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Change Management Practices Survey in Implementing Education Policy from Teacher Perspective

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Abstract
Change management at the school level can enhance teacher acceptance and preparedness, thereby reducing any hindrance to the implementation of education policy. This paper examines the validity and reliability of the Change Management Practices Survey for evaluating change management practices in schools through Exploratory Factor Analysis and Cronbach's Alpha test. The study of the instrument yields communalities ranging from 0.83 to 0.57 and factor loading values varying between 0.89 and 0.63; meanwhile, Cronbach's Alpha value stands at 0.97. These indicate the instrument's high validity and reliability, rendering it suitable for further comprehensive investigations into assessing change management within the schools.

Keywords: Change management; Intervention Function Model; Exploratory Factor Analysis; Malaysia Education

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1.0 Introduction

The impact of alterations in the political, economic, and social environments, both domestically and internationally, has significantly influenced the nation's educational policies (Puteh et al., 2022). Moreover, the swift advancement of technology and globalisation has necessitated a substantial overhaul of educational policies (Ghavifekr & Wong, 2021; Zaiti Zainal & Zaidah Zainuddin, 2020). Presently, the Malaysian education system is transitioning towards integrating digital technologies and artificial intelligence into classroom learning. For technology to catalyse educational transformation, it must be capable of augmenting educational outcomes as a transformative tool that enhances student engagement and comprehension (Wu, 2024).

However, the use of technology in learning cannot guarantee an increase in performance if the aspect of how well the technology supports teaching and learning is not thoroughly addressed. Reflecting on the past educational policies, many have fallen short of achieving their intended objectives and meeting current demands. Consequently, some policies have been repealed, while others have been revised due to challenges encountered during policy implementation. For example, the 1BestariNet programme was among the digital education policies abolished due to implementation constraints. According to the Auditor General's Report 2018 Series 1, the level of 1BestariNet usage is not comprehensive, based on the achievement of Key Performance Indicators and low usage of Frog VLE (Virtual Learning Environment) despite RM2.712 billion having been invested.

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There are persistent shortcomings in the execution of educational policies, particularly at the school level, attributable to various factors, including teacher unpreparedness and awareness, breakdown of information flow from superiors to implementers, irregular implementation and evaluation practices, and teachers feeling confused and frustrated (Bush et al., 2019; Dinh & Sannino, 2024; Jones et al., 2019; Mohd Asri, 2013). These factors have obstructed teachers from transitioning from the status quo to effectively implementing newly introduced educational policies (Fullan, 2007). Enhancing the efficacy of policy implementation, particularly among teachers who form the core of policy implementers, is imperative. The resistance encountered in implementing new policies and altering existing practices in schools is often met with inertia from teachers due to their diverse contexts of experience, knowledge, skills, capacities, commitments, and intentions (Dinh & Sannino, 2024; Poulton, 2020).

Despite substantial investments in professional development, research spanning from the 1970s to the present shows that approximately 60% to 70% of organisations struggle to implement change successfully (Ashkenas, 2013). Recent research shows the opposite result, as evidenced by a study of 200 organisations, achieving a 72.5% success rate in change initiatives (Jones et al., 2019). Nearly half of these entities have strategised organisational change, predominantly employing Kotter's Eight-Stage Process for the Successful Organisational Model. The findings underscore the potential of change management to facilitate organisational change to a certain extent. Employing a structured process, tool, or technique to facilitate effective acceptance of change can assist administrations in attaining their organisational objectives (Creasey, 2020).

In the realm of change implementation, assessing progress holds significant importance, as it involves gathering and transmitting information to organisational leaders to ensure the continuity and success of change initiatives, along with performance enhancement (Visscher et al., 2022). The failure of organisational leaders to periodically review progress may result in the dissipation or deterioration of all efforts directed towards change (Hall & Hord, 2015). Therefore, it is imperative to systematically monitor, assess, and evaluate the progress of educational policy implementation concerning school change management practices using valid and reliable instruments.

This study examines the validity and reliability of the Change Management Practices Survey (CMPS) as a tool for evaluating change management practices in schools through Exploratory Factor Analysis (EFA) and Cronbach's Alpha test. The article will delve into an analysis of a change management measurement tool concerning the implementation of educational policies viewed by teachers. This article introduces a change management model for school organisations and the selection of instruments to measure change management practices. Furthermore, this article will discuss the EFA and Cronbach's Alpha tests of the proposed instruments to confirm their validity and reliability for measuring school change management practices.

2.0 Literature Review

Most change management consists of three distinct phases: Phase 1 – Need for Change, Phase 2 – Change Intervention, and Phase 3 – Sustaining the Change. These phases align with well-known change management models such as Kurt Lewin's Three-Step Model of Change (Cameron & Green, 2019) and Fullan's Change Model (Fullan, 2007). Initially, organisations undergo the unfreeze or initiation process, where members must be motivated for change, leading to the decision to embrace and perpetuate the change effort. Subsequently, the organisation implements change by introducing new ideas or innovations into its professional practices. Finally, the refreeze or institutionalisation process is utilised to ensure that the changes become integral parts of the system, procedures, practices, norms, and culture within the school.

Change is idiosyncratic to each individual, thus necessitating a structured, systematic, and humane approach to drive individuals within the organisation towards transitioning from the current state to the desired one (Creasey, 2020). The importance of implementing change from multiple perspectives is emphasised to mitigate natural resistance to planned change objectives and to foster a more humane approach to change management. To undergo a shift in belief followed by a corresponding change in behaviour, teachers must experience positive effects from their interactions with students and peers while also feeling a sense of efficacy and confidence in their ability to overcome the teaching challenges they face. A pivotal moment in the change process is not solely derived from professional development opportunities but from the practical experience of implementing changes and observing tangible results (Guskey, 2002). Conversely, Fullan (2007) posits that successful change is facilitated through shared understanding among all organisational members before implementation. Nevertheless, both viewpoints concur that a shared belief in a particular value can influence cultural change.

The linear nature of most change management models poses a limitation; hence, a shift towards a cyclical model is advocated for enhanced practicality (Cameron & Green, 2019), given that not all organisational members readily embrace change due to barriers they face. Subsequently, a thorough analysis, planning, and execution of interventions to address the root causes of obstacles are imperative. A cyclical change management model ensures the perpetuation of change management efforts and becomes a practice until the envisioned change is ultimately realised. Diverging from conventional change management models, the Intervention Function Model stands out for its cyclical and interconnected nature as opposed to the linear framework of other models.

2.1 Intervention Function Model

Although the process of change management may appear straightforward, it is, in reality, a complex endeavour. This study will utilise the Intervention Function Model as the foundational framework for change management implementation within educational institutions. The Intervention Function Model emerged from the review of the research literature concerning the behaviours and practices of instructional leaders who effectively navigate change. Consequently, through analysing this research, Hall and Hord (2015) identified six functional domains or categories that constitute the Intervention Function model.

The initial phase, focused on establishing a vision for change, necessitates the engagement of stakeholders within the organisation to evaluate current performance levels, establish targets, and formulate strategic plans (Rieg et al., 2021). During this phase, leaders

must construct an environment conducive to implementing change (Function 6) by considering the school's atmosphere and ethos encompassing both physical and human elements (Hall & Hord, 2015). School leaders also need to develop, articulate, disseminate, and communicate a vision or objective for desired collective change (Function 1), to leave an initial impact on teachers' minds regarding the implementation of change (Dinh & Sannino, 2024; Hall & Hord, 2015). Consequently, this fosters the execution of desired changes among teachers due to the clarity of the set goal.

The subsequent phase in the change process involves executing the vision or change initiative, which requires careful planning and resource allocation (Function 2), investment in professional development (Function 3), and assessing progress achievement (Function 4). The steps taken when implementing the action plan should effectively bridge the gap between current performance and desired objectives while considering aspects of sustainability and accountability. The intervention strategies should be easily sustainable and executable to ensure the continuity of the change endeavour and its establishment as a new norm. The final and often overlooked phase of the change process is maintaining the vision or change by providing ongoing support (Function 5). Without persistent efforts, newly introduced practices are susceptible to waning and reverting to previous norms (Isah Iyaji et al., 2023).

3.0 Methodology

There is currently a lack of a specific instrument based on the Intervention Function model to assess change management strategies. The CMPS can be employed to evaluate change management approaches in alignment with the Intervention Function model. The rationale behind selecting this questionnaire is its prior usage by Mabasa (2006) to capture educators' perspectives on change management strategies in their respective schools. Moreover, the questionnaire items can pinpoint change management practices that correspond to the six functions outlined in the Intervention Function model.

This questionnaire was developed by Mabasa (2006), based on the framework proposed by Ford et al. (2001), to evaluate change management practices from educators' perspectives. Ford et al. (2001) have listed questions in the Centre for Quality of Management (CQM) Survey that encompass eight categories in the change management. The CQM's eight categories can be correlated with the six functions identified in the Intervention Function model, as depicted in Fig. 1. The quantitative investigation was conducted on a sample of 220 teachers in several secondary schools around Perak, Malaysia, who are currently participating in the School Transformation Programme 2025. The data collected will undergo EFA and Cronbach's Alpha test to analyse CMPS validity and reliability.

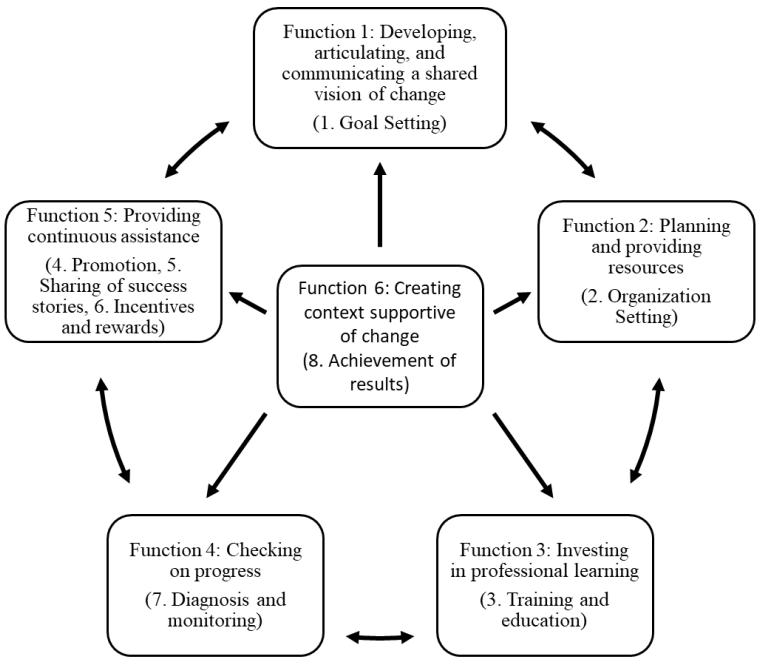

Fig. 1: Intervention Function Model with eighth categories of Centre for Quality of Management (CQM)
(Ford et al., 2001; Hall & Hord, 2015)

EFA aims to ascertain the factors or dimensions that possess the fewest number of variables capable of effectively elucidating the correlation existing among the array under investigation (Watkins, 2018). Concurrently, EFA serves the purpose of detecting shared factors in the structure and arranging items into constructs amidst the variables being scrutinised (Watkins, 2018). Following the outcomes of the EFA, the items within each factor or dimension exhibit a substantial variance and reliability value, thereby contributing to the clarification of the relationship structure between the items and the construct dimensions (Beavers et al., 2013; Hair et al., 2010). EFA will be utilised to assess construct validity, ensuring the fundamental structure of the studied variables can be effectively quantified with a minimal number of constructs (Hair et al., 2010).

4.0 Results

EFA represents a blend of diverse statistical analyses that share a common methodology and purpose (Beavers et al., 2013), encompassing Principal Component Analysis (PCA), Varimax Rotation, Bartlett's Sphericity Test, and Kaiser-Meyer-Olkin (KMO) (Watkins, 2018). The outcomes of the statistical tests involving Bartlett's Sphericity and KMO on the initial survey to assess the implementation of change management in educational institutions are detailed in Table 1.

Table 1: Kaiser-Meyer-Olkin (KMO) and Bartlett's Sphericity results

Kaiser-Meyer-Olking Measure of Sampling Adequacy		0.94
Bartlett's Test of Sphericity	Approx. Chi-Square	6092.23
	df	561
	Significance according to Bartlett	0.00

The result for KMO is very high, 0.94, indicating the interrelations among the variables are markedly conducive to justify proceeding with factor analysis. Additionally, the significance level obtained from Bartlett's Test of Sphericity was recorded at 0.00, implying a robust set of intercorrelations among the variables that allows them to be grouped into factors, rather than being independent. Hence, both findings indicate that the correlations between variables are sufficiently high for extracting meaningful factors, which allows the following item reduction procedure to be implemented. Based on the analysis, six components exceed the eigenvalue equal to 1, as shown in Table 2 and Fig. 2 below.

Table 2: Total variance explained for Change Management Practices Survey (CMPS)

Component	Total	% of variance	Accumulated %
1	16.22	47.71	47.71
2	2.52	7.40	55.12
3	1.64	4.81	59.93
4	1.49	4.38	64.31
5	1.11	3.27	67.58
6	1.09	3.19	70.78
7	0.85	2.50	73.28

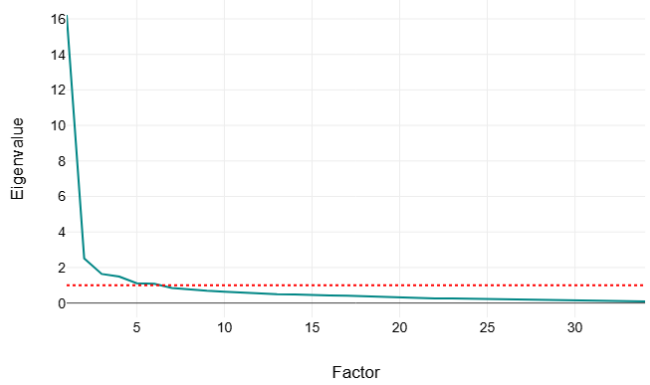

Figure 2: EFA Scree Plot on Change Management Practices Survey (CMPS)

Six factors were selected based on recommendations derived from theory and prior research in the literature that comprise six intervention functions. Moreover, by choosing six factors, 70.78% of change management practices surpass the 60% target for variance percentage. Additionally, the Scree test in Figure 2 reveals a substantial amount of shared variance, with the factor demonstrating its value of six before reaching the inflexion point. The analysis also shows that the communality value ranges from 0.83 to 0.57, which is above 0.30, suggesting that the six-factor set can explain all the items. The communalities exceeding the threshold of 0.5 further imply that the six-factor solution captures a substantial proportion of the variance associated with the variables, indicating a robust model. By taking six factors, the factor loading values ranged from 0.89 to 0.63, all of which exceeded 0.50, suggesting that the variables play a significant role in describing the factors. The variables are well-represented and well-aligned with the underlying structure of their corresponding factors, confirming the validity of the instrument. Table 3 displays the six factors along with factor loadings exceeding 0.5 for each item.

Table 3: Factor loadings on Change Management Practices Survey (CMPS)

Item Number	Component					
	1	2	3	4	5	6
Item 1 (Function 1)	0.66					
Item 2 (Function 1)	0.63					
Item 3 (Function 1)	0.79					
Item 4 (Function 1)	0.83					
Item 5 (Function 1)	0.79					
Item 6 (Function 2)		0.75				
Item 7 (Function 2)		0.83				
Item 8 (Function 2)		0.81				

Item Number	Component					
	1	2	3	4	5	6
Item 9 (Function 2)		0.82				
Item 10 (Function 2)		0.83				
Item 11 (Function 2)		0.82				
Item 12 (Function 2)		0.79				
Item 13 (Function 3)			0.69			
Item 14 (Function 3)			0.75			
Item 15 (Function 3)			0.73			
Item 16 (Function 3)			0.72			
Item 17 (Function 3)			0.86			
Item 18 (Function 3)			0.83			
Item 19 (Function 3)			0.83			
Item 20 (Function 4)				0.87		
Item 21 (Function 4)				0.89		
Item 22 (Function 4)				0.88		
Item 23 (Function 4)				0.83		
Item 24 (Function 4)				0.81		
Item 25 (Function 5)					0.79	
Item 26 (Function 5)					0.76	
Item 27 (Function 5)					0.82	
Item 28 (Function 5)					0.86	
Item 29 (Function 5)					0.86	
Item 30 (Function 5)					0.78	
Item 31 (Function 6)						0.86
Item 32 (Function 6)						0.86
Item 33 (Function 6)						0.88
Item 34 (Function 6)						0.85

Through this investigation, the Cronbach's Alpha coefficient was computed to clarify the level of internal consistency, assessing the degree to which all items within the assessment measure the same underlying construct and the interrelatedness among these items (Creswell & Creswell, 2018). Values of Cronbach's Alpha surpassing 0.6 and nearing 1.0 indicate a high level of reliability for the items under study in this particular analysis. As a result of this investigation, the Cronbach's Alpha value for the CMPS instrument is presented in Table 4 below.

Table 4: Cronbach Alpha value on Change Management Practices Survey (CMPS)

Component	Cronbach Alpha
Change Management Practice	0.97
Function 1: Developing, Articulating and Communicating a Shared Vision of the Desired Change	0.79
Function 2: Planning and Providing Resources	0.91
Function 3: Investing in Professional Learning	0.88
Function 4: Checking Progress	0.91
Function 5: Providing Continuous Support	0.89
Function 6: Creating a Context to Support Change	0.89

The evaluation of the reliability of CMPS within the educational institution context yielded a Cronbach's Alpha value of 0.97. This finding indicates a high level of internal consistency among the 34 items included in the measurement scale. Furthermore, in each factor component, Cronbach's Alpha value is high, ranging from 0.79 to 0.91, which suggests a reliable measure of the underlying construct examined in the research context. This value also indicates excellent internal consistency of the items that measure teachers' views according to each construct. Based on the findings of a study by Mabasa (2006) that used the same questionnaire, the Cronbach's Alpha coefficient value is 0.968414, indicating that the CMPS items indeed have high validity.

5.0 Discussion

The prevailing state of volatility, uncertainty, complexity, and ambiguity (VUCA) presents significant obstacles to implementing educational policies (Hadar et al., 2020). The engagement of all stakeholders within the institution in evaluating current performance levels, defining vision and objectives, and developing strategic plans (Rieg et al., 2021) is crucial. Articulating, disseminating, and communicating the envisioned change collectively (Function 1) can create an initial impact on teachers' perceptions regarding change implementation (Dinh & Sannino, 2024; Hall & Hord, 2015), thereby fostering their support for desired changes based on the aspirations for enhanced performance and clear objectives.

Before enforcing a new educational policy, administrators must initiate change management procedures. (Function 2) The provision of resources plays a crucial role in developing structural capital, which comprises supportive tools, processes, and information that facilitate the functioning of human capital (Nassirzadeh et al., 2023). Human capital represents the composite of habits, knowledge, skills, and social and personal attributes impacting task performance and productivity (Nassirzadeh et al., 2023). Professional development can enhance individuals' human capital by expanding their knowledge and refining their skills (Function 3). Both structural capital and human capital represent key components within the realm of intellectual capital.

(Function 4) In change management, the assessment of progress achievement primarily centres on the effectiveness, efficiency, impact, and sustainable value of the implemented intervention measures (Visscher et al., 2022). Change management processes follow a cyclic pattern that resonates with the principles of the Innovation Diffusion Theory, where continuous support and more learning opportunities are essential (LaMorte, 2019) to ensure the acceptance and implementation of change throughout the entire organisation (Function 5). According to the Innovation Diffusion theory, change can be accepted among organisations based on five groups: "innovators, early adopters, early majority, late majority, and laggards" (LaMorte, 2019). So, in the context of schools, there will be groups of teachers who require ongoing support.

The Intervention Function Model reciprocates well with the Teacher Change Model during the change process, encompassing the initiation, execution, and institutionalisation of new educational policy. (Function 6) The framework of the Teacher Change Model explicitly describes the interconnection among knowledge, behavioural practices, and belief systems (Guskey, 2002). It is imperative to establish value and trust in the modifications introduced to guarantee the implementation and sustainability of education policies. This concept is elucidated by the Value, Belief, and Norm (VBN) Theory, which posits that values and beliefs underpin the formulation and enforcement of societal norms (Ghazali et al., 2019). Hence, the Intervention Function Model not only fosters the development of values and trust in change but also ensures the sustained implementation of new practices and the durability of educational policies.

The Intervention Function Model, as applied in change management within the educational institution landscape, demonstrates how changes are measured and identifies the constructs of action and events involved in facilitating change (Hall & Hord, 2015). This model significantly compares with various other theories and models, such as Fullan's Change Model, Lewin's Three-Step Model, Structural Capital, Human Capital, Innovation Diffusion Theory, Teacher Change Model, and VBN Theory. The fundamental aspects of the Intervention Function Model can be effectively captured and assessed through the CMPS, which has been specifically designed for the educational institution landscape based on survey questions from the CQM.

In addition, a study on CMPS revealed that the Bartlett's sphere and KMO statistical results were 0.00 and 0.94, respectively, indicating a substantial correlation in the data that allows a single variable to be associated with other variables. Considering six factors, the communalities range from 0.83 to 0.57, and the factor loading values vary between 0.89 and 0.63, suggesting that each item in the CMPS effectively elucidates all six factors within the Intervention Function Model. The Cronbach's alpha value for the CMPS is 0.97, with each component of the factor ranging from 0.79 to 0.91, indicating a high level of reliability. In brief, a set of 34 items in the CMPS effectively captures all essential components across the six intervention phases outlined in the Intervention Function Model. To assess change management practices within an educational context using the Intervention Function Model, the CMPS can reciprocate very well.

6.0 Conclusions and Recommendations

Each policy formulation necessitates significant investments in commitment, effort, time, finances, and expertise; thus, a proportional outcome is eagerly anticipated. Every implementation of policy changes is expected to achieve the intended objectives. Nevertheless, there remains a likelihood that the implementation of new policy changes may prove ineffective and fail to attain the objectives due to encountered obstacles. These hindrances lead to organisational instability, hindered progress, and diminished competitiveness within the educational sector. The factors contributing to such obstacles encompass individual resistance to leaving comfort zones, impact on personal aspirations, misinterpretation of procedural directions, apprehension towards an uncertain future, limited resources, scepticism regarding the necessity of change, and a prevailing culture of resistance (Cameron & Green, 2019; Fullan, 2007; Hall & Hord, 2015).

This research was undertaken to gain a comprehensive insight based on actual change management practices in educational institutional settings. In conclusion, this study achieves its objective, confirming the high validity and reliability of CMPS. Therefore, rendering it suitable for further comprehensive investigations into assessing change management practices within the school context in the implementation of education policy through teachers' perspectives as key executors of the policy. However, this study may not represent the whole landscape of Malaysian education in other educational institution settings, as the sample under research was limited to secondary schools in Perak. Nonetheless, the results of this study can facilitate further examination in a more thorough investigation to (1) evaluate the practice of using change management in distinct school contexts, (2) identify teachers' values and beliefs towards new policy changes, (3) understand the acceptance of education policy among school teachers, and (4) grasp a holistic perspective on ensuring sustainable implementation of education policy.

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Paper Contribution to Related Field of Study

It is anticipated that this study contributes to enhancing the implementation of educational policies and the professional performance of teachers by providing a comprehensive understanding of evaluating change management practices in schools. CMPS can serve as valuable tools for policymakers to assess the progress of change implementation. They can also act as a checklist for school leaders when executing practice changes among teachers. This approach helps to identify areas for improvement that can foster policy acceptance among teachers and support the sustainable implementation of these changes.

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