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# How "Thailand 4.0" principals applied leadership and technology towards teacher learning: Three case studies

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**Abstract**

This study aimed to investigate how principals applied their leadership and technology to support teacher professional learning (TPL) in three contextually distinct Thai schools. The research followed a multi-site exploratory case study based on the framework of learning-centered leadership on promoting TPL and information technology leadership. Semi-structured in-depth interviews, observations and school documents were primary sources for qualitative data analysis. Findings revealed that all three cases shared common features that advance technology-based teacher learning: having technology enhanced learning visions; being a model learning leader; managing empowered, collaborative, technology-infused, job-embedded learning; and creating conditions to support and sustain digital learning. There were distinct and innovative practices, made possible by technology, which the principals employed to optimize the effectiveness of teacher learning in their settings. The study supported an extensive body of literature that underscored the vital role of learning-centered leadership for teacher learning. It also highlighted the importance of technology for learning and adaptive leadership practices across different school settings. This study will contribute to better understanding how principals react to policies such as Thailand 4.0 and facilitate the integration of technology into TPL.



## Introduction

You can't have Thailand 4.0…, if you don't have school leader 4.0.

Ken Kay (AksornAct, 2017)

Thailand 4.0 is Thai Government's new long-term policy aiming to reform the country to become a more innovative and creativity-based society in the 21st century. To develop a generation of learners who can overcome challenges in future workplace, education reform was cited as the key ingredient (Schleicher, 2012). The Organization for Economic Co-operation and Development (OECD) suggested that "the success of Thailand's education system will increasingly depend on how well it uses the potential of information and communications technology (ICT) to support students' acquisition of the 21st century competencies and, on a system-wide level, better manage schools" (Organisation for Economic Cooperation and Development and United Nations Educational, Scientific and Cultural Organization [OECD/UNESCO], 2016, p. 16). In the past two decades, Thailand spent heavily on educational initiatives to enhance technology integration, but they did not have much impact on teaching and learning (Chiangkul, 2016; Fry & Bi, 2013). While some technology was utilized in professional development, Thai teachers felt relatively insecure about their ICT capabilities (Fraillon, Ainley, Schulz, & Friedman, 2014, pp. 206–208).

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To achieve effective technology integration in school, teachers must receive enough support in developing relevant competencies, self-efficacy, pedagogic viewpoints and enabling school culture (Ertmer & Ottenbreit-Leftwich, 2010), all of which require both vision and provision by the principals. Among principal behaviors, leading teacher learning and development provided the highest impact on whole school learning capacity (Robinson, Lloyd, & Rowe, 2008). Yet, school leaders typically had difficulty dealing with technology in learning and there have been insufficient undertakings by policy makers to improve their capacities in this area (McLeod & Richardson, 2013). Because the roles of a principal today exceed those of typical administrative ones, Schleicher (2012) urged that different set of standards of principals in the 21st century needed to be redefined. Without clearly defining what their key ICT competences are, the current standards for principals are far from aligning with the educational goals of Thailand 4.0.

As Ken Kay (AksornAct, 2017) stated above, the Ministry of Education (MOE) must first develop school leaders who have essential capabilities to lead teachers and nurture students to become citizens 4.0. The lack of clear understanding of how a principal's leadership and technology competencies can affect teacher professional development (TPD) in Thailand 4.0 era may prove to be a threat to the future of the initiatives. Consequently, this research aimed to address the following research question: how do Thai principals apply their leadership and technology to foster teacher learning?

## Literature Review

### *Learning-centered Leadership (LCL)*

The concept of LCL features key characteristics and behaviors of school leaders that promoted TPD and learning (Fullan, 2014; Hallinger, 2011). First, learning-centered leaders articulated and communicated school visions that motivated learning towards shared goals in the school. They provided support for learning by facilitating collaborative environment and finding and allocating resources for teacher learning. They also managed the learning program by organizing, engaging, managing and monitoring learning activities designed to foster teacher learning. They acted as role models and set examples by being actively involved with teacher learning and becoming leaders in learning. To direct the energies and resources to developing teaching teams, they realigned and arranged policies, structure, and decision making across schools towards empowering teachers at all levels. Lastly, in order to optimize teachers' opportunities to be successful in professional learning, school leaders leveraged both internal and external resources and exchanged ideas with parents and communities to provide critical resources, expertise and infrastructure.

### *Information Technology Leadership*

Compatible with and guided by LCL framework, the concept of Information Technology (IT) leadership practices comprise school leaders' features and actions that influence teachers' learning and practices with IT by understanding both how technology enhances classroom instructions and how to create conditions that encourage its use (Dexter, 2018). Initially, they set directions for IT integration by identifying a shared vision for using IT to support teaching and learning. Then, they develop individual and groups of teachers by creating learning opportunities and leading by example. Lastly, they develop the organization by creating collaborative cultures, enabling school organization, allocating school resources and leveraging networking to support teacher learning with IT.

## Methodology

This study adopted a qualitative case study design to enable relevant data collection in a number of schools that utilized technology for teaching and learning. A multiple-case design was used due to its advantages in providing more compelling evidence and being more robust than a single-case design (Yin, 2009).

### *Case Selection*

Purposeful sampling, designed to select schools based on recommendation from specialists in the educational technology sector, was used. According to Yin (2009), the cases should be selected carefully so that comparable outcomes across cases can be forecasted. The differences in school size, socio-economic status, geographical area and levels of education system were also taken into consideration.

Three schools that had been recognized by national and provincial authorities for improvement of teaching and learning through effective use of technology were identified. Table 1 shows profiles of the three schools.

Bangkok: a middle-sized secondary school serving 1,100 students mostly from upper-middle background. Founded in 1955 under OBEC, the school was renowned for excellence in English and technology at national level. Principal Sompong led a staff of 88, including 10 contract teachers and 3 deputy principals. Into his sixth year as the principal at the school, he was recognized as a pioneer in integrated English and technology curriculum. He was also a regular guest speaker and an MOE working committee member on the subject.

Uttaradit: a large provincial secondary school serving over 3,200 students mostly from middle-class families. Established in 1920, it was recognized as one of the most competitive and innovative schools in the region. The school used its prestige as a leading provincial school to attract donations from parents, communities, local businesses and politicians as its major source of capital. Principal Somchai headed a staff of 225 including 5 deputy principals and 20 contract teachers. He received both OBEC teacher and principal of the year awards.

Chiang Rai: a large kindergarten and elementary school serving 900 mostly underprivileged children. Due to its close proximity to Myanmar, some students came from indigenous hill tribes and Burmese cities across the border. Once a child care center, the school was inaugurated by Chiang Rai city municipality in 2007 with 72 students at prathom 1 (grade 1). The principal, Somphop, led a staff of 72 including 20 contract teachers and 2 deputy principals. Recognized by TCT as an exemplary teacher and leader of the innovative school project, the principal was a well-respected leader of Chiang Rai school network.

**Table 1** Details of selected schools in the study

| | Bangkok | Uttaradit | Chiang rai |
|---|---|---|---|
| History | Established 1955, OBEC Pilot English Program school from 2002 | Established 1920, formerly female-only provincial school | Formerly a day care center; founded in 2007 with 72 students in prathom 1 (1st grade) |
| Affiliate | OBEC | OBEC | Municipality |
| Level | Secondary | Secondary | Kindergarten & Elementary |
| Student background | Upper-middle class | Middle class | Disadvantaged, some from indigenous hill tribes and Myanmar |
| Students | 1,100 | 3,200 | 900 |
| Tenured teachers | 50 | 155 | 40 |
| Contract teachers | 10 | 20 | 20 |
| Non-teaching staff | 25 | 45 | 10 |
| Assistant principals | 3 | 5 | 2 |
| Principal's name (age) | Sompong (59) | Somchai (58) | Somphop (58) |
| Principal's gender | Male | Male | Male |
| Principal's experience (years) | 20 | 20 | 12 |
| Principal's experience at current school (years) | 6 | 6 | 10 |
| Principal's notable achievement(s) | Pioneer in integrated English & technology curriculum | Awarded OBEC teacher and principal of the year | Recipient of TCT exemplary teacher and innovative school project award |
| Major sources of school funding | Tuition | City, donations from corporates, local enterprises and communities | City, donations from local businesses, monastery, and communities |

*Interview Protocol Development*

This study developed its interview protocol based on the theoretical framework and research questions. Two sets of open-ended questions for semi-structured interviews with the corresponding principals and teachers were designed. The protocol was pilot tested on a principal and a teacher who were not participants of the study at a school in Nakhon Ratchasima. This pilot school was chosen due to its evident technology implementation in teaching and learning. The results from pilot study were used as a basis for refining and rearranging the interview protocol to extract deeper responses from the participants.

*Data Collection*

Interviewing the principal and 5 to 7 teachers at each school for approximately 90 to 120 minutes per interview took two days. Each teacher was purposefully selected to enhance the quality of data to address the research questions. In this study, participants included teachers of different subjects, ranks and teaching experiences with direct involvement in integrating technology in classroom and administrative tasks. The interviews were audio-recorded digitally and transcribed verbatim. An observation form to collect data from direct observations of school activities performed by both participants and non-participants in this study was used. Short notes were utilized to extract data from web sites and administrative documents such as self-assessment reports. These documentary data sources offered cross-validation for information gathered from the interviews and direct observations. After each fieldwork day, preliminary findings were exchanged and reflection notes made.

*Data Analysis*

This began by coding data based on existing literature and followed up by organizing data into a case record for each school. Triangulation was used to cross-validate the data from the principal, teachers, related documents and direct observations in order to develop a thorough understanding of each case. Subsequently, we utilized the cross-case analysis to synthesize the data and generate categories. This data synthesis process uncovered patterns, similarities, and differences among three schools (Yin, 2009). The data were analyzed using MAXQDA software version 11 for data storage, coding texts, and grouping codes.

## Results

*Lead Technology Enhanced Learning Visions and be a Model Learning Leader*

The evidence from our data clearly shows that all three principals influenced teacher professional learning (TPL) with technology by leading technology enhanced learning visions. They believed that technology enhanced learning in the 21st century was the means to improve teachers' instruction and learners' engagement that subsequently would help develop learners' 21st century skills. The principals led the learning visions by articulating and communicating shared goals with teachers and stakeholders. For instance, Teacher 1 (Bangkok) remarked about how Sompong, upon assuming the role of principal, immediately "set up his vision and strategies for the next 3 years" and encouraged teachers to "look to the future especially with technology."

In addition to the advanced learning visions, our data showed that all three school leaders possessed the quality of a role model in learning that helped encourage teachers. They understood the role of a leader to lead by example and had a strong sense of self-efficacy in learning. Despite their lack of training in technology or language skills in early years, the principals realized their significance and had the will to learn these new skills. Sompong, for example, gained confidence as a self-learner to communicate effectively in English and excel in computer skills. He "realized that technology was the most helpful tool" to help him learn on his own as he explained that he "didn't need to ask any foreign teachers for help because I can learn by myself…" Similarly, Somphop believed that learning new technologies was essential for school leaders since the social environment shifted and that would benefit the learners. He insisted that the change must "start with myself."

Teachers whom we interviewed in all three schools spoke highly of their leaders with regards to their being role models in learning. They believed that leaders who have visions must also show the way to convince teachers that the efforts to learn new digital skills would translate to better outcomes for students. Teacher 2 (Bangkok), who viewed her principal as "innovative," witnessed that he "learned to use all these digital learning tools." She supposed that, as a principal, one must "understand firsthand" because "if the principal knows, teachers will have confidence…" At Chiang Rai, teachers were impressed by Somphop's ability to learn despite his age and saw him as "an example for younger teachers." According to Teacher 2, Somphop, at 55 years old, "didn't even know how to hold a (computer) mouse" but he "tried his best to learn." Teacher 1 (Chiang Rai) was enthused by the principal's learning capabilities: "I cannot follow him. Especially when we attend EDUCA (an annual academic conference) or a student competition, he will instruct us to take note, but we cannot keep track! He is the one who can grasp many concepts and when we return to school, he would share all these new ideas with us…"

### *Manage Empowered, Collaborative, Technology-Infused, Job-Embedded Learning*

These principals were avid followers of trends and research in technology. They all set their focus on integrating technology into TPL in an empowered, collaborative, and job-embedded fashion. They assisted in planning and integrating learning into teachers' daily practices and regularly monitored their progress. Based on our data, teachers reported that they were also given time to work in teams for peer-review lessons. All three leaders took advantage of the free digital sharing space where exemplar lessons, tips, and ideas could be shared across schools. Teachers also reported that they felt empowered in their own learning by regularly leading external training sessions for allied schools.

Sompong, for example, demonstrated the virtual classes he created in various subjects on the digital platform. In each virtual classroom, the teacher leader of a specific theme or subject acted as a 'teacher' and other teachers as 'students.' The principal joined every 'class' as a co-teacher. The teachers shared, distributed and exchanged ideas about related education news, research, and digital learning materials. He also gave the teachers learning assignments and monitored their progress on learning. Through digital form, head teachers evaluated teachers' instructional performance and shared the reports with the principal for making decisions on teachers' professional development. Sompong described his strategies: "They [teachers] must realize that they have to practice to gain competency… Practicing while teaching towards on-the-job learning… This way I can follow up with their learning from anywhere anytime on my laptop or mobile phone." Teachers at Bangkok reported that their professional learning communities strengthened their expertise, helped them discover "different problems" and forced them to "adjust to their learning" by "listening to the feedback and retraining [themselves]."

At Uttaradit, Somchai co-founded and led a network of public school leaders who shared common interests in technology for school improvement. This association created various opportunities for teacher learning at his current school including financial and knowhow supports. Currently, the school serves as Google regional training center. Teacher 1 (Uttaradit) explained: "I am a leader in my network of social studies teachers in 18 schools. Every semester we hold a learning session to enhance our capabilities. We have to develop our teachers in the network." Similarly, Somphop forged partnership with Google and obtained support from a nearby provincial secondary school. Successful professional learning community (PLC) program at Chiang Rai made the school a learning center for other network municipal schools. Technology was an integral part of their collaboration and learning as Teacher 3 described: "We use FaceTime sometimes when we need to share information. Now we do PLC project, we can share our ideas and collaborate on Google Docs…" He also recognized the importance of technology quickly and leveraged staff's technology capabilities for school development. He appointed mostly young teachers as members of the school board and employed technology to help plan, follow-up, and assess school activities. Teachers reported that they could set meeting agendas collaboratively on a shared digital document for better efficiency and transparency.

### *Create Conditions to Support and Sustain Learning*

Our data showed that all three principals shared these following features that helped teachers to gain and maintain IT-based professional learning.

#### *Aligned digital learning with teacher professional growth*

Thai teachers were required to submit an action research project to be considered for a promotion. All principals in our study recognized that technology skills could assist teachers in creating inventive learning materials to be used as interventions in the research. For example, both Somchai and Somphop created professional growth plans for individual teachers to ensure that the trainings were relevant to each teacher's learning goals. Teachers were encouraged to create digital learning materials and submit outstanding ones for regional and national competitions. For example, Teacher 2 (Uttaradit) noted: "…Teachers who received promotions must submit some innovation. They must create learning materials.

The school set a policy that every teacher must produce learning material each semester. They might not realize in the beginning that it could be used for promotion later. Their creations will improve through the selection process from subject level to school level to regional and national level."

*Engaging and seeking support from parents and allies*

The principals recognized the vital roles of parents, communities, and external organizations for financial, expertise, and parental supports. Both Chiang Rai and Uttaradit relied greatly on financial support from external organizations. The alliances were especially essential for effective technology initiatives. For example, Teacher 5 (Uttaradit) noted that Somchai was adept at "bringing money" for school budgets due to his "good network" and ability to "approach people."

*Providing supportive technology infrastructure*

Having enabling infrastructure is critical for successful technology initiatives in school. All principals not only realized this point but also invested heavily to modernize both digital and physical infrastructure to support several projects of educational delivery. Somchai, for example, authorized a large portion of school endowment on building large-bandwidth Internet infrastructure, digital media laboratory, and one-on-one device initiatives. He explained, "We couldn't wait for teachers to buy it for themselves three years ago."

*Streamlining school processes with digital advantage*

Thai teachers reported that their workload was high, stressful and overwhelmed with paperwork particularly non-academic filing (Chiangkul, 2016). Based on our data, all three principals simplified the administrative workflow by taking advantage of the digital tools. For example, Somphop implemented a scheme to let his teacher leaders collaboratively plan, edit and share meeting minutes in real-time using cloud-based word processor. This sped up the meeting time and also helped to keep team members in agreement and update any changes made before and after meetings.

*Motivating teachers with rewards and opportunities for further learning*

All school leaders provided both informal and formal rewards and recognition to acknowledge teachers who demonstrated outstanding progress in professional learning. The three cases revealed a similar pattern of informal recognition practices, such as complimenting teachers' accomplishments in front of others. The principals also used social media like Facebook and Line to regularly update followers about their teachers' professional accomplishments. In terms of rewards, our data illustrated that the principals set up reward systems to gratify good performance as well as to promote further professional development. Due to their sizeable budgets and extensive networks, Bangkok and Uttaradit organized yearly educational overseas trips and teacher exchange program with network schools abroad.

## Discussion

Although the principals' approaches in advancing teacher learning with technology essentially followed parallel patterns of LCL (Fullan, 2014; Hallinger, 2011), there were distinct variations and innovative practices, corresponding with the IT leadership concept (Dexter, 2018), that the principals employed to optimize the effectiveness of teacher learning.

First, all principals influenced teacher learning with technology by emphasizing the vision that technology enhanced learning for both teachers and students. They did not merely follow the MOE policy of Thailand 4.0 by simply commanding teachers to change their practices. They genuinely understood the impact of technology on learning. They justifiably gained collective support from teachers and stakeholders by expressing the new ideas distinctly, resulting in teachers' willingness to learn new skills and subsequently change their routine practices. Highlighting IT vision is vital for institutionalizing technology use in school (Dexter, 2018).

The principals also solidified the digital-age learning vision by becoming learning leaders themselves. According to Fullan (2014, p. 56), the principal must "lead the school's teachers in a process of learning to improve their teaching, while learning alongside them about what works and what doesn't." Also, setting a good example by principals helps to shape a digital culture in school (Dexter, 2018). All three principals evidently demonstrated self-efficacy in acquiring new technological skills. Moreover, they recognized that innovation required taking risks and the willingness to learn from mistakes to achieve better results.

Current body of research in IT leadership stresses the importance of leaders' involvement in employing IT to create empowered, practice-embedded, community-based learning pathways for teachers (Dexter, 2018; Ertmer & Ottenbreit-Leftwich, 2010). In our study, all three principals took initiatives in planning and implanting technology in teachers' day-to-day responsibilities and closely monitoring their progress in learning. They all ensured that technology was used primarily as the tool to enhance productivity, knowledge sharing, and collaboration among teachers and subsequently student learning. Technology was also effectively applied to help alleviate the ongoing challenge in Thai education: the principal's extensive off-school responsibilities. The three principals aptly utilized digital tools to monitor, provide feedback and engage with teacher learning during out-of-school networking duties.

To support and sustain teacher learning with technology, school leaders needed strategies that matched well with the Thai context. Firstly, the three principals ensured that technological skills teachers acquired could be used towards implementing action research, as mandated for career promotion in Thailand. These principals understood that climbing up the professional hierarchy signified financial and societal gains for Thai teachers. Using technology, they also simplified the administrative procedures to optimize teachers' time. As Thai teachers generally work long hours in highly bureaucratic structures (OECD/UNESCO, 2016), this allows them time for working collaboratively and advancing their professional learning.

Realizing that having supportive technology infrastructure is a precondition to digital learning, the principals demonstrated the abilities to leverage social capitals within their networks to acquire both hardware and software to achieve IT goals. This is consistent with assertion by Fullan (2014) that school leaders must act as a system player to create productive partnerships in order to gain financial support, intellectual expertise, and infrastructure through interaction within the network. This is particularly true in Thailand where government budget is barely sufficient for school basic operations, let alone high investment in technology implementation.

Finally, recognition and rewards can significantly increase teachers' morale and self-confidence in their IT learning (Dexter, 2018). These principals incentivized teacher learning by giving informal and formal rewards and recognition for their achievements. They used common practices such as complimenting teachers and celebrating their professional attainments on social media. The principals were also intentional in their granting of learning-related rewards such as annual overseas field trips for the whole school.

## Conclusion and Recommendation

These findings highlight the strategies that the three selected school leaders used to support teacher learning by combining their leadership and technology capabilities. To generalize these results, we primarily recommend future quantitative research for investigating the state of practices of the general Thai principal population that are aligned with those of the selected principals in this study. Such studies will equip Thai policymakers with research-based insights for understanding the redefined roles of the school leaders and developing new professional standards associated with Thailand 4.0 policy.

In the past decade, the body of research on school leadership and TPL in Eastern Asian cultures has begun to emerge (Hallinger & Bryant, 2013). This allowed both researchers and practitioners to gain more insights about how the general strategies leadership influenced teacher learning capacities in this large and diverse region. Meanwhile, scholars have developed more interests in the subject of IT leadership (Dexter, 2018). Evidently, in the age of digital transformation, technology has significantly altered the interactions among principals, teachers, students and stakeholders. Therefore, we hope to propose future research recommendations specifically on how school leaders in Eastern societies react to a similar policy to Thailand 4.0 and deal with the challenge of integrating technology to best fit the school settings. This line of study will contribute to better understanding ever-changing and complex roles of the principals in different social and IT landscapes and add to the growing international literature in educational leadership and management.

## Conflict of Interest

There is no conflict of interest.

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