovation Strategy	3.16	0.46	Moderate	4.46	0.52	High	0.41	3
Innovative Personality	3.19	0.50	Moderate	4.56	0.52	Highest	0.43	1
Flexible Culture and Atmosphere	3.29	0.53	Moderate	4.60	0.48	Highest	0.40	4
Open Communication	3.28	0.50	Moderate	4.57	0.57	Highest	0.39	5
Total	3.25	0.51	Moderate	4.52	0.51	Highest	0.39	

Need Assessment Index of Challenging Shared Vision Driving Factor of Innovative School Framework for Basic Education

The challenging shared vision driving factor was explored in detail as portrayed in Table 3. The greatest gap between the current status and desirable status in terms of challenging shared vision showed that directors and teachers determine the school vision for future success collaboratively. Table 3 shows the four gaps in descending order between the current status and the desirable status for the factor of challenging shared vision.

Table 3: Need Assessment Index of Challenging Shared Vision Driving Factor of Innovative School Framework for Basic Education

Challenging Shared Vision Factor	Current status			Desirable status			PNI_{modified}	Ranking
	$\bar{X}$	SD	Level	$\bar{X}$	SD	Level		
Directors and teachers determine the school vision for future success collaboratively.	3.03	0.65	Moderate	4.58	0.50	Highest	0.51	1
Teachers feel responsible and ready to achieve the challenging shared vision.	3.44	0.66	Moderate	4.48	0.51	High	0.30	4
Teachers support their work in the same direction of the challenging shared vision.	3.01	0.40	Moderate	4.52	0.51	Highest	0.50	2
Directors encourage teachers to use innovations to achieve the challenging shared vision.	3.24	0.64	Moderate	4.44	0.54	High	0.37	3
Total	3.18	0.54	Moderate	4.50	0.50	High	0.42	

Need Assessment Index of Flexible Organizational Structure Driving Factor of Innovative School Framework for Basic Education

The next driving factor of innovative school framework was flexible organizational structure. The greatest gap between the current status and desirable status in flexible organizational structure in basic education showed that the school empowers the team to create innovation in a teamwork process. Table 4 demonstrates

the four gaps in descending order between the current status and the desirable status for the flexible organizational structure.

Table 4: Need Assessment Index of Flexible Organizational Structure Driving Factor of Innovative School Framework for Basic Education

Flexible Organizational Structure Factor	Current status			Desirable status			PNI _{modified}	Ranking
	$\bar{X}$	SD	Level	$\bar{X}$	SD	Level		
Directors organize school organizational structure with work teams to adapt to social environment.	3.35	0.46	Moderate	4.51	0.46	Highest	0.34	3
Directors empower teachers to plan and perform their work independently.	3.36	0.54	Moderate	4.53	0.44	Highest	0.35	2
The school empower the team to create innovation in a teamwork process.	3.24	0.56	Moderate	4.51	0.59	Highest	0.39	1
Teachers are knowledgeable and skillful to develop innovations.	3.49	0.55	Moderate	4.50	0.59	High	0.29	4
Total	3.36	0.53	Moderate	4.50	0.51	High	0.34	

Need Assessment Index of Innovative Team Driving Factor of Innovative School Framework for Basic Education

The following factor of innovative school framework was innovative team. Table 5 elucidates the six greatest gaps between the current status and the desirable status for innovative team. However, the results indicated that directors encourage teachers' creative thinking to apply new ideas for promoting innovations showed the greatest gap between the current status and desirable status.

Table 5: Need Assessment Index of Innovative Team Driving Factor of Innovative School Framework for Basic Education

Innovative Team Factor	Current status			Desirable status			PNI _{modified}	Ranking
	$\bar{X}$	SD	Level	$\bar{X}$	SD	Level		
Directors encourage teachers' creative thinking to apply new ideas for promoting innovations.	3.21	0.49	Moderate	4.66	0.68	Highest	0.45	1
Teachers possess skills to think, connect ideas to work, and take smart risks for school change.	3.41	0.54	Moderate	4.51	0.56	Highest	0.32	5
Directors encourage teachers to focus on creating innovations and strive for the school success.	3.24	0.66	Moderate	4.44	0.57	High	0.37	2
Teachers are motivated to work independently.	3.38	0.67	Moderate	4.53	0.56	Highest	0.34	3
Teachers act as problem solvers to face various obstacles without fear of the consequences.	3.44	0.67	Moderate	4.48	0.51	High	0.30	6
Teachers possess interpersonal skills to work in team.	3.36	0.43	Moderate	4.46	0.44	High	0.33	4
Total	3.34	0.56	Moderate	4.45	0.51	High	0.32	

Need Assessment Index of Innovation Strategy Driving Factor of Innovative School Framework for Basic Education

The subsequent factor of innovative school framework to debate was innovation strategy factor. Table 6 shows the four greatest gaps between the current status and the desirable status for innovation strategy.

Table 6: Need Assessment Index of Innovation Strategy Driving Factor of Innovative School Framework for Basic Education

Innovation Strategy Factor	Current status			Desirable status			PNI _{modified}	Ranking
	$\bar{X}$	SD	Level	$\bar{X}$	SD	Level		
School has best practices in terms of innovation that can be a good role model.	3.10	0.54	Moderate	4.36	0.46	High	0.40	3
School conduct organizational environment analysis to create strategies for facilitating innovations.	3.02	0.42	Moderate	4.51	0.56	Highest	0.49	2
The school practices innovation strategy by preparing an annual action plan collaboratively.	3.01	0.43	Moderate	4.52	0.51	Highest	0.50	1
School provides information on operating results based on annual action plan systematically.	3.52	0.50	High	4.47	0.50	High	0.27	4
Total	3.16	0.46	Moderate	4.46	0.52	High	0.41	

Need Assessment Index of Innovative Personality Driving Factor of Innovative School Framework for Basic Education

The fifth driving factor of innovative organization framework was innovative personality. Table 7 displays the four greatest gaps between the current status and the desirable status of innovative school framework for basic education.

Table 7: Need Assessment Index of Innovative Personality Driving Factor of Innovative School Framework for Basic Education

Innovative Personality Factor	Current status			Desirable status			PNI _{modified}	Ranking
	$\bar{X}$	SD	Level	$\bar{X}$	SD	Level		
Management provides opportunities to teachers to think and express their thoughts to create innovations creatively.	3.13	0.44	Moderate	4.57	0.46	Highest	0.46	1
Teachers can analyze opportunity and respond to improve when facing any hostile situation.	3.26	0.56	Moderate	4.60	0.52	Highest	0.42	3
Teachers are change leaders who seek for innovations to solve problems successfully.	3.12	0.42	Moderate	4.51	0.46	Highest	0.45	2
Teachers have opportunity to seek and commit to work for organizational success.	3.23	0.52	Moderate	4.56	0.56	Highest	0.41	4
Total	3.19	0.50	Moderate	4.56	0.52	Highest	0.43	

Need Assessment Index of Flexible Culture and Atmosphere Driving Factor of Innovative School Framework for Basic Education

The sixth driving factor of innovative organization framework was flexible culture and atmosphere. Table 8 illustrates the three greatest gaps between the current status and the desirable status of innovative school framework for basic education.

Table 8: Need Assessment Index of Flexible Culture and Atmosphere Driving Factor of Innovative School Framework for Basic Education

Flexible Culture and Atmosphere Factor	Current status			Desirable status			PNI _{modified}	Ranking
	$\bar{X}$	SD	Level	$\bar{X}$	SD	Level		
Directors create a freely	3.25	0.44	Moderate	4.60	0.46	Highest	0.42	1

atmosphere to express opinions, present ideas, and ask questions to create innovations.								
Directors provide opportunities for teachers in setting the challenging goals.	3.24	0.54	Moderate	4.56	0.49	Highest	0.41	2
Teachers work in a safe working atmosphere without being criticized.	3.39	0.56	Moderate	4.65	0.50	Highest	0.37	3
Total	3.29	0.53	Moderate	4.60	0.48	Highest	0.40	

Need Assessment Index of Open Communication Driving Factor of Innovative School Framework for Basic Education

The final driving factor of innovative organization framework was open communication. Table 9 illustrates the five greatest gaps between the current status and the desirable status of innovative school framework for basic education

Table 9: Need Assessment Index of Open Communication Driving Factor of Innovative School Framework for Basic Education

Open Communication Factor	Current status			Desirable status			PNI _{modified}	Ranking
	$\bar{X}$	SD	Level	$\bar{X}$	SD	Level		
School operates a professional learning community for teachers to exchange opinions, needs and feelings of shared organizational ownership.	3.32	0.52	Moderate	4.65	0.51	Highest	0.40	2
Directors transform teachers' attitudes and behavior to create innovations in practice.	3.36	0.53	Moderate	4.56	0.56	Highest	0.38	4
Directors provide freedom for teachers to exchange opinions, develop inspiration, and create innovations.	3.27	0.46	Moderate	4.55	0.46	Highest	0.39	3
Management cultivates teachers' good attitude to create innovations.	3.16	0.50	Moderate	4.53	0.56	Highest	0.43	1
Teachers understand and know how to adapt the change in organizational environment appropriately.	3.30	0.55	Moderate	4.56	0.53	Highest	0.38	5
Total	3.28	0.50	Moderate	4.57	0.57	Highest	0.39	

CONCLUSION

A needs assessment to investigate driving factors for innovative schools in basic education is to evaluate the current educational landscape, identify gaps and determine the resources and strategies needed to implement or enhance innovation in schools (Bigliardi et al., 2020). The results imply that the concept of an innovative school is one that embraces new teaching methods, technologies, and organizational structures to enhance student learning and overall school performance (Ariratana et al., 2019). As a result, these schools should focus on developing skills that are essential for 21st century, such as critical thinking, creativity, collaboration, and communication, while also emphasizing personalized learning and community engagement (Theerasan et al., 2024a).

The result indicated that innovative personality was the most essential driving factor of innovative school framework (PNI_{modified} = 0.43). Based on this result, the researchers concluded that innovative personality is the behavioral foundations that support an innovative school framework. Therefore, the school director can create an environment where innovation is not just encouraged but ingrained in the daily life of the school community by cultivating these innovative personalities. These personalities empower students and teachers

to think creatively, act collaboratively, and continuously pursue new and better ways of teaching, learning, and leading.

The second greatest gap between the current status and the desirable status of innovative school framework for basic education was challenging shared vision driving factor ($PNI_{\text{modified}} = 0.42$). The challenging shared vision within an innovative school framework act as a unifying force, guiding the school community toward transformative educational practices. It is ambitious yet grounded, collaborative yet focused, and constantly evolving to meet the needs of students and teachers in an ever-changing world. This vision is essential for fostering a culture of innovation that can lead to sustained educational excellence (Narapong et al., 2024). Innovation strategy was found as the third greatest gap between the current status and the desirable status of innovative school framework for basic education ($PNI_{\text{modified}} = 0.41$). An innovation strategy was essential to guiding an innovative school's efforts to create meaningful and sustainable change (Prasertcharoensuk & Tang, 2017). When school directors provide a clear vision, structured approach, and ongoing support, the strategy can ensure that innovation is not just a buzzword but a deeply embedded part of the school's identity and operations. This strategic approach enables the school to effectively harness the power of innovation to enhance educational outcomes and prepare students for the challenges of the future (Prasertcharoensuk & Tang, 2017).

The fourth greatest gap between the current status and the desirable status of innovative school framework was flexible culture and atmosphere ($PNI_{\text{modified}} = 0.40$). Based on this result, the researchers concluded that a flexible culture and atmosphere is fundamental to the success of an innovative school framework. Therefore, the school directors can create the conditions necessary for innovation to thrive by fostering an environment that is open to change, supportive of creativity, and adaptable to diverse needs. This flexibility not only enhances the educational experience for students but also empowers teachers to continuously evolve and improve their practices, ensuring that the school remains a vibrant and forward-thinking institution (Theerasan et al., 2024b). The fifth greatest gap between the current status and the desirable status of innovative school framework was open communication ($PNI_{\text{modified}} = 0.39$). The researchers concluded that open communication is a cornerstone of an innovative school framework. The school directors can create an environment where innovation can thrive by fostering collaboration, transparency, trust, and inclusiveness. Consequently, open communication not only enhances the effectiveness of the school's practices and decision-making processes but also empowers all members of the school community to contribute to its ongoing success and growth (Nguyen et al., 2021).

The sixth factor with greatest gap between the current status and the desirable status of innovative school framework was flexible organizational structure ($PNI_{\text{modified}} = 0.34$). This implies that a flexible organizational structure is foundational to the success of an innovative school. It creates an environment where adaptability, collaboration, and continuous improvement are the norms, allowing the school to respond effectively to the demands of a rapidly changing educational landscape (Sitthisomjin, 2018). It can be concluded that the structure is used to ensure that school remains a vibrant and dynamic place of learning by breaking down traditional hierarchies and empowering teachers to take the lead in innovation. The final factor with the narrowest gap between the current status and the desirable status of innovative school framework was innovator team ($PNI_{\text{modified}} = 0.32$). This is because the team can make sure that the school remains a dynamic, forward-thinking institution by leading the change in developing implementing, and scaling new ideas. Their collaborative approach, commitment to professional development, and focus on aligning innovation with the school's vision, make them a cornerstone of any innovative educational environment. In short, an innovative team is still considered important to the success of an innovative school framework (Srikram et al., 2024).

In conclusion, innovative schools prioritize student-centered learning, where the curriculum is tailored to meet the needs, interests, and learning styles of each student. This approach fosters autonomy, critical thinking, and problem-solving skills. Project-based Learning is a common practice in innovative schools, where students engage in complex, real-world projects that require collaboration, creativity, and critical thinking. This approach helps students connect academic concepts to practical applications. Finally,

technology plays a central role in innovative schools, enhancing personalized learning, providing access to a wealth of resources, and enabling new forms of collaboration and communication.

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