The Influence of Headmaster's Technology Leadership on Teachers' Performance: A Quantitative Study

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Abstract

This research aims to determine the relationship between technology leadership and the job performance of primary school teachers in Kuala Krai, Kelantan. A total of 170 respondents participated in this quantitative survey, consisting of 61 male teachers and 109 female teachers. Data of this study were collected using leadership instruments adapted from Omar et al. (2020), the International Society of Technology in Education (ISTE) 2009 standards, and a teacher job performance instrument from Atsebeha's Teacher's (2016). SPSS version 26 was used to analyze data. The findings revealed that dimensions of technology leadership are at an extremely high level, similar to teacher performance. On the other hand, technology leadership has a very weak and insignificant relationship with teacher job performance ($r = .081$, $p = .297$, $p > .05$). Finally, stakeholders like headmasters, PPD, JPN, and KPM must pay attention to technology leadership since it has the potential to affect teacher job performance.

Keywords: Technology leadership; Teacher job performance; Leadership style; Instructional leadership; ICT in education.

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Introduction

The fourth industrial revolution has a major influence on the education sector. The seventh shift of the Malaysian Education Development Plan (PPPM, 2013-2025) and National Education Technology (2016) both emphasize the importance of technology in all educational aspects. This is intended to realize the government's goal to position Malaysia as a center of educational excellence, on the same par with other developed countries around the world. To support that agenda, the Ministry of Education Malaysia (MOE) has introduced information and communication technology (ICT), provided ICT equipment to all educators through the 1BestariNet program, and encouraged them to use the virtual learning environment (VLE) (Arumugam & Som Shariff 2017; Leong, Chua, Sathiamoorthy & Shafinaz A Maulod, 2006; Wong & Khadijah Daud, 2017). Headmasters or headmasters should constantly be sensitive and responsive to technology developments at the school level (Esplin et al., 2018; Özkan et al., 2017). They are a group of individuals responsible for encouraging teachers to integrate technology, skills, and technical competencies in teaching and learning (Yu & Prince, 2016). In this context, they must be proactive technological leaders by equipping computer laboratories and offering teacher training to enable teachers to properly integrate technology (Hero, 2020). Headmasters are responsible for encouraging teachers to integrate technology, skills, and technological competencies in teaching and learning (Yu & Prince, 2016).

Teachers must also collaborate with school authorities to learn the technology so that all that has been planned could be achieved. Good teachers may produce good students (Sulaiman, 2019). Teachers, on the other hand, are trusted by society to educate their children, and teachers must set a good example for their students to mold them into productive human beings (Ismail, 2014). High-performance teachers contribute to the development of human capital and future leaders of the country (Dasan & Nawi, 2020). To realize this aspiration, headmasters and teachers need to move in tandem to boost the quality of education. Technological leadership and teacher job performance have a significant relationship as has been proven by previous researchers (Tiop & Talip, 2020; Omar et al., 2020).

Literature Review

Technology Leadership
In fact, Malaysia's use of ICT in education has accelerated fast since the 1990s (Hamzah, Juraime & Mansor, 2016). Since then, KPM has undertaken several projects in schools, including the provision of physical and non-physical infrastructure to facilitate the use of ICT in the teaching and learning process (KPM, 2013). The consequences were apparent most recently when the country was struck by the Covid-19 outbreak, which made the usage of technology so closely associated with education. Google Meet, Google Classroom, and Zoom are examples of virtual learning systems that could be used for teaching and learning (Iftakhar, 2016; Mai & Muruges, 2018).(Iftakhar, 2016; Mai & Muruges, 2018).

Many educational methods have transformed as a result of technological advancements. Driven by the global digitalization trend, the method of digital learning has undergone many changes. In the era of increasingly advanced information technology, devices and applications of technology have had a major impact on school operations, teachers' teaching, and students' learning. In this sense, the technological leadership of headmasters is highly needed and should be emphasized progressively (Hsieh, Yen, & Kuan, 2014). According to ISTE (2009), technology leadership refers to school administrators' capacity to successfully integrate ICT in their schools. Furthermore, according to ISTE (2014), the job of school administrators entails five dimensions: visionary leadership, digital era learning culture, digital citizenship, systematic improvement, and excellence in professional practice.

According to Anderson and Dexter (2005), technology leadership is the practice of managing initiatives including the use of technology in schools. Policy development, decision-making, and technology integration in schools are all part of these curricula. In addition, Flanagan and Jacobsen (2003) explain that technology leadership plays a vital role in emphasizing the integration of educational technology in schools. Next, Davies (2010) proposed a multidimensional technology leadership model known as the Extended Model of Educational Technology Leadership. This model assumes that the effective use of technology demands cooperation and understanding among members of an organization. Referring to this model, headmasters' technology leadership is defined as the complex interaction between personal, organizational, social, political as well as economic broadly. The oval shape represents the groups that provide important input in the

organization while the external factors of the organization are shown in the form of arrows as shown in Figure 1.
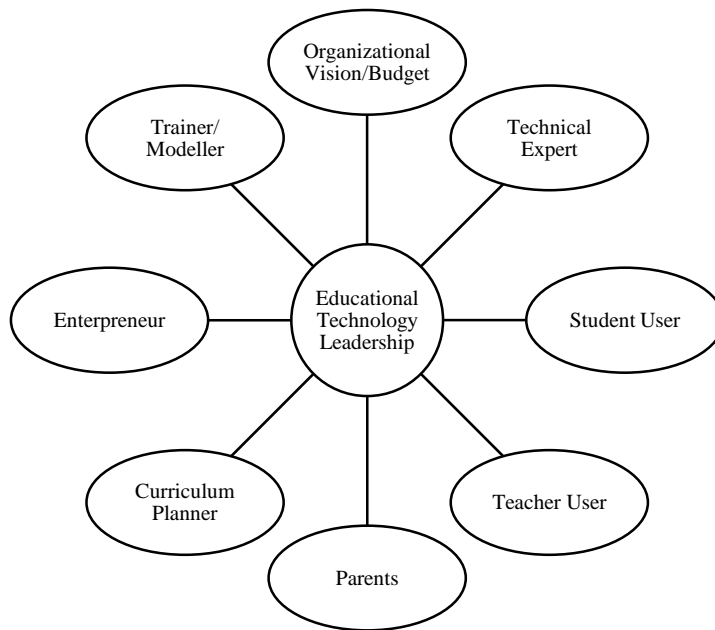

Figure 1. An extended model of headmaster technology leadership by Davies (2010)

Teachers' Job Performance
Like other sectors, teachers' job performance is also one of the important aspects in education, which is commonly assessed. There are various definitions regarding the performance of teachers from the perspective of various parties. In general, the MOE has its definition of what is meant by teacher performance. Teachers' job performance is as actions they take in school to achieve educational goals (Hwang, et.al., 2017) or actions that are expected to improve student achievement as optimally as possible (Damanik, 2019). Teachers' job performance can be described either in terms of activities performed by teachers themselves over a while in the school system to achieve stakeholder-set objectives or as teachers' ability to make meaningful contributions in the teaching and learning process (Akinyemi, 1993). In the field of education, teachers' job performance is one of the main factors in determining the existence of a school (Mekonnen, 2014). Thus, high-performing teachers would be able to adapt and meet the educational demands according to their job scope. They usually undergo the transformation and be able to improve the school quality.

Meanwhile, according to Li, Pérez-Daz, Mao, and Petrides (2018)'s multi-level teacher performance theory, teachers' job performance is impacted by two levels, namely the teacher's level and the organizational or school level, as illustrated in Figure 2. At the teacher's level, they must have the attribute of emotional intelligence (EI), which, when combined with a high degree of job satisfaction, will result in job performance. At the school level, organizational attitudes and characteristics of headmasters have an impact on teachers' job performance.
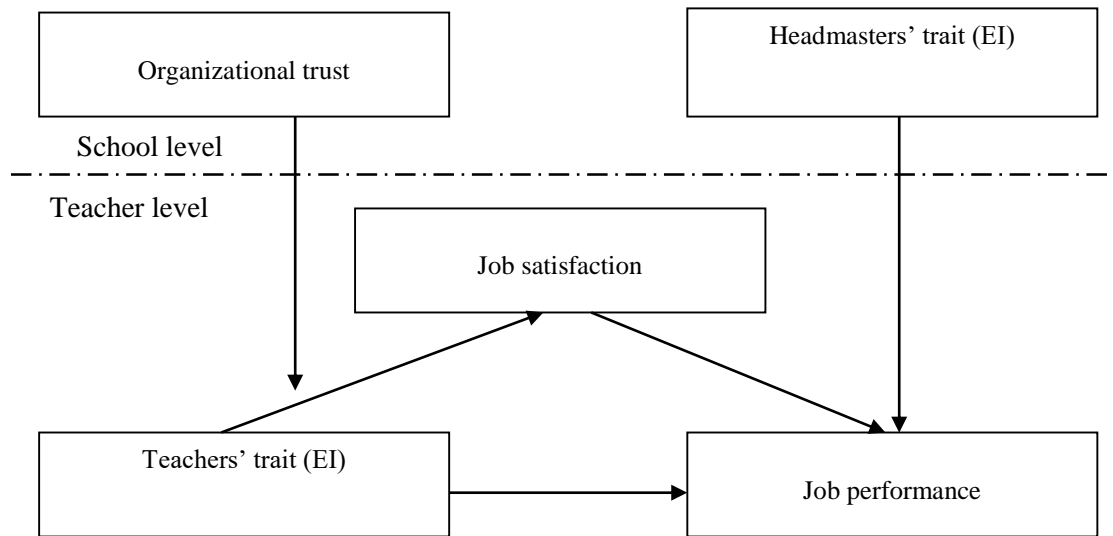
Figure 2. Multilevel teacher job performance model (Li, Pérez-Díaz, Mao dan Petrides, 2018)

Technology leadership and students job performance

The previous studies indicate that headmasters are the backbone of technology integration in schools and the most important persons in encouraging teachers to integrate ICT in schools in compliance with MOE mandates (Metcalf & Benn, 2013; Yu & Prince, 2016). As a result, headmasters must always be responsive to and ready to accept changes in ICT in the organization (Esplin et al., 2018; Özkan et al., 2017). Furthermore, according to ISTE (2014), the work of school administrators entails five dimensions: visionary leadership, digital era learning culture, digital citizenship, systematic improvement, and excellence in professional practice.

Findings of studies over the past decade show: (i) that the level of technology leadership of headmasters is low and medium (Sharif, 2016; Yusup & Ismail, 2015; Nordin, Norazah, 2010), (ii) low level of knowledge and skills of ICT technology and lack of skills to use data access in school improvement process (Sathiamoorthy, 2013; Murray, 2013), (iii) headmasters are less prepared to apply ICT as a medium of school organizational management (Esplin, Stewart, & Thurston, 2018), and (iv) less interested and less encouraged the use of ICT in the classroom (Zainal Abidin, Mathrani, Haunter & Parsons, 2017). Similarly, headmasters have a low and medium level of technology leadership (Sharif, 2016; Yusup & Ismail, 2015; Nordin, Norazah, 2010), a low level of knowledge and skills of ICT technology, and a lack of skills to use data access in the school improvement process (Sathiamoorthy, 2013; Murray, 2013; Zainal Abidin, Mathrani, Haunter & Parsons, 2017).

The consequence is that they struggle to manage the schools that rely on technology-based learning environments (Gallego-Arrufat, Gutierrez-Santiuste, & Campana-Jimenez, 2017). Surprisingly, the degree of technological leadership among headmasters has yet to meet the requirements recommended by the National Educational Technology Standards for Administrators (NETS-A) (Ozken et al. 2017). It is the role of headmasters to guarantee that each teacher has a high level of ICT knowledge and abilities to elicit a holistic quality of learning (Kor, Erbay, & Engin 2016; Ugur & Koc, 2019). To overcome this deficiency, the MOE has established an educational technology standard for headmasters since their level of technology leadership is not up to the desired standard (Raamani. 2018).

In the context of teachers' job performance, the findings of the study are less consistent. Past studies have shown that teacher job performance and teacher professionalism are at a high level (Noor, 2019; Hassan & Musa, 2020). However, this finding is contrary to the findings that show the level of teacher commitment and quality of teacher work is at a moderate level (Jais & Hamid, 2019; Billy & Taat, 2020). This inconsistent level of teacher job performance coincides with school and student achievement might vary in a different state, district, urban and rural areas (MOE, 2018). For example, the academic and non-academic achievements

of primary school students in the Kuala Krai district are still not at a commendable level compared to other districts in Kelantan (PPDKK, 2020). The 2019 Smart School Qualification Standard (SSQS) report which aims to assess the level of ICT literacy of school children also shows that no school in the district has achieved a five-star score in educational technology applications. The district has also not been able to produce either school administrators, teachers, or students who have received any technology-related awards either in recent years (PPDKK, 2020).

Research question
Due to these various issues and problems, this study is proposed to answer the following research questions:

  i. What is the level of the job performance of primary school teachers in the Kuala Krai district?
  ii. What is the level of technology leadership of the primary school headmaster in the Kuala Krai district?
  iii. Is there a significant relationship between the technology leadership of headmasters and the work performance of primary school teachers in the Kuala Krai district?

Research methodology
This study uses a cross-sectional quantitative design to examine the relationship between headteacher technology leadership and teacher job performance. A technology leadership questionnaire instrument adapted from Omar et. al (2020) based on International Society of Technology in Education (ISTE) 2009 standards and teacher job performance instrument adapted from Teachers' perception of their performance developed by Atsebeha (2016) was used to collect study data. A total of 170 respondents among primary school teachers in Kuala Krai district, Kelantan were selected at simple random to answer the questionnaire administered online. The respondents of the study consisted of 61 (35.9%) male teachers and 109 female teachers (64.1%). The data of this study were analyzed using Statistical Package for Social Sciences (SPSS) version 26 to obtain the descriptive and inferential analysis. The descriptive analysis in this study is to determine the level of technological leadership and teacher performance. Inferential statistical analysis is also to obtain the value of the relationship between technology leadership and teacher performance.

Finding
The level of technology leadership
The level of practice for headmaster technology leadership and teacher work performance is depicted in Table 1 below.

Table 1
Mean interpretation

Mean	Interpretation
1.00 - 1.79	Very low
1.80 – 2.60	Low
2.61 – 3.40	Moderate
3.41 – 4.20	High
4.21 – 5.00	Very high

Source: Hussin et. al (2014)

As seen in Figure 3, overall, the finding shows that the level of technology leadership is very high (M=4.56, SP=6.52. The highest mean level is Excellence in Professional Practice (M = 4.61, SD = .668) followed by

Digital Age Learning Culture (M = 4.61, SD = .685), Systemic Improvement (M = 4.54, SP = .720), Digital Citizenship (M = 4.53, SP = .637) and Visionary Leadership (M = 4.52, SP = .665). These findings indicate that school headmasters routinely practice technology leadership and are highly competent at their day-to-day leadership.
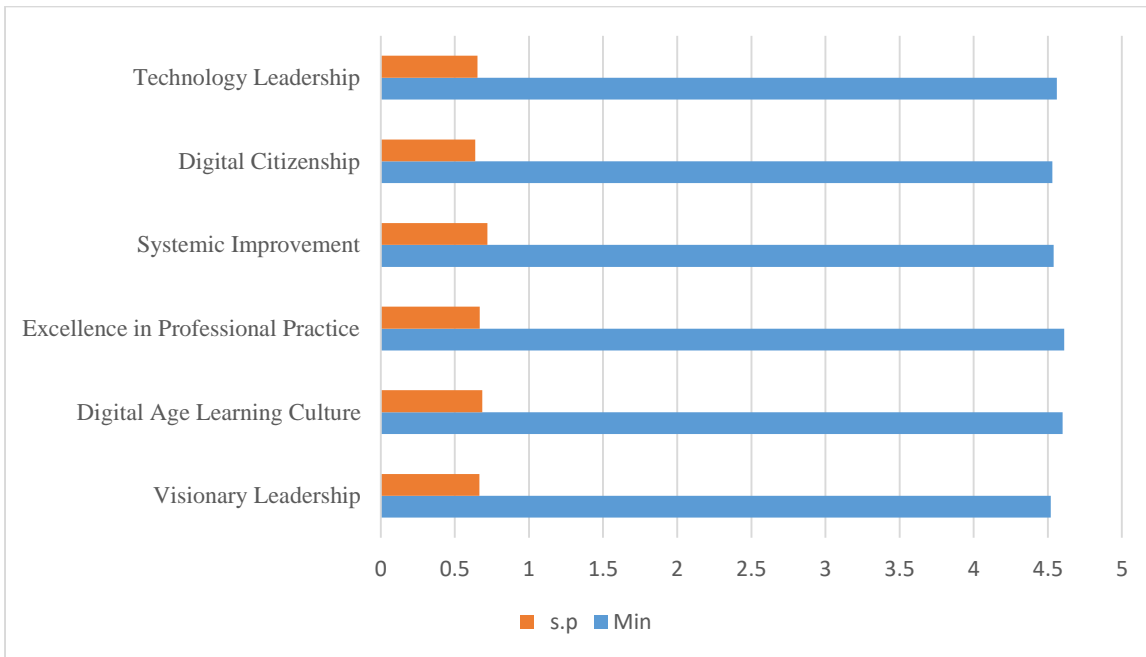
Figure 3. The level of headmaster technology leadership

Next, figure 4, displays the mean values for the dimensions of primary school teachers' job performance. Two dimensions got a very high level, namely the dimension of classroom atmosphere and discipline (M = 4.33, SD = .691) and the organizational dimension (M = 4.21, SD = .664). Meanwhile, for the planning dimension (M = 4.20, SD = .642), the monitoring and evaluation dimension (M = 4.18, SD = .663) and the teacher leadership (M = 3.95, SD = .605) were respectively at the same level. In sum, the overall level of teacher job performance dimension is high (M = 4.17, SD = .635). The findings of this study indicate that the job performance of teachers is excellent.
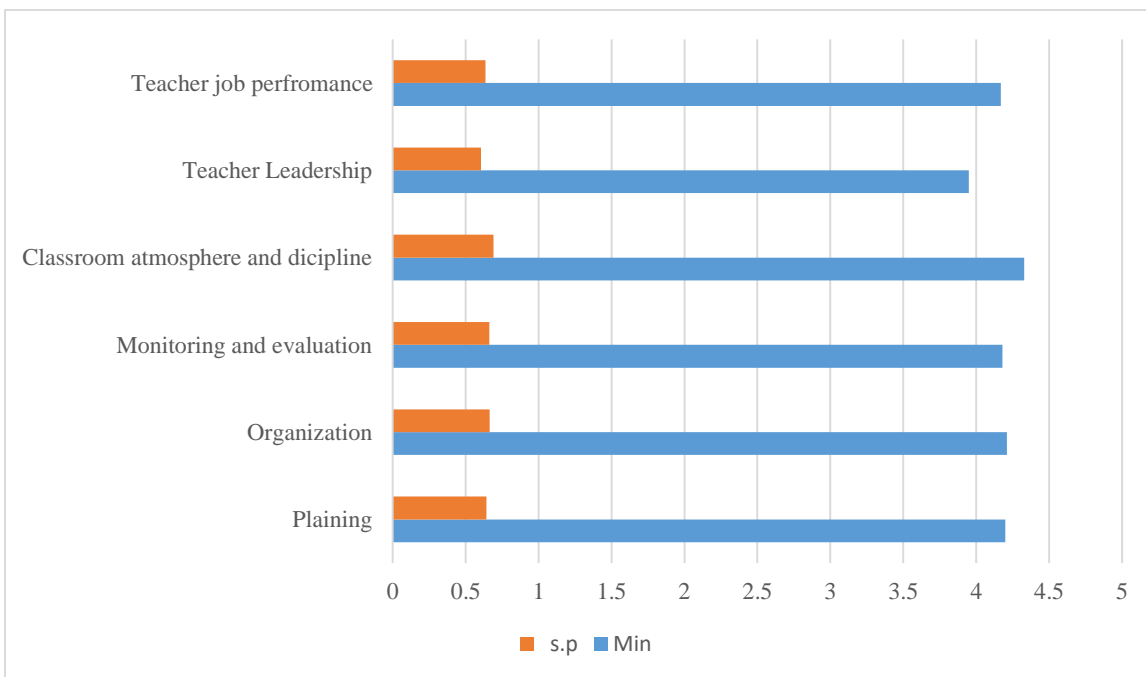

Figure 4. *The level of job performance*,
The relationship between technology leadership and teachers' job performance

The Pearson correlation test was employed to answer the study's questions. The values for relationship strength are provided in Table 2 below.

Table 2. *Pearson correlation*

Nilai Pekali	Hubungan
1.00	Perfect relationship
0.80 - 0.99	Very strong
0.60 - 0.79	Strong
0.40 - 0.59	Moderate
0.20 - 0.39	Weak
0.01- 0.19	Very weak
.00	No relationship

Source: Husin et.al, (2014)

According to the findings of the Pearson correlation test, the relationship between technology leadership and teacher job performance with the value of correlation coefficient (r =.081, p =.297, p>.05) is extremely weak and insignificant, as shown in Table 3.

Table 3. *Pearson correlation*

	Technology leadership	Teachers' job performance
Pearson correlation	1	.081
Sig. (2-tailed)		.297
N	170	170
Pearson correlation	.081	1
Sig. (2-tailed)	.297	
N	170	170

Discussion

In conclusion, the level of technological leadership of Kuala Krai headmasters is quite high. This is also consistent with the findings of Omar et al. (2019), who found that headmasters in the state of Kedah had a high level of technological leadership. These results, however, contradicted to Sharif's (2016) study, which found that the degree of technical leadership in Kedah schools. A study conducted by Ali, Marzuki, and Yunus (2015) among 318 primary school teachers in Bintulu, Sarawak found that technological leadership and the level of teacher job commitment were moderate. This inconsistency is most likely due to the respondents' interpretation of the things offered, which the responses are based on teachers' views rather than the headmasters. Because of this, the researchers believe that the Kuala Krai district's headmasters are capable of directing schools toward more successful ICT integration.

This study's data analysis also reveals that primary school teachers in Kuala Krai, Kelantan, have a good degree of job performance. These statistics provide the idea that instructors in this district achieved the highest level of job performance even in remote regions. This finding is consistent with Noor's (2019) research report, which claimed that the job performance of vocational college professors in the Batu Pahat region is excellent. The findings of this study are also consistent with the findings of Hassan and Musa (2020), who said that the degree of professionalism among Malaysian national school teachers is high. This is, however, contrary to the study of Jais and Hamid (2019) who reported the opposite that the level of teacher commitment in some schools with TS25 status is still at a moderate level. Billy and Taat (2020) in their study on the quality of work of primary school teachers in the upper interior of Sabah also found the same. This inconsistent level of teacher work performance coincides with school and student achievement might be different in every state, district, urban and rural areas (MOE, 2018). This high level of work performance of Kuala Krai primary school teachers gives the assumption that they will continue to be committed to exhibiting high-quality works.

The correlation analysis between technological leadership and job performance reveals a very poor association between the two. These findings contradicted to the findings by Tiop and Talip (2020), who discovered a substantial association between technology leadership and teacher work performance in Kota Kinabalu. The correlation analysis of the relationship between these two variables indicates a very weak relationship. Furthermore, it is also inconsistent with the study of Boden et al., (2020) who found that high

levels of headmasters 'technological leadership in Australia had a strong relationship with teacher job performance. The study of Omar et.al (2019) also showed that there is a positive relationship between the technology leadership of headmasters with the ICT effectiveness of Kedah state teachers. A study by Chee (2012) found that technology leadership influences the use of ICT by teachers in teaching and learning. Therefore, these findings indicate that although headmasters have a high level of technology leadership, they are still not able to influence in improving the job performance of their teachers.

Conclusion

Technological leadership among school administrators now plays an increasingly important role, especially during school closure and mode of teaching and learning at home (DPR) are activated by the MOE in facing the Covid-19 pandemic. Similarly, now 99% of teachers are working from home throughout the closure of schools. Therefore, this analysis should also get the serious attention of stakeholders in education such as PPD, JPN, IAB and KPM to make plans so that each prospective headmaster or in-service headmaster is equipped with technological leadership elements and able to influence the performance of teachers under their supervision. Similarly, teachers should be provided with sufficient exposure and training relating to the integration of ICT in school management as well as teaching and learning. This is important because past research has shown that technological leadership may assist to shape teachers' ICT knowledge and promote teacher professionalism, resulting in higher-quality learning and the production of students who can compete worldwide. Furthermore, further study should be conducted by upgrading the research instrument, particularly to determine the capacity of schoolchildren to use ICT during learning at home.

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