

# Factors Contributing to Technology Adoption for Administrative and Instruction Among Teachers

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**Abstract:** *In the ever-evolving realm of education, teachers stand as the bedrock of student learning and achievement. Their commitment, expertise, and ongoing development significantly influence the calibre of education provided in schools. This study aims to explore the factors influencing the adoption of technology for both administrative and instructional purposes in selected government schools in Ampang. There haven't been much research done in Malaysia to explore the factors influencing the adoption of technology for both administrative and instructional purposes. The Technology, Organization, and Environment (TOE) adoption paradigm was investigated as a factor influencing the adoption of technology for both administrative and instructional purposes in selected government schools in Ampang. A set of questionnaires was developed. The data were analysed using SPSS and Smart-PLS. Hypothesis testing was conducted by assessing structural model. The measurement data result of path coefficient, standard error, t-value,  $R^2$ ,  $f^2$  and  $Q^2$  are used. Inferring that more than 50% of the hypotheses were supported, 75% (3 out of 4) of the hypotheses were therefore supported. Adoption of technology among government schoolteachers in Malaysia is a multifaceted process that requires careful consideration of various factors. The findings suggest that while there are challenges and complexities associated with technology adoption, there are also significant opportunities and benefits that come with effective integration.*

**Keywords:** Technology adoption, administrative, instruction, technology organizational environment

## 1. Introduction

The integration of technology in primary schools stands at the forefront of educational research, with recent studies delving into the multifaceted aspects of its impact, challenges, and strategies. This chapter synthesizes recent findings to provide insights into the evolving landscape of technology adoption in primary education. In the ever-evolving landscape of education, teachers serve as the linchpin of student learning and academic success. Administrators and educators, although have enough dedication and professional developmental growth, the workload is beyond the mastery of their disciplines. Educators must know their discipline, master the skills and instructional techniques, classroom management and how to motivate and engage students. There are many recent studies that claim that effective use of technology can improve student competencies such as student engagement, increased critical thinking skills etc. Kay and Honey (2018) acknowledged and asserted that using technology increases student's competency skills. The rise of artificial intelligence and

its use in technology is proof of the increasing dependency on technology in schools, Universities and Industries.

Ertmer and Ottenbreit-Leftwich (2019) also asserted the need for teacher professional development and the need to address issues related to pedagogical gaps and the resistance to change in beliefs and attitudes of teachers. They emphasize the necessity for comprehensive teacher professional development, addressing issues such as pedagogical knowledge gaps and resistance to change. Warschauer and Matuchniak (2020) emphasized the need to look at the equity gaps across primary schools and the importance of such policy related implementation. There are more studies encouraging the success of technology implementation by using interactive platforms in primary education specifically for language learning, science and mathematics, as well as project submission using themes (earlier use of Edmodo platforms and various teaching platforms using blended learning). Primary school students have also benefited through the effectiveness of the use of intelligent tutoring systems which provide a broader range of personalized learning experiences for them (Clark & Luckin, 2021).

Parental involvement also helps in effective and ethical use of technology because of the ethical implications as well as parents' attitudes and their involvement in student learning in primary education. Facer (2019) emphasized the influence of parental attitudes and their personal roles in successful integration of technology in private schools. Technology, organization and environment framework are three different aspects which impact the organization and its adoption to the use of technology (TOE framework) (Awa, Ukoha, & Emecheta, 2016). The study framework combines both TOE and RBV to explore factors which impact technology adoption for administrative purposes in selected government schools in Ampang. There are three factors, namely, relative advantage, complexity and trialability analysis for technology (Zhang, Zhang, Ballesteros-Perez, & Philbin, 2023). Relative advantages, complexity, triability and mimetic pressures are four impact factors which impact adoption of technology in schools. There are three antecedents which are relative advantage, complexity, and trialability analysis in the context of technology. For an organization it is technology readiness. Mimetic pressure pertains to the environment. The study model fills a gap in literature that has only concentrated on the variables that influence adoption. The TOE framework's elements for technology, organization, and environment settings were combined with RBV.

## 2. Problem Statement

The proliferation of technology in education has introduced new administrative tasks for teachers, such as managing digital learning platforms, tracking student progress online, and ensuring equitable access to technology resources (Selwyn, 2016). While technology has the potential to streamline administrative processes and enhance instructional delivery, its integration into teaching practices requires ongoing training and support to maximize its benefits (Ertmer et al., 2019). Administration in Malaysian government schools play a critical role in shaping the educational landscape of the country. Effective administration ensures the smooth functioning of schools, fosters a conducive learning environment, and supports the holistic development of students.

However, the organizational structure of Malaysian government schools is typically hierarchical, with clear lines of authority and responsibility. The Ministry of Education oversees the administration of government schools at the national level, while state education departments and district education offices provide support and guidance to individual schools (Azman, 2018). School principals serve as the primary administrators at the school level,

responsible for managing daily operations, implementing policies, and fostering a positive school culture (Wong & Sulaiman, 2020). The relationship between TOE (technology, organization, Environment) was highlighted by Kuan and Chau (2001). Taking technology into context it evaluates the relationship between existing technologies and technical skills in an organization and the organizations refer to the internal measures within the context of the organization while Environment refers to external measures of the organization (Amade & Painho, 2020). Quoting E.M Roger's work in 1995, the researchers also defined complexity, as the degree to which an innovation can be realized as difficult to understand and use and precedes the implementation that is required by organizations to perceive as well as more difficult to adopt if it is complex (Amade & Painho, 2020).

Trialability according to Roger (1983), triability is the degree to which the innovation can be tested on a very limited basis, and it can be adopted depending on that. Mimetic pressure happens when there is some extent of competition which exists to have a superior performance (Latif, Mahmood, Tze San, Mohd Said, & Bakhsh, 2020). The administrative staff, teachers and support personnel help with the successful running of the school community. Principals played a significant role in providing visionary leadership, upkeeping goals and mobilizing resources to ensure educational objectives (Yusof et al., 2019).

One of the primary challenges for schools is resource constraints which include limited funding, insufficient facilities and lack of trained staff (Azman, 2018). Yusof et al. (2019) stated that training programs, workshops and networking opportunities will help administrators to ensure they are aligned with best practices, emerging trends and educational reforms. For novice administrators, both mentors and coaching initiatives will nurture effective leaders for Malaysian government schools (Siti, 2019). Malak (2016) stated that companies respond to their competitors as defined as mimetic pressure. According to Malak, in developing countries mimetic pressures support better environmental management in organizations which are abroad. In Europe and North America, mimetic pressure is the best tool for best performances. When there are strong mimetic pressures, organizations will perform well. Referring to this study, according to the COVID-19 pandemic, the critical role of teachers in adapting to rapidly changing circumstances and implementing new instructional strategies in both virtual and hybrid learning environments (UNESCO, 2020).

### 3. Research Questions

The purpose of research questions is to gather pertinent data needed to meet the study's objectives. The following are the research issues that this project aims to address:

- 1) Does relative advantage contribute to technology adoption for administrative and instructional purposes among government schools in Ampang?
- 2) Does complexity contribute to technology adoption for administrative and instructional purposes among government schools in Ampang?
- 3) Does trialability contribute to technology adoption for administrative and instructional purposes among government schools in Ampang?
- 4) Does top management support contribute to technology adoption for administrative and instructional purposes among government schools in Ampang?
- 5) Does normative pressure contribute to technology adoption for administrative and instructional purposes among government schools in Ampang?

#### 4. Research Objectives

The objectives of studies regarding the factors that contribute to technology adoption for administrative and instructional purposes among selected government schools in Ampang are:

- 1) To examine whether relative advantage contributes to technology adoption for administrative and instructional purposes among government schools in Ampang
- 2) To explore whether complexity contributes to technology adoption for administrative and instructional purposes among government schools in Ampang.
- 3) To investigate whether trialability contributes to technology adoption for administrative and instructional purposes among government schools in Ampang.
- 4) To investigate whether top management support contributes to technology adoption for administrative and instructional purposes among government schools in Ampang.
- 5) To examine whether normative pressure contributes to technology adoption for administrative and instructional purposes among government schools in Ampang.

#### 5. Hypotheses

Based on the research framework, the following hypotheses were formulated.

H1: Relative advantage significantly affects technology adoption for administrative purposes among selected government schools in Ampang.

H2: Complexity significantly affects technology adoption for administrative purposes among selected government schools in Ampang.

H3: Trialability significantly affects technology adoption for administrative purposes among selected government schools in Ampang.

H4: Technology readiness significantly affects technology adoption for administrative purposes among selected government schools in Ampang.

H5: Mimetic pressures significantly affect technology adoption for administrative purposes among selected government schools in Ampang.

#### 6. Literature Review

Technology-Organizational-Environmental (TOE) framework was developed by Tornatzky and Fleischer in 1990. Technology, organizational and environmental are the three contexts that influence the adoption and implementation of technological innovation (Tornatzky & Fleischer, 1990). The TOE framework was widely utilized in the past to study IT adoption. A study by Ooi et al. (2018) investigated the factors that influence SME performance among manufacturing SMEs in Penang, Malaysia, using the TOE framework. The study found that technological factors such as technology readiness were significant predictors of SMEs performance, while organizational factors such as mimetic pressure were not. The study also found that SMEs performance had a positive impact on the learning and growth perspective of the balanced scorecard, but no significant impact on the financial, customer, or internal process perspectives. Technological factors such as system quality, information quality, and compatibility were positively associated with IT adoption among manufacturing SMEs in Malaysia (Ng et al., 2016). Organizational factors such as firm size, top management support, and IT skills were positively associated with IT adoption among manufacturing SMEs in Malaysia (Mohamad et al., 2018). Technological factors such as relative advantage and compatibility, organizational factors such as top management support and IT skills, and environmental factors such as competitive pressure and government support all had a

significant impact on Industry 4.0 adoption among manufacturing SMEs in Malaysia Chong et al. (2019).

### ***Resource based view theory***

The Resource Based View (RBV) hypothesis defines competitive advantage as the best use of already-available corporate resources to boost company performance (Barney, 1991). This theory covers how businesses can use their resources in both financial and non-financial ways, as well as how businesses can keep their resources in good condition (Eriksen & Mikkelsen, 2006). Business resources can be divided into two categories: tangible resources and intangible resources, according to Barney (1991). While intangible resources do not have a physical form but are nevertheless controlled by corporations, tangible resources are known as physical resources. In addition, the RVB theory requires the two key presumptions of heterogeneity and immobility. Heterogeneous refers to a company's utilization of several tactics to get a competitive edge while utilizing the same resource as the rival.

### ***Relative advantage***

Several factors influence perceptions of relative advantages in educational administration, including compatibility with existing practices, perceived complexity, and demonstrable benefits (Rogers, 2003). In the context of Malaysian government schools, researchers have identified additional factors such as cultural norms, policy support, and stakeholder buy-in as critical determinants of perceived advantage (Ali et al., 2018). For instance, administrative innovations that align with cultural values, educational goals, and government priorities are more likely to be perceived as advantageous and adopted by school administrators (Chin, 2019). Additionally, clear communication of the benefits and potential impact of innovations can enhance perceptions of relative advantage among stakeholders (Aziz et al., 2020).

Empirical studies provide evidence of the relative advantage of adopting innovative administrative practices in Malaysian government schools. For example, a study by Lee and Tan (2017) found that the implementation of digital administrative systems resulted in significant improvements in efficiency, accuracy, and data management. Principals and administrators reported greater ease of access to information, streamlined processes, and enhanced decision-making capabilities as key benefits of the new systems (Lee & Tan, 2017). Similarly, initiatives such as school-based management (SBM) have demonstrated positive outcomes in terms of school autonomy, stakeholder participation, and academic performance (Abdullah & Chong, 2017). These findings underscore the importance of empirical evidence in informing decisions about the adoption of administrative innovations in Malaysian government schools.

### ***Complexity***

Complexity in administration refers to the intricate interplay of various factors, processes, and relationships that characterize the management of educational institutions. In Malaysian government schools, administrators grapple with a myriad of complex issues, including diverse student populations, changing educational policies, resource constraints, and societal expectations. Educational leadership in Malaysian government schools is characterized by its dynamic and multifaceted nature, requiring administrators to navigate complex challenges and uncertainties. According to Mohamad et al. (2019), effective leadership in this context involves adaptive strategies, collaborative approaches, and visionary thinking to address diverse needs and aspirations.



The organizational structure and governance of Malaysian government schools present a myriad of complexities that impact administrative practices and decision-making processes. Ali et al. (2018) highlights the bureaucratic nature of educational institutions, characterized by hierarchical structures, rigid procedures, and overlapping responsibilities. Additionally, the diversity of stakeholders, including students, teachers, parents, policymakers, and community members, adds further layers of complexity to administration, requiring administrators to balance competing interests, reconcile divergent viewpoints, and foster inclusive decision-making (Arifin & Zulkifli, 2018). Furthermore, resource constraints, such as limited funding, inadequate infrastructure, and shortages of qualified staff, exacerbate the complexities of administration, constraining the ability of schools to meet the diverse needs of students and stakeholders (Azman, 2018). School administrators must adopt strategic planning, evidence-based practices, and data-driven decision-making to navigate the complexities of administration and achieve organizational goals (Lee & Tan, 2017). Furthermore, fostering a culture of innovation, continuous learning, and adaptive leadership is essential for building resilience and capacity to address emerging complexities in educational administration (Yusof et al., 2019).

### ***Trialability***

Trialability, as a concept derived from innovation theory, refers to the degree to which an innovation can be experimented with on a limited basis before full-scale adoption (Rogers, 2003). In the context of Malaysian government schools, trialability influences administrative decision-making by offering opportunities for administrators to pilot new practices, policies, or technologies before implementing them across the entire school system. While specific empirical studies focusing solely on trialability in Malaysian government schools may be limited, broader research on innovation adoption and implementation in educational contexts provides insights into trialability's significance (Abdullah et al., 2019). Several factors influence the extent to which trialability is feasible and effective in Malaysian government schools. These factors include resource availability, stakeholder engagement, leadership support, and the compatibility of innovation with existing administrative structures and practices (Daud, 2018). Schools with adequate resources, supportive leadership, and a culture of innovation are more likely to embrace trialability as a means of testing and refining new administrative approaches. Despite its potential benefits, trialability in Malaysian government schools may face challenges and limitations. Limited resources, resistance to change, bureaucratic hurdles, and concerns about disrupting established practices can impede the effective implementation of trialability initiatives (Omar et al., 2017).

### ***Technology readiness***

Technology readiness in educational administration refers to the preparedness of educational institutions and stakeholders to effectively integrate and utilize technology in administrative processes (Teo, 2018). Empirical studies examining the current state of technology readiness in Malaysian government schools shed light on various aspects influencing technology adoption and readiness. These studies often investigate factors such as infrastructure availability, access to resources, teacher training, and support systems. For example, research conducted by Ibrahim et al. (2020) found that teacher training and access to support systems significantly influence technology readiness among Malaysian teachers, with adequate resources and professional development opportunities facilitating technology adoption and integration.

### ***Mimetic pressure***

Mimetic pressures in organizational contexts refer to the tendency of organizations to imitate or emulate the practices, strategies, and behaviors of other organizations perceived as successful or legitimate (DiMaggio & Powell, 1983). Empirical studies examining the influence of mimetic pressures on administrative practices in Malaysian government schools reveal significant insights. Factors intensifying mimetic pressures in Malaysian government schools include competition for resources, reputational concerns, policy emulation, and professional networks (Chong, 2019). Mimetic pressures exert a profound influence on administration in Malaysian government schools, shaping practices, policies, and decision-making processes. While mimetic behavior can facilitate organizational learning and improvement, it also presents challenges and risks that require careful consideration and management.

## **7. Methodology**

This a one-shot study or a cross-sectional study by which the questionnaire distribution and collection process took one month which is February 2024. The target respondents for this study are all schoolteachers in Ampang, Malaysia, as was previously mentioned. The population of schoolteachers in Ampang can vary depending on the specific area within Ampang and the type of schools (primary, secondary, private, public, etc.). Generally, Ampang is a district in the state of Selangor, Malaysia, and it has a significant number of schools catering to various educational levels. To obtain the precise population of schoolteachers in Ampang, researchers was referring to official government statistics or data from the Ministry of Education in Malaysia. The snowball sample was used for this study. The intended respondents were geographically dispersed throughout government schools in Ampang; therefore, data were gathered using a survey created with the help of the online survey platform Google Form. All responders received invitation emails from Google Form. The survey was developed from research that has been done by many scholars and published in the literature. To accommodate the needs of government schoolteachers in Ampang, the operational measure was amended.

To find any potential issues with the language, tone, structure, and design of the questionnaire, it was pretested. A pre-tested survey aids in comprehension of the items. The questionnaire was distributed to two academics for content analysis and measurement validity verification. Then, suggestions were included to enhance the questionnaire design. The questionnaires will be shared through Google Form to 30 government schoolteachers in Ampang for a pilot test after being amended for the reliability test. It must be emphasized that the data from the 30 respondents was only used for the pilot study. Respondents will be given an average of one week to complete the questionnaire.

By using SPSS, information about the statistical profile of government schoolteachers in Ampang is condensed and classified in the form of frequency and percentage so that it can provide meaningful data and be efficiently interpreted. These statistical measurements were applied to the relevant concerns in the research. To determine the relationship between the variables, SPSS was utilised. The Pearson correlation in SPSS was extensively utilised to determine the correlations between variables. Smart-PLS was also used to investigate multiple regression. Hypothesis testing was conducted by assessing structural model. The measurement data result of path coefficient, standard error, t-value,  $R^2$ ,  $f^2$  and  $Q^2$  will be used. The path coefficient function is to identify a normalization constant and to make sure the total probability integrates to 1. This value will fall in approximately the range between -1 and +1 and the value

always falls in this bound. If the value is close to +1, it indicates that it has a strong positive relationship and indirectly it is statistically significance and vice versa for negative value.

## 8. Finding

Based on an online survey, 80 total samples were obtained. The profile of 80 respondents is displayed in Table 1. The gender of respondents is almost equally distributed for males and females at 50.5% and 49.5%, respectively. Besides that, the age group of the majority of respondents who participated in this research is in the range between 31 and 40 which is 40.5% and they are considered young teachers. The remaining respondents are in the category of 21 to 30 at 33.3%, followed by 12.6% for 41 to 50, 8.1% for 51 to 60, and above 60 years old scored 5.4%. The last part of the respondent profile inquiries about their educational background. 64% of respondents have certificate or diploma qualifications and 11.7% possess a bachelor's degree.

**Table 1: Summary of Respondents Profile (n = 80)**

Demographic Variables	Description	Count	Percentage
Gender	Male	41	50.5
	Female	39	49.5
Age	21 – 30	26	33.3
	31 – 40	32	40.5
	41 – 50	10	12.6
	51 – 60	7	8.1
	> 60 above	5	5.4
Year of Experience	1	12	15.3
	2	31	39.6
	3	18	22.5
	4	14	17.1
	5	5	5.4
Education	Certificate / Diploma	51	64
	Bachelor's degree	29	11.7

### Structural model

The structural model is crucial to the analysis since it determines whether to accept or reject the hypothesis. For this study, it is necessary to ascertain the R<sup>2</sup> value for the outcomes and dependent variable. The R<sup>2</sup> refers to the variance provided by external variables and was determined to assess the structural model's capacity for prediction (Amin et al., 2016). The R<sup>2</sup> value for this model utilising TOE illuminates 0.827 of technology adoption in government school, as shown in Table 2. The rule of thumb states that the R<sup>2</sup> value must at least meet a requirement of 0.50. (Hair et al., 2011). This suggests that the research model for this study is important to understand technology adoption in government school.

**Table 2: R<sup>2</sup> Values for Endogenous Variables**

Endogenous Variable	R <sup>2</sup>
Technology adoption in government school	0.827

The predictive relevance of Q<sup>2</sup> for this model was then established. Exogenous constructs are predictive of endogenous constructs, according to Q<sup>2</sup> value (Geisser, 1974 & Stone, 1974). Hair et al., (2017) cites the general rule that the Q<sup>2</sup> value must be greater than zero. Table 3 demonstrates that the technology adoption in government schools for the second quarter was



0.654, which satisfied the criteria. This illustrates that exogenous constructions have predictive relevance for endogenous constructs in this model as shown in Table 3.

**Table 3: R<sup>2</sup> Values for Endogenous Variables**

	TA	CX	T	TR	MP
Technology Adoption in Government School (TA)	<b>0.918</b>				
Complexity (CX)	-0.820	<b>0.896</b>			
Trialability (T)	0.772	-0.820	<b>0.920</b>		
Technology Readiness (TR)	0.677	0.683	-0.708	<b>0.797</b>	
Mimetic Pressures (MP)	0.689	0.683	-0.538	0.580	<b>0.919</b>

**Table 4: R<sup>2</sup> Values for Endogenous Variables**

Endogenous Variable	R <sup>2</sup>
Technology adoption in government school	0.827

**Table 5: Predictive Relevance (Q<sup>2</sup>) for Endogenous Variables**

Endogenous Latent Variable	Q <sup>2</sup> Values
Technology adoption in government school	0.654

The study of the structural model went on to determine the effect size  $f^2$ , the orientation of the endogenous constructs toward the exogenous construct. The strength of each independent variable in explaining the endogenous variable is indicated by the  $f^2$  value. Cohen (1988) states that the general  $f^2$  value range is 0.35 for a significant effect size, 0.15 for a medium effect size, and 0.02 for a minor effect size. The  $f^2$  score for each construct suggests a mix of minor, medium, and considerable importance, as seen in Table 6.

**Table 6: Results of Effect Size ( $f^2$ )**

DV Construct	IV Construct / Outcomes	Effect Size ( $f^2$ )	Inference
Technology adoption in government school	CX	0.790	Substantial
Trialability	T	0.136	Medium
Technology Readiness	TR	0.053	Small
Mimetic Pressures	MP	0.012	No effect

The t-values and significance level for the model must be decided once the model's robustness has been tested. T-values should generally be 1.65 at a 10% significance level, 1.96 at a 5% significance level, and 2.58 at a 1% significance level, according to Hair et al., (2014). All of these levels of significance apply to two-tailed tests. The significance threshold was divided by two as a one-tailed test and the t-values were kept because all of the hypotheses in this study are one-way or directional. According to Hair et al. (2014), t-values above 1.65 indicate that a hypothesis is supported. The hypothesis testing's executive summary is shown in Table 7.

**Table 7: Discriminant Validity of All Constructs Using HTMT**

DV Construct	TA	CX	T	TR	MP
Technology Adoption in Government School (TA)					
Complexity (CX)	0.881				
Trialability (T)	0.878	0.782			
Technology Readiness (TR)	0.767	0.810	0.751		
Mimetic Pressures (MP)	0.735	0.591	0.710	0.672	

Three hypotheses were supported, as indicated in Table 8, out of a total of four independent variables for the adoption of technology adoption in government schools.

**Table 8: Hypotheses Testing**

Hypothesis	Relationship	Path Coeff. (β)	Std Error	t-value	p-value	Decision
H1	Relative advantage significantly affects technology adoption for administrative purposes among selected government schools in Ampang.	0.620	0.083	7.440	0.000	Supported
H2	Complexity significantly affects technology adoption for administrative purposes among selected government schools in Ampang.	-0.291	0.057	5.103	0.000	Supported
H3	Trialability significantly affects technology adoption for administrative purposes among selected government schools in Ampang.	0.167	0.057	2.918	0.002	Supported
H4	Mimetic pressures significantly affect technology adoption for administrative purposes among selected government schools in Ampang.	-0.080	0.065	1.227	0.110	Not Supported

Four different hypotheses from the technology adoption in government schools were investigated in this study's structural model, as per the research framework. Four of the hypotheses relate to the antecedents of technology adoption in government schools. Inferring that more than 50% of the hypotheses were supported, 75% (3 out of 4) of the hypotheses were therefore supported. Table 9 below provides an overview of the structural model's hypothesis testing.

**Table 9: Summary of Hypotheses Testing**

	Hypotheses	Result
H1	Relative advantage significantly affects technology adoption for administrative purposes among selected government schools in Ampang.	Yes
H2	Complexity significantly affects technology adoption for administrative purposes among selected government schools in Ampang.	Yes
H3	Trialability significantly affects technology adoption for administrative purposes among selected government schools in Ampang.	Yes
H4	Mimetic pressures significantly affect technology adoption for administrative purposes among selected government schools in Ampang.	No

Based on the results, 3 out of 4 hypotheses were supported, which is equivalent to 75% of hypotheses being accepted. The discussion and conclusion from the data analysis result, implications of this study, limitations and direction for future research are elaborated in the finding.

## 9. Discussion

The findings indicate a varied landscape of technology adoption among government schoolteachers in Malaysia, reflecting a range of experiences and attitudes towards digital tools in education. The analysis provided the following findings. The specific finding was that teachers used technology with some fully integrating digital resources into their teaching practices while rest used them little or did not use them at all. One of the significant obstacles to technological adoption in the finding was the lack of professional development training in teachers. Teachers had few hindrances because of lack of confidence and lack of skills. Teachers therefore require ongoing support depending on specific needs and help support problems solve their challenges.

The other key finding is the impact of technology on both teaching and learning outcomes. Teachers reported increased student engagement, easy access to educational resources and collaboration among students. However, factors such as digital inequality and limited access to digital devices are some of the problems which are barriers. Students in rural areas do not have internet connections, resulting in a number of educational equities. Teachers accept technology as a valuable tool for increasing learning experiences while others resist technology because of the increased reliance on technology. Technology also causes distractions in classrooms and a requirement to have a balance between traditional teaching methods and with digital tools. The findings suggest that policy makers must consider the above findings while designing new innovative ideas to promote technology integration.

Government agencies, educational institutions and industry partners are required to collaborate to ensure that students have access to quality education. The findings also suggest that relative advantages significantly affect technology adoption for administrative purposes among selected government schools in Ampang while Complexity significantly affects technology adoption for administrative purposes. Triability impacts technology adoption for administrative purposes in selected schools in Ampang while mimetic pressures were not one of the factors that adoption supported in specific schools in Ampang.

The research investigated the impact of four antecedents on manufacturing SMEs performance. This resulted in four elements acting as the antecedents because they showed strong correlations. From a technological perspective, complexity has a significant negative. Technology readiness is recognized as a criterion for the organizational context but not for the environmental situation. Mimetic pressure, on the other hand, indicates the existence of a non-significant relationship with manufacturing SMEs performance.

## 10. Conclusion

To conclude, the adoption of technology in Malaysian schools is a multifaceted process which requires specific ways to problem solve. Findings suggest that while there are both challenges and complexity, there are also specific benefits where technological adoption is concerned. This study recommends that there should be more comprehensive training programs, workshops and easy access to infrastructure as well as technical support. Teachers can then be empowered to become professionally competent in using technology and implementing their teaching practices. In addition, policy makers must add in the integration of technology in curriculum initiatives and have feedback mechanisms which will foster technology adoption. This way, Malaysia can ensure that students are able to be prepared for a more digitalized world.

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