

Evaluation of Guidelines for Developing Digital Leadership of School Administrators According to the School Development Model Towards Leadership in Digital Era

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ABSTRACT

This research was aimed to 1) determine the current and desirable states, and the priority needs index of the guidelines for developing digital leadership of school administrators according to the school development model towards leadership in digital era; 2) evaluate the guidelines for developing digital leadership of school administrators. Mixed methods research was employed and undertaken in 2 phrases. Phrase 1 investigated the model. The sample includes 14 schools affiliated to the Saint Gabriel's Foundation, Thailand in 2020 academic year. Instruments consist of concept questionnaire, current and desirable states questionnaire, model propriety and feasibility evaluation form. Phrase 2 evaluated the model's guidelines for developing digital leadership of school administrators according to the school development model towards leadership in digital era by means of interviews with 30 experts of human resource development, digital technology, and education administration. Instruments comprise structured questionnaire, and guidelines propriety and feasibility evaluation form. Analyses involve descriptive statistics i.e. frequency, percentage, mean, and standard deviation, PNI Modified, and content analysis.

Results of evaluation of the guidelines for developing digital leadership of school administrators according to the school development model towards leadership in digital era revealed that the current and desirable states are in overall at a moderate and highest level, respectively. The highest values of priority needs index of the guidelines in different elements are as follows: transformation ranked first for the development goals; engagement ranked first for the development methods; building capacity for rapid operation ranked first for the development objectives; and digital knowledge and skills development and organizational management ranked first for the self-assessment process.

Keywords

Digital leadership development, Digital leadership, School administrators

Index Terms— PPICC: Purpose and Processing on Ideation and Creative Innovations for Competency Model, Creative Innovations, Competency Innovator

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Introduction

Digital technology has been developed and used in daily life and at work. Many organizations have utilized information technology to assist their operation. Information technology has also been increasingly used in educational management. According to G.N. Wikramanayake (2005) in a research on the impact of digital technology on education, traditionally education is centered on sources such as schools, teachers and print media. The learners reached the information sources by enrolling with schools, teachers and libraries. Prior to the digital era, information was not accessible by the majority of people, and even those accessed were unable to obtain current information with respect to today's context. The modern society wants to know the information as it happens and when it happens, and the world is moving from an information society to a knowledge society. Thus education is given the

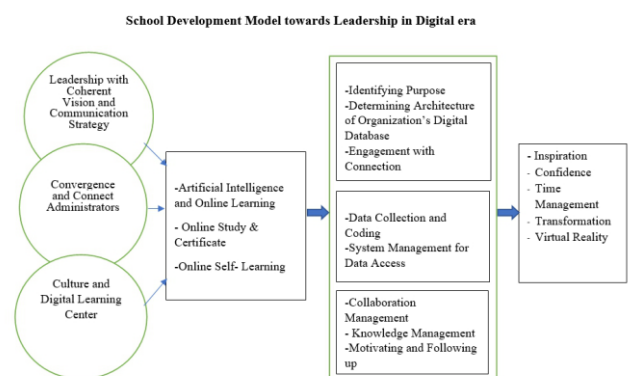
highest priority and brainpower is becoming the most valuable asset of an organization. Advances in digital technology have opened up many avenues of learning. Technology has made information accessible / transmittable from anywhere and by / to all groups of people. Education has reached most parts of the world and ICT has become an integral part of human life. It is in line with Ananiadou, Katerina Claro, Magdalan (2009) discussing about issues related to the teaching and assessment of 21st century skills and competences for new millennium learners in OECD countries. The survey findings show most countries or regions cover 21st century skills and competencies in their guidelines for compulsory education however with few specific definitions of these skills and competencies and no clear formative or summative assessment policies for these skills. The only evaluation regarding their teaching is often left to external

inspectors as part of their whole school audits. Similarly, there are few teacher training programs that target the teaching or development of 21st century skills. Although there exist several teacher training initiatives that focus on developing teachers' ICT pedagogical skills, most of them are optional. As school administrators are required to provide guidelines for developing teachers who are school staff, they need to be knowledgeable about and perform the role in motivating and following-up for the development to be more efficient and keep pace with changes in digital technology.

Technological changes and transformation of communication that link to the digital age allow for an organization to step toward the success and attainment of goals. Thus, human resource development is particularly important. If organizations want to keep pace with and be ahead of the competition, they need to develop their personnel at all levels, more importantly in terms of leadership, keeping up with changes and using techniques and tools to manage efficiently at work. In similar, school administrators have to adjust their management to be ready to engage in the international world, to keep up with changes, and to use information technology in communication and management as well as in educational management. This is to ensure that the organization can adapt and develop to follow the changes and reduce risks or impacts that will occur. Administrator as organization leader need to be developed and equipped with knowledge, competencies and skills essential for leader who can evolve and keep pace with the rapid and continuous change of digital technology and can also use it safely, creatively, and ethically. Excellent leaders are required for an organization to be active, sustain its growth, be more efficient than competitors, and retain the share and distinctive performance. Leadership development of school administrators will enable their management of instruction, resources, student affairs, and building cooperation and network that will lead to school development in accordance with the standards. In this research, results of the model will be valuable to quality improvement of education provision and effect students which is in line with educational reform policy. It will also serve as guidelines for school management for its quality and benefit to educational development.

Objectives

1. To determine the current and desirable states, and the propriety needs index of the guidelines for developing digital leadership of school administrators according to the school development model towards leadership in digital era;
2. To evaluate the guidelines for developing digital leadership of school administrators according to the school development model towards leadership in digital era;



Research Methodology

This research employed a mixed methods approach. The population consists of schools affiliated to the St. Gabriel's Foundation, Thailand. The research sample for Phrase 1 includes 14 private schools affiliated to the St. Gabriel's Foundation, Thailand. There are 2 groups of informants: group 1 comprises administrators of the 14 schools including school directors, deputy directors, and chiefs in charge of administration at different levels; group 2 comprises teachers in charge of school human resource of the 14 schools.

For the research method and instrument, a mixed methods approach was utilized and undertaken in 2 phrases with 3 steps as follows.

Phrase 1: Step 1 involves the review of documents regarding the concepts, theories, and research works related to digital leadership development so as to guide the determination of guidelines for developing digital leadership of private school administrators affiliated to the St Gabriel's Foundation, Thailand according to the school development model towards leadership in digital era. The digital leadership development model was constructed based on the future trends in

leadership development by Nick Petrie (Personnel Development Process, 2011); PREPARE Framework for Leadership development by D. Scott DeRue and Christopher G. Myers; Human Resource Development in Digital Age (Techsauce Team, 2018); digital leadership model and the composition of digital leadership from a study on digital leadership by Elliott (2017), ISTE Standards for Education Leaders: iste.org/standards 2019; and the success oriented digital leadership development model by Pakorn Leesakul (2018). The analysis of concepts and theories of these scholars suggest that the leadership development model involves developing and investigating the current and desirable states; determining priority needs index; and constructing, evaluating and presenting the model.

Phrase 2

Step 1: Bringing the school development model towards leadership in digital era to perform interviews with 30 experts, and drawing conclusions.

Step 2: Determining the current and desirable states and the priority needs index of the guidelines for developing digital leadership of school administrators according to the school development model towards leadership in digital era.

Research Findings

The current and desirable states and the priority needs index of the guidelines for developing digital leadership of school administrators according to the school development model towards leadership in digital era are presented in Tables 1 – 3 as follows.

Table 1 Current and desirable states and the priority needs index of the guidelines for developing digital leadership of school administrators according to the goals of school development model towards leadership in digital era, in overall

Goals of digital leadership development model for school administrators	Current State				Desirable State				Needs	
	\bar{X}	S.D.	Level	Rank	\bar{X}	S.D.	Level	Rank	PNI Modified	Rank
1. Inspiration	3.10	0.45	Moderate	1	4.35	0.54	High	4	0.287	4
2. Building Confidence	3.05	0.66	Moderate	2	4.65	0.60	Highest	1	0.344	3
3. Access Time Management	2.95	0.73	Moderate	4	4.45	0.57	High	3	0.337	2
4. Leading to Transformation	3.00	0.54	Moderate	3	4.55	0.47	Highest	2	0.340	1
5. Creating Virtual Reality	2.00	0.60	Low	5	2.90	0.70	Moderate	5	310	5
Total	2.82	0.59	Moderate		4.18	0.57	High			

Table 1 shows that the current state of the guidelines for developing digital leadership of school administrators according to the goals of school development model towards leadership in digital era is at a moderate level in overall and ranked by elements with top three values as inspiration, confidence, and transformation, respectively. The desirable state of the guidelines is at a high level in overall and ranked respectively by confidence, transformation, and time management. The values of priority needs index are ranked respectively as transformation, time management, and confidence.

Table 2 Current and desirable states, and priority needs index of the elements of digital leadership development of school administrators by the development method according to the elements of school development model, in overall

Method of digital leadership development based on the digital leadership development model for school administrators	Current State				Desirable State				Needs	
	\bar{X}	S.D.	Level	Rank	\bar{X}	$\frac{S.D.}{\bar{X}}$	Level	Rank	PNI Modified	Rank
Methods of development by main elements and sub elements										
1 Leadership with Coherent Vision and Communication Strategy	3.33	0.46	Moderate	1	4.51	0.52	Highest	3	0.262	3
1.1 Identifying Purpose	3.35	0.47	Moderate	2	4.35	0.47	High	3	0.229	3
1.2 Determining Architecture of Organization's digital database	3.25	0.45	Moderate	3	4.50	0.56	High	2	0.277	1
1.3 Engagement with connection	3.40	0.48	Moderate	1	4.70	0.55	Highest	1	0.276	2
2. Engagement with Connection	3.12	0.55	Moderate	3	4.62	0.50	Highest	2	0.324	1
2.1 Convergence and Connect-Administration	3.30	0.55	Moderate	1	4.55	0.45	Highest	2	0.274	2
2.2 System Management	2.95	0.56	Moderate	2	4.70	0.55	Highest	1	0.372	1
3. Culture and Digital Learning Center	3.28	0.473	Moderate	2	4.66	0.55	Highest	1	0.297	2
3.1 Collaboration-Management	3.35	0.47	Moderate	1	4.60	0.56	Highest	2	0.271	2
3.2 Knowledge Management	3.30	0.55	Moderate	2	4.50	0.60	High	3	0.266	3
3.3 Motivating and Following up	3.20	0.40	Moderate	3	4.90	0.50	Highest	1	0.346	1
Total	3.24		Moderate		4.49		Highest			

Table 2 shows that the current state of guidelines for developing digital leadership of school administrators according to the school development model towards leadership in digital era in the element of development method is at a moderate level in overall, and ranked respectively by values as coherent vision and communication strategy; culture and digital learning center; and engagement. The desirable state is at a highest level in overall, and ranked respectively by values as culture and digital learning center; engagement; and coherent vision and communication strategy. The values of priority needs index are ranked respectively as engagement; culture and digital learning center; and engagement.

Table 3 Current and desirable states, and priority needs index of elements of digital leadership development of school administrators by the development objectives according to the elements of school development model, in overall

development of school administrators by self-assessment process on digital leadership competency according to the elements of school development model, in overall

Objectives of Leadership Development	Current State				Desirable State				Needs	
	\bar{X}	S.D.	Rank	Level	\bar{X}	S.D.	Rank	Level	PNI Modified	Rank
1. Making dynamic decision in connection with the main purpose according to the strategy toward the goal of value of service and product (North Star Metric)	3.40	0.64	1	Moderate	4.70	0.47	5	Highest	0.276	4
2. Elevating the organization for creativity and highest efficiency	3.35	0.70	2	Low	4.75	0.44	4	Highest	0.294	5
3. Building up capability of rapid operation	3.20	0.62	5	Moderate	4.78	0.44	2	Highest	0.330	1
4. Establishing a learning culture	3.30	0.63	3	Moderate	4.77	0.46	3	Highest	0.312	3
5. Promoting digital literacy for effective leadership	3.25	0.59	4	Moderate	4.85	0.43	1	Highest	0.329	2
Total	3.30	0.63		Moderate	4.77	0.44		Highest		

In Table 3, the current state of elements of digital leadership development of school administrators by the development objectives according to the elements of school development model is at a moderate level in overall. The desirable state is at a highest level in overall. The values of priority needs index are ranked respectively as building up capability of rapid operation; promoting digital literacy for effective leadership; and establishing a learning culture.

Table 4 Current and desirable states, and priority needs index of elements of digital leadership

Self-Assessment Process on Digital Leadership Competency	Current State				Desirable State				Needs	
	\bar{X}	S.D.	Level	Rank	\bar{X}	S.D.	Level	Rank	PNI Modified	Rank
1. Assessment of digital competency of administrators										
Methods of learning development by online self-learning	3.30	0.45	Moderate		4.55	0.56	Highest		0.274	
Self-assessment should include the essential content and skills that cover digital leadership skills (Lindsay Sullivan Jun 20, 2017)	3.53		High		4.58		Highest		0.230	
1.1 Digital literacy	3.55	0.56	High	5	4.65	0.78	Highest	3	0.236	4
1.2 Digital vision	3.25	0.57	Moderate	7	4.35	0.55	High	8	0.252	2
1.3 Advocacy	3.65	0.67	High	2	4.56	0.67	Highest	4	0.199	7
1.4 Presence	3.45	0.75	High		4.50	0.56	High	5	0.233	5
1.5 Communication	3.75	0.67	High	1	5.00	0.00	Highest	1	0.250	3
1.6 Adaptability	3.56	0.70	High	4	4.78	0.35	Highest	2	0.255	1
1.7 Self-awareness	3.59	0.45	High	3	4.45	0.58	High	7	0.193	8
1.8 Cultural awareness	3.45	0.65	Moderate	6	4.48	0.45	High	6	0.229	6
1. Methods of digital knowledge and skills development and organizational management	3.04		Moderate		4.31		High		0.296	
1.1 Artificial intelligence and online learning	2.56	0.55	Moderate	3	4.00	0.35	High	3	0.360	1
1.2 Online study & certificate	3.34	0.65	Moderate	1	4.45	0.56	High	2	0.246	3
1.3 Online self-learning center	3.30	0.34	Moderate	2	4.50	0.56	High	1	0.266	2
2. Content of the development toward digital leadership	3.26		Moderate		4.46		High		0.270	
Module 1: Digital Transformation Solutions	3.25	2	Moderate		4.45		High	3	0.269	3
1.1 Drive key digital transformation priorities	3.30	0.65	Moderate		4.50	0.58	High	1	0.266	3
1.2 Set driving forces and key technologies that enable digital transformation	3.20	0.78	Moderate		4.35	0.79	High	3	0.264	4
1.3 Address your unique challenges and optimize digital transformation ROI (Return on Investment)	3.25	0.76	Moderate		4.45	0.56	High	2	0.269	1
1.4 Copyright and Digitization	3.29	0.56	Moderate		4.50	0.46	High	1	0.268	2
Module 2: Cyber Security for Network	3.24	3	Moderate		4.48		High	2	0.278	2
2.1 Identify the risks and potential impact of a security attack on your operational network	3.23	0.54	Moderate	3	4.55	0.58	Highest	2	0.290	1
2.2 Consider the end-to-end security of your critical infrastructure and systems	3.25	0.76	Moderate	2	4.35	0.76	High	3	0.252	3
2.3 Utilize our easy-to-follow cyber security checklist to better protect your business	3.26	0.56	Moderate	1	4.56	0.54	Highest	1	0.285	2
Module 3: Big Data for School Work	3.30	1	Moderate		4.41		High	4	0.252	4
3.1 Analytical approaches	3.20	0.79	Moderate	3	4.50	0.78	High	2	0.288	2
3.2 Data-driven analytics approach	3.25	0.578	Moderate	2	4.35	0.87	High	3	0.252	3
3.3 Context- or need-driven analytics approach	3.20	0.56	Moderate	3	4.25	0.56	High	4	0.247	4

3.4 Learning analytics	3.56	0.55	High	1	4.56	0.78	Highest	1	0.291	1
Module 4: Digital Literacy for Teacher Leadership	3.30	1	Moderate		4.73		Highest	1	0.302	1
4.1 Find, evaluate, utilize, share and create content using information technologies and the internet	3.25	0.56	Moderate	2	4.78	0.76	Highest	1	0.320	1
4.2 Cognitive, critical, creative and social skills in digital technology	3.35	0.67	Moderate	1	4.68	0.56	Highest	2	0.280	2
Module 5: Digital Disruption	3.22	4	Moderate		4.27		High	5	0.247	5
5.1 Reframe your perspective and adopt proven digital leader traits	3.25	0.56	Moderate	1	4.25	0.76	High	2	0.235	2
5.2 Reinforce digital acuity mindset with daily routines and rituals	3.20	0.78	Moderate	2	4.30	0.87	High	1	0.255	1

In Table 4, the current state of elements of digital leadership development of school administrators by self-assessment process on digital leadership competency according to the elements of school development model suggests that self-assessment to include the essential content and skills that cover digital leadership skills is at a high level in overall. The desirable state is at a highest level in overall, with PNI Modified = 0.230. The current state regarding the methods of digital knowledge and skills development and organizational management is at a moderate level in overall, while the desirable state is at a highest level, with PNI Modified=0.296. The current state regarding the content of the development toward digital leadership is at a moderate level in overall, while the desirable state is at a highest level, with PNI Modified =0.270.

DISCUSSIONS

Based on the results, the current state is at a moderate level while the desirable state is at a highest level, suggesting the needs for developing digital leadership of school administrator. This is because digital technologies are useful for school management in several areas including instructional management and importantly to allow students to properly and worthily learn about technologies that will benefit the entire educational system to develop and keep pace with competitions. According to Jacob Davidson (2020), as we move further into 2020, well over 4 billion people are now using the Internet—which represents a whopping 53.6% of the global population, according to recent data from the International Telecommunication Union. Since

just after the turn of the century, the number of Internet users has more than quadrupled from just over 1 billion people in 2005, signaling that the world is far more interconnected than ever before. This is also leading to a marked rise in trends that are shaping the future of work (like working from home and telecommuting). In addition, technological change can be utilized to benefit educational management. Joanna Hughes (2019) in an article on six emerging technologies impacting business schools pointed out that technology is shaking up every sector, including both business and higher education. How can we expect to see technology showing up in business school classrooms in the future? The six emerging technologies business school leaders should know about are 1) Recruitment technologies; 2) Classroom Role Playing, Simulations and Gamification; 3) Real-time video classrooms; 4) Robot teachers; 5) Virtual technology; and 6) 5G. As technologies change, school administrators are required to have knowledge and competencies to manage and use them on their own including the management that allows the organization to worthily use technologies. The present results show that the current state of content is at a moderate level, while the desirable state is at a highest level, suggesting the need to expedite leadership development to equip school administrators with the knowledge and competencies to catch up with technologies. Danielle Kost (2020) mentioned about the 6 ways that emerging technology is disrupting business strategy which include 1) Talent and data are more critical than ever.; 2) Technology is propelling business transformation.; 3) Algorithms are changing the pricing game.; 4) Platforms are upending traditional business models.; 5) Companies can test everything.; and 6) Cloud computing is lowering barriers to entry.

In conclusion, the use of school development model towards leadership in digital era affects directly and indirectly the educational management that can keep pace with technological changes. The model includes contents, methods, and goals for development and provides confidence and inspiration for the transformation to take place more systematically and efficiently.

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