UNIVERSITI PUTRA MALAYSIA

EXPLORATION OF EXEMPLAR SCHOOL PRINCIPALS WITH DIGITAL LEADERSHIP IN MALAYSIA

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By

EMELIA FANTOZA SARAIH

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Doctor of Philosophy

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Doctor of Philosophy

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August 2021

Chairman : Professor Wong Su Luan, PhD
Faculty : Educational Studies

This study was designed to explore and describe the living experience of exemplar school principals from High Performing Schools (HPSs) in Selangor, Malaysia with regard to their digital leadership. There is an urgent need for leadership in technology use in Malaysian school principals as ICT development advances and technology usage has become an integral part of the nation's learning process. However, research in the area of the digital and leadership is scarce and requires a perspective on digital leadership.

As ICT and Internet development advances, how do school principal communicate with teachers, staff, students, and stakeholders, how do they practice public relations, uphold branding of an HPS school, support teacher professional growth, foster the use of ICT in support of student engagement and learning and networking with stakeholders? This study offers an in-depth understanding of school principals and how they use ICT as a conduit in their leadership practices. In particular, the study describes how school principals leverage ICT (e.g. social media, digital devices, online learning, etc.) to support their communication, project their school image to the public, foster public relations with stakeholders, facilitate teachers' professional growth and development, encourage teaching and learning in the classroom, and nurture networking with parents and alumni for school progress.

Adopting a relativistic paradigm, this study utilized the qualitative methodology to perform a single-case study. Qualitative data was collected through semi-structured interviews with exemplar HPS principals to discover the principals' digital leadership practices. Four secondary HPSs in Selangor, Malaysia were selected, from which 16 respondents participated in this study. The principals of the four schools were the main respondents, while four assistant principals, four

teachers, and four staff were the secondary respondents. For triangulation purposes, field observation in classrooms and examination of school's social media were conducted in addition to the interviews. Data analysis was accomplished by consolidating, reducing, and interpreting the interviews via coding and categorizing to produce the study themes.

The study concluded the importance of social media as school principals' contemporary mode of communication. The 'Group Chat' is a profound feature that acts as a systematic and organic communication conduit for school principals in support of their decision-making and problem-solving processes. As their communication becomes more effective via social media, findings suggest that it may have a positive effect on their job performance and the overall productivity of the school. Social media, particularly Facebook, is the current public relations channel to promote school success as well as to establish, engage in, and strengthen the relationship between schools and stakeholders in support of school progress. Third party involvement via social media significantly boosts school principals' networking and public relation practice. Teachers' collective learning for professional growth is visible in both online learning and traditional training methods. Teachers' ICT use in teaching and learning is evident in these schools and has resulted in students' engagement and classroom learning by way of developing positive learning attitudes and autonomous learning. In addition, since stakeholders play a major role in school success, school principals practice a 'Good Working Relationship' as a strategy to encourage stakeholder participation.

The global and digital age is here to stay. ICT and the Internet have proven to be the latest and most important conduits in effective communication and in the decision-making process. The school principals in this study have not just adapted but also leveraged technology and the Internet's media-rich environment, enabling them to support their digital leadership practices. Thus, digital leadership has made its way into Malaysian schools and will continue to be prominent for years to come.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

PENEROKAAN KEPIMPINAN DIGITAL PENGETUA SEKOLAH TELADAN DI MALAYSIA

Oleh

EMELIA FANTOZA SARAIH

Ogos 2021

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Kajian ini meneroka dan menerangkan pengalaman hidup pengetua sekolah teladan dari Sekolah Berprestasi Tinggi (SBT) di Selangor, Malaysia berkaitan dengan amalan Kepemimpinan Digital mereka. Terdapat keperluan yang kritikal untuk membangunkan kepimpinan dalam penggunaan teknologi pengetua sekolah Malaysia selaras dengan kemajuan dalam bidang ICT dan Internet yang telah menjadi sebahagian daripada proses pembelajaran negara. Namun, penyelidikan dalam Kepemimpinan Digital adalah terhad dan memerlukan suatu perspektif mengenai Kepimpinan Digital.

Kajian ini memberi pemahaman mendalam tentang pengetua sekolah teladan dan penggunaan ICT sebagai saluran dalam amalan kepemimpinan mereka. Khususnya, kajian ini menjelaskan bagaimana pengetua sekolah memanfaatkan ICT (e.g. media sosial, alat digital, pembelajaran atas talian, etc.) dalam menyokong amalan komunikasi, mempromosi imej sekolah kepada orang ramai, memupuk hubungan masyarakat dengan pihak berkepentingan, memupuk pembangunan profesional guru, mendorong proses pengajaran dan pembelajaran di dalam kelas, dan membina jaringan kerjasama dengan ibu bapa dan alumni demi kemajuan sekolah.

Bersandarkan relativisme sebagai paradigma penyelidikan, kajian ini menggunakan metodologi kualitatif untuk melaksanakan kajian satu kes. Pengumpulan data kualitatif dilakukan melalui temu bual separa berstruktur dengan pengetua sekolah menengah SBT. Empat SBT di bawah kategori sekola menengah di Selangor, Malaysia telah dipilih, dari mana 16 responden mengambil bahagian dalam kajian ini. Empat pengetua sekolah telah terlibat sebagai responden utama kajian ini, manakala empat penolong pengetua, empat guru dan empat kakitangan sekolah dipilih sebagai responden

sampingan. Di samping temubual, pemerhatian lapangan di bilik darjah dan pemeriksaan dokumen maya berdasarkan media sosial sekolah juga telah dilaksanakan untuk tujuan triangulasi. Analisis data dicapai melalui proses penyatuan, pengurangan, dan penafsiran temubual dengan mengekod dan mengkategorikan untuk menghasilkan tema kajian.

Kajian ini merumuskan kepentingan media sosial sebagai alat komunikasi kontemporari pengetua sekolah. 'Sembang Berkumpulan' adalah ciri paling ketara yang membolehkan saluran komunikasi pengetua dilaksanakan secara sistematik dan organik dalam menyokong proses membuat keputusan dan menyelesaikan masalah pengetua. Dengan amalan komunikasi pengetua yang berkesan melalui media sosial, kajian ini mendapati ia turut memberi kesan positif ke atas prestasi kerja dan produktiviti sekolah secara keseluruhannya. Media sosial, khususnya *Facebook*, adalah saluran perhubungan awam pilihan terkini para pengetua untuk mempromosi kejayaan sekolah selain membina, menjalin, dan mengeratkan hubungan antara sekolah dan pihak berkepentingan dalam menyokong kemajuan sekolah. Penglibatan pihak ketiga melalui media sosial didapati memberi kesan positif terhadap amalan perhubungan awam pengetua. Pembelajaran guru secara kolektif dilaksanakan menerusi kaedah pembelajaran dalam talian dan latihan tradisional untuk menggalakkan pertumbuhan profesional guru. Penggunaan ICT oleh guru dalam pengajaran dan pembelajaran di sekolah telah meningkatkan penglibatan dan pembelajaran pelajar di dalam kelas dengan cara memupuk sikap belajar positif dan pembelajaran autonomi. Oleh sebab pihak berkepentingan sekolah memainkan peranan utama dalam kejayaan sekolah, pengetua teladan melaksanakan strategi 'Hubungan Kerja yang Baik' untuk terus menyokong penyertaan mereka.

Zaman global dan digital hari ini akan terus kekal, malah dijangka akan berkembang dengan lebih pesat lagi. ICT dan Internet telah terbukti menjadi saluran terpenting dalam komunikasi yang berkesan. Dapatan kajian menunjukkan bahawa pengetua teladan di sekolah SBT telah mengambil peluang dengan perkembangan teknologi dan Internet serta menerapkannya dalam amalan Kepemimpinan Digital. Kepemimpinan Digital bukanlah suatu perkara baru kerana ia sedang diamalkan dalam kalangan pengetua teladan di sekolah Malaysia. Bukan setakat itu sahaja, malah Kepemimpinan Digital akan menjadi semakin dominan di masa hadapan.

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This thesis was submitted to the Senate of the Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Doctor of Philosophy. The members of the Supervisory Committee were as follows:

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LIST OF ABBREVIATIONS

CAS	Complex Adaptive System
CLT	Complexity Leadership Theory
CoP	Communities of Practice
Frog VLE	Frog Virtual Learning Environment
HPS	High Performing School
IAB	Institut Aminuddin Baki
ISTE	International Society for Technology in Education
ISTE-A	International Society for Technology in Education for Administrators
JKEUPM	The Ethics Committee for Research involving Human Subject of University Putra Malaysia
KKKPP	Educational Leadership and Management Special Course
MEB	Malaysia Education Blueprint (Preschool to Post- Secondary Education)
MOE	Ministry of Education Malaysia
NPQEL	National Professional Qualification for Educational Leaders
PAK21	*Pembelajaran Abad ke-21*
PLC	Professional Learning Community
PLN	Personal Learning Network
TPACK	Technological Pedagogical Content Knowledge
VLE	Virtual Learning Environment

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Education is the primary antecedent to a successful country. Interesting changes are taking place in the education system due to ICT advancement, Internet proliferation, and the emergence of a new type of learner – the 'digital native'. These unprecedented changes in the nature and prevalence of digital technology in education has significant implications for leadership practice and development. Consequently, the emphasis on contemporary school leadership is crucial because the school environment is more complex than ever before.

This global and digital age constitutes a technology and media-rich environment with access to abundant information, rapid changes in technology tools, and the ability to collaborate and make individual contributions on an exceptional scale. These new features of the 21st century require a new set of knowledge and competencies. Creativity, entrepreneurship, digital competence, and other new-era skills and competencies are increasingly important for innovation, growth, and participation in the digital society and economy.

With such proliferation of technology and ICT, the use of ICT in teaching and learning in education is envisaged. As such, countries such as the USA, the United Kingdom, New Zealand, Korea, and China, to name a few, have invested in ICT in schools for equipment, connectivity, professional development, and digital learning content (Balanskat et al., 2006; Cakir, 2012; Goktas et al., 2013; Hoque et al., 2012; Johnson et al., 2010; Razzak, 2013; Tondeur et al., 2015).

Malaysia is no exception when it comes to ICT funding for education. The Ministry of Education Malaysia (MOE) has spent more than RM6 billion over the past decade on ICT initiatives such as the 'Smart School', the most capital-intensive investment the ministry has undertaken (Ibrahim, Razak, & Kenayathulla, 2013). The funding for ICT initiatives in schools is set to continue under the Malaysian Education Blueprint (Preschool to Post-Secondary Education)/(MEB) 2013-2025.

Technology integration in education, especially in classroom teaching and learning, is not an easy task and requires more than substantial funding for wires and hardware. Although research has confirmed that technology use in education is escalating, it appears to produce varying outcomes (Allen, 2015). Malaysia has provided funding for ICT initiatives in schools over the past decade;

however, the MOE (2012), in the preliminary report of the Malaysia Education Blueprint (MEB) 2013-2025, stated that there was no evidence of ICT being used to promote skills such as creativity, problem-solving, and critical thinking. The MEB is a comprehensive plan of action which aims to improve the Malaysian education system, specifically in primary and secondary schools. In the Blueprint, 11 strategic and operational shifts were identified to promote a more technologically literate system that is pertinent to 21st century knowledge and skills.

Previous studies have identified barriers and solutions to ICT usage in schools (Abdullah et al., 2013; Cakir, 2012; Duncan, 2011; Goktas et al., 2013; Lenk & Shirley, 2015). These studies indicate that although school personnel play a role in ICT integration at the school level, the school principal is the person that has the greatest effect on ICT usage in schools. Ultimately, it is the school principal that controls all the resources necessary for systemic change, including vision and mission, funding, time, professional development, personnel allocation, and internal policies for effective ICT use and integration in schools.

The success of education technologies in schools depends on the quality of content and pedagogy, as well as the quality of program implementation. In order for students to benefit from the use of technology, it must be integrated into the fabric of day-to-day instruction in the classroom. Therefore, ICT use among teachers must be increased. Given that adapting to continual change is a key attribute for teachers to be effective in the digital age, the school principal, as the leader, must provide both materials and support for teachers' professional development to improve their Technological Pedagogical Content Knowledge (TPACK).

In addition, principals are pivotal not just in promoting technology use but also in setting the collective vision of ICT integration in schools. The key role of a school principal is to provide leadership to his or her school team. In the absence of such leadership, school effectiveness, student learning outcomes, and ICT use would not be realized. Leadership is thus responsible for further penetration of ICT in the education system. Current research seems to validate the view that with the omnipresent nature of technology and its impact on the education system, a technology-related leadership style that fosters ICT use in schools is favorable, suggesting that effective leadership today must include leadership in technology (Avolio et al., 2014; Hall, 2015; Jameson, 2013; Yorulmaz & Can, 2016).

Realizing the utmost importance of school leadership, the professional development of school principals has received a great deal of attention from policy makers. For example, the MEB 2013-2025 plan has outlined an ambitious endeavor to ensure that there are high-performing leaders in every school to improve the quality of learning in Malaysia. This aspiration is clearly stated in the

fifth shift of the Blueprint, which embodies the MOE's determination to change the selection basis of school principals from tenure-based criteria to criteria focused on leadership competencies. The Blueprint requires every principal to complete the National Professional Qualification for Educational Leaders (NPQEL) at *Institut Aminuddin Baki* (IAB) prior to their appointment so they develop leadership competencies such as ICT and e-learning knowledge and skills. This is in line with the MOE's plan to promote the quality of education through school leadership and to assist schools in leveraging ICT to deliver better education and student outcomes.

In 2016, 1,677 aspiring school leaders participated in the NPQEL compared to 1,400 in 2015 (IAB, 2015; 2016). This 67 percent increase in participation is a big jump from only 1,005 participants three years prior. The significant growth in NPQEL participation by aspiring school leaders shows that the MOE is determined to ensure school principals are given sufficient knowledge and training in leadership competencies.

Given the significance of ICT in school leadership, various ICT-related courses are targeted at school principals apart from the NPQEL. ICT courses offered by IAB for principals, besides the NPQEL, are the Educational Leadership and Management Special Course (KKKPP), ICT in School Management, ICT for Instructional Leaders, ICT in School Management (Student Affairs), High Impact Competency: Effectiveness of Management Through ICT, Professional Learning Community (PLC), Effective Management Through Computer Application, Virtual Learning Management, and Enhanced Technology (IAB, 2018). Moreover, building and sustaining strong networks is an integral part of school leadership. Accordingly, IAB also offers courses on Managing Community Relations and Social Management in Community Education, Community Relation Management (PerLu) and Management of Strategic Collaboration to all current school principals (IAB, 2018).

Since 2011, e-learning modules have been implemented by the Institute in support of the NPQEL, which have been revised and improved in the NPQEL 2.0 beginning April 2018. The Institute has made a concerted effort to leverage ICT in creating new learning spaces for the participants in tandem with the digital age that goes beyond the boundaries of the classroom.

Principals in the 21st century are expected to lead schools that are vastly different from those in the past (Perera et al., 2016). These schools need strategies formulated by school principals, teachers, and parents together to effectively use ICT in teaching and learning. Hence, it is the responsibility of the school principals to foster a 'digitally supportive environment' that corresponds with 21st Century Learning / *Pembelajaran Abad ke-21* (PAK21) as proposed in the MEB 2013-2025. The MOE has defined PAK21 as "a learning process that focuses on a student- centered approach based on elements of communication,

collaboration, critical thinking, creativity, and values and ethical applications" (MOE, 2016). All in all, the five elements of PAK21 sought by the MOE are important to promote and develop students' 21st century skills as highlighted in the MEB 2013-2025, i.e. thinking skills, leadership skills, bilingual proficiency, national identity knowledge, and ethics and spirituality.

Successful implementation of PAK21 in schools depend mostly on the leadership of the school principal and their hardworking teachers. In particular, technology- related leadership by school principals is paramount to drive ongoing improvement and innovation in ICT for school use. This would sustain change in schools so that the government's aims, efforts, and returns on investment in education are achieved. In other words, PAK21 in schools can only be achieved through effective leadership by school principals that is attuned to the new and challenging digital age which relies on ICT as a conduit for learning for students, teaching for teachers, and leading for school principals.

The virtual context in which many leaders now operate offers both opportunities and challenges. Hence, the Complexity Theory and the Complexity Leadership Theory (CLT) were employed as the theoretical framework of this study. These theories aid in understanding digital leadership as a product of the dynamic interaction and adaptive orientation in a system wherein new phenomena, new properties, and new behaviors emerge, resulting in new patterns that replace existing ones.

According to Morrison (2008), the complexity theory is a theory of change, evolution, adaptation, and development through relationships for survival, given that change is ubiquitous. The notion of emergence in complexity theory implies that with a sufficient degree of complexity in a particular environment, new (and to some extent, unexpected) properties and behaviors emerge in that environment (Mason, 2014). The CLT, in turn, posits that leadership should not only be seen as position and authority but also as an emergent, interactive dynamic that changes as a result of multi-connected relationships in a complex institution (Uhl-Bien et al., 2007).

Leadership theories are not ideologies that must be followed rigidly but rather can be applied in part or in whole depending on the context (Wang & Torrisi-Steele, 2017). In line with the complexity theory and the CLT, the tremendous changes taking place in education systems in terms of ICT and the Internet give rise to digital leadership. New properties with regards to school principals' leadership evolve, adapt, and develop in accordance with the new environment, wherein the use of ICT tools drive and sustain new student outcomes in the digital era. However, the nuances of digital leadership remain largely elusive. It is in this light that the present study attempted to discover and describe the practices of exemplar secondary school principals in Malaysia with digital leadership.

Above all, this study on digital leadership has underlined an alternative way of leading schools in accordance with technological advancement and its effect on the education system in the digital age. To ensure a smooth transformation in digitalizing the education system, efficient leadership is needed for continuous improvement and survival in this new era. This study contributes to the literature by providing insights into the digital leadership practices of exemplar school principals in Malaysia. It is hoped that this effort "will stimulate better leadership and, consequently, foster better organizations, communities, and societies" (Day et al., 2014, p. 80).

1.2 Statement of the Problem

The advancement of technology and the Internet in this digital age has made technology ubiquitous in work and personal spaces, resulting in people being more receptive to technology than before. These technological developments as well as the omnipresent nature of technology in education exert significant impacts on the education system. Contemporary research seems to validate the view that a technology-related leadership style that fosters ICT use in schools is deemed favorable; thus, effective leadership must include leadership in technology (Brown et al., 2016). Effective leadership by school principals is undeniably important because school principals rely more on their leadership skills than their knowledge of technology to lead technology integration initiatives in schools (Kennedy, 2015).

Therefore, technology should be reflected in the study of contemporary leadership practices. However, while ICT is pervasive in Malaysian High Performing Schools (HPSs), most studies have been neither explicit nor specific in addressing technology-related leadership or digital leadership. The literature on exemplar school principal leadership from HPSs in Malaysia has mainly established that school principals display an array of leadership styles and practices (Fook & Sidhu, 2009; Ghani et al., 2011; Ghani, 2012; Ishak et al., 2014; Nor et al., 2015; Norman & Hashim, 2016). The findings indicate that school principals make the decision to practice a certain leadership style that is deemed rational, relevant, and suitable. Notably, their leadership is not fixated on one particular practice but is adaptable depending on the appropriate time, context, and situation of the school.

The trend of incorporating technology into leadership research is recent; digital leadership is thus a relatively new leadership practice that connects leaders to technology (Sheninger, 2014). Since technology-related leadership is highly appreciated in ICT integration, Malaysian school principals should now consider merging technology with their leadership practice. In this digital era where individuals actively process, use, and share information (Akcil et al., 2017), leaders should be more proactive in leveraging ICT and technology to support their leadership in the aspects of communication, public relations, branding, professional growth and development, student engagement and learning, new

learning environment, and networking with parents, alumni, and the ministry (Sheninger, 2014). The digitalization of education has gained strategic significance, such that research is now devoted to the use of digital devices and social networks in tandem with the arrival of the new 'digital learner' generation (Yang et.al, 2016). It is also relevant for current studies to understand how this phenomenon has affected school principals' leadership practice and that the context in which school principals operate today is vastly different and diverse (Uhl-Bien et al., 2007).

However, research in the area of the digital and leadership is scarce and requires a perspective on digital leadership (Maheshwari & Yadav, 2020). They propose that perspective on digital leadership will be useful for practitioners to develop digital leaders within their organisations, including school principals. Thus, studies on their leadership practice are imperative to discover and capture emerging trends in school principals' contemporary leadership that 'work' with ICT. Moreover, Wei et al. (2017) found that there is a tremendous need for leadership in technology use in Malaysian school principals as technology usage has become an integral part of the nation's learning process and as ICT development advances, school leaders in Malaysia should maximize ICT usage in classrooms (Yusuf et al., 2019). In this regard, it is crucial to study how leadership practices among exemplar school principals from HPSs in Malaysia have evolved with regards to digital leadership. Therefore, understanding contemporary leadership practice of school principals would help provide others with a variety of strategies and tools to deal with educational change, especially ICT integration in schools.

1.3 Research Objectives

The main objective of this study was to illuminate the practice of digital leadership among exemplar school principals from HPSs in Malaysia, as these principals are engaged in effecting the changes initiated by the MEB 2013-2025. In particular, the objectives of the study were as follows:

1.3.1 To discover practices of digital leadership among exemplar secondary school principals in Malaysia; and

1.3.2 To describe practices of digital leadership among exemplar secondary school principals in Malaysia.

This study intended to develop an in-depth understanding of school principals and their use of ICT as a conduit in their leadership practices, such as communication, public relations, branding, professional growth and development, student engagement and learning, new learning environment, and networking. In particular, the study described how school principals leverage ICT

in support of their internal and external communication. This encompassed how they: (i) project their school image to the public; (ii) foster public relations with the public and their stakeholders through social media; (iii) facilitate online learning for their teachers' professional growth and development; (iv) utilize digital devices and a new learning environment in their schools to encourage teaching and learning in the classroom; and (v) leverage social media to develop and nurture networking with parents and alumni for school progress.

Currently, little is known about digital leadership in the literature. Consequently, the Seven Pillars of Digital Leadership in Education postulated by Sheninger (2014) was the initial reference for this study in discovering and describing the practices of digital leadership among exemplar secondary school principals in Malaysian HPSs.

1.4 Research Questions

This qualitative study consisted of one overarching research question: "What are the practices of exemplar secondary school principals in Malaysia in practicing the Seven Pillars of Digital Leadership in Education, i.e. Communication, Public Relations, Branding, Professional Growth and Development, Student Engagement and Learning, Re-thinking the Learning Environment and Space, and Discovering

Opportunity (Sheninger, 2014). This study was thus designed to explore, discover, describe, and understand exemplar secondary school principals with regard to their usage of technology in their daily leadership practice in communicating, highlighting school success, establishing partnerships with stakeholders, promoting professional growth, and engaging students in a new learning environment.

The following six research questions served as a guideline to establish the foundation of this study:

1.4.1 How do school principals communicate internally, with teachers, staff, and students in the school, and externally, with parents, the ministry, and alumni outside the school?

1.4.2 How do school principals practice public relations with stakeholders?

1.4.3 How do school principals uphold branding of an HPS school?

1.4.4 How do school principals support collective teacher learning among teachers within their schools and among teachers/professionals outside the school?

1.4.5 How do school principals foster the use of ICT in support of student engagement and learning?

1.4.6 How do school principals foster networking with stakeholders in the school?

The sixth pillar refers to Rethinking the Learning Environment and Space which basically involved the notion that with the advent of social media, learning can occur anytime and anywhere (Nussbaum-Beach & Hall, 2011). Thus schools must create the new environment to accommodate the younger generation student, the Digital Native (Prensky, 2005) as student learning is no longer confined to the classroom in the traditional way.

In these four exemplar HPS Secondary Schools, it was found that all schools are equipped with Frog Virtual Learning Environment/ Frog VLE labs, Computer labs and Computer Corners/Cafes in support of teaching and learning of their students. Therefore, there is little need to further enquire how the school principal developed the schools to accommodate new learning spaces instead of the traditional classrooms. Moreover, Smart Schools and Frog Virtual Learning Environment (VLE) are prescribed under the MEB 2013-2025 and eventually will be implemented in all Malaysian schools that corresponds with 21st Century Learning / Pembelajaran Abad ke-21 (PAK21) as proposed in the MEB 2013-2025.

1.5 Significance of the Study

The emphasis on contemporary school leadership is necessary because the school environment today is more complex than ever before. Unprecedented changes in the nature and prevalence of digital technology has significant implications for leadership practice and development. In this study, the discussion centered on the optimum utilization of ICT and the Internet by school principals in providing a new learning environment for 'digital native' students to ensure the realization of student learning outcomes based on 21st century skills and competencies. Technology-related leadership by school principals is paramount to drive ongoing improvement and innovation in ICT for school use and to sustain change in schools so that the government's aims, efforts, and returns on investment in education are achieved. Above all, this study on digital leadership underscores emerging ways of leading schools in accordance with the ICT advancement and its effect on the education system in the digital age.

The significance of this study is three-fold. First, this study endeavored to more precisely determine the practices of digital leadership of exemplar public secondary school principals in Malaysia. Thus, its findings offer valuable guidance and direction to public secondary school principals in Malaysia. These insights can be used to heighten awareness among school principals on the emergence of the digital leadership style that promotes technology integration efforts in schools. Moreover, by identifying the specific practices used by these exemplar school principals, this study's findings are useful as they can be transferred to similar settings to assist group leaders in accomplishing their desired level of ICT integration in schools. Taking this case study as an example, both school principals and scholars can learn how digital leadership advances an organization.

Second, the results from this study grant insights into creating, improving, and enacting new policies in the context of leadership and ICT integration in schools. As such, policy makers at the MOE, the Educational Planning and Research Division (EPRD), and the Educational Technology Division can gain significant comprehension on effective ICT integration as they plan and invest substantial funds in technology for education.

Finally, the greater demand for ICT integration in teaching and learning justifies the need for effective leadership, in particular leadership of digital technology in schools. Thus, the IAB, also known as the National Institute for Educational Leadership and Management, can adopt the recommended approaches derived from this study to provide better training in digital leadership for school principals. This is especially relevant to the IAB as it is the prominent institution responsible for developing and executing preparation programs for aspiring school principals as well as professional development programs for current school principals in Malaysia.

Likewise, this study benefits the 12 education faculties in Malaysian public universities and their respective education research centers, as well as training institutions with similar settings. The findings serve as a guide and compose the literature for future researchers' reference in examining the digital leadership of school principals, ICT use and integration in schools, educational technology, and leadership practices in similar contexts. Overall, this study contributes to the advancement of digital leadership among secondary school principals in Malaysia.

1.6 The Delimitations and Limitations of the Study

This study was conducted on Malaysian exemplar public secondary school principals identified from HPSs in Selangor. It attempted to explore and describe the contemporary leadership practices of these principals pertaining their digital leadership. Since technology, leadership practices, and teaching and learning practices are continually evolving, this research was initially guided by the aforementioned dimensions of digital leadership prescribed by Sheninger's (2014) Seven Pillars of Digital Leadership in Education.

As an initial reference to the study, the purpose of the Seven Pillars (Sheninger, 2014) was to aid the discovery and description of digital leadership practices among exemplar secondary school principals in Malaysian HPSs. The study was not meant to prove or disprove the pillars but rather to use them as a probe in exploring the contemporary real-life experiences of digital leadership among school principals in the Malaysian HPS context.

Caution should be exercised when applying this information to other schools and educational settings. In addition, the small sample size might not provide saturation of all phenomena experienced, thereby limiting the applicability of the findings across settings.

1.7 Definitions of Terms

For the purpose of this study, the following terminologies were defined:

Information and Communication Technology (ICT). ICT is considered an assisting device, a medium for teaching and learning, an object that refers to learning about ICT, and finally a device for management and organization in schools (Cavas et al., 2009). In this study, ICT was defined as all technologies that facilitate retrieval, storage, transmission, or receipt of data via digital devices.

Digital leader. A digital leader is a leader who is passionate about technology and leverages it to lead the organization to achieve common goals (Qualman, 2012). In this study's context, a digital leader referred to a school principal that leverages technology to lead teachers and students to promote school progress.

Digital leadership. Digital leadership is a new construction of leadership that connects leaders with technology (Domeny, 2017). It encompasses a strategic approach and a set of activities that leverage ICT and technology resources to create a meaningful, transparent, and engaging school culture (Sheninger,

2014). In this study, digital leadership referred to the school principals' use of technology as a conduit to promote school progress through their leadership practices involving communication, public relations, branding, student engagement and learning, professional growth and development, new learning environment, and opportunity (networking).

Communication. Communication is the transmission of information that can be broad and inclusive or restrictive and intentional, and may carry the element of normative judgement (Littlejohn & Foss, 2010). In the present context, communication of the digital leader referred to engaging all teachers, students, parents, stakeholders, and communities in two-way communication through various social media tools to transmit ideas, information, and facilitate feedback, and mitigate conflicts.

Public Relations. Public relations is an organizational strategy to build strong and lasting relationships with its customers (Briones et al., 2011). In this study, public relations was defined as the communication strategy adopted by the digital leader through various social media to build relationships and increase parents' and stakeholders' understanding and appreciation of the schools' value and commitment to school progress.

Branding. School branding refers to the function of visions, missions and school programs as a means for socialization towards prospective users (students and parents) in introducing school profiles, so the prospective users have perspectives and considerations to determine their preferences (Rofi et al., (2020). The High Performing School or 'HPS' status is awarded to excellent Malaysian schools by the Ministry of Education. In this study, the 'HPS' was considered a brand name which reflects the visions, missions and school programs of an HPS that potrays the school profiles and will influence students and parents perspectives and their future consideration.

Student Engagement and Learning. Student engagement is connected to students' higher achievement, positive behaviors, and sense of belonging both in and beyond the classroom (Taylor & Parsons, 2011). Student engagement includes their feelings (e.g. belonging, enjoyment, and attachment) and investment in learning and self-regulation (Fredricks et al., 2011). In this study, student engagement and learning was defined as students' positive behavior towards the learning process both in the classroom and outside the classroom, i.e. autonomous learning.

Professional Growth and Development. Professional growth and development refers to the opportunities that help teachers enhance their knowledge and develop new instructional practices (Marrero et al., 2010). In this study, professional growth and development was defined as teachers' training

courses, including those attended online, as well as collaborations between teachers and professionals to enhance their knowledge.

Discovering Opportunity. Discovering opportunity represents efficient collaboration between the school and the school community and stakeholders towards school progress (Sheninger, 2014). In this study, discovering opportunity reflected the ability of the school principals to build and foster partnerships and establish networking between the school, parents, and alumni to collectively work towards school progress.

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