Supporting the Policy Implementation Performance of Public Primary School Leaders in Malaysia: A Confirmatory Factor Analysis (CFA) of Public Leadership

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ABSTRACT

Policy implementation requires the act of translating the goals and objectives of policy into actions. Policy implementation is a difficult process because how policy actors and implementers act on the policy on a large scale may decide whether it succeeds or fails. There is a growing recognition that policies do not succeed or fail on their own, but instead due to a lack of leadership qualities in policy implementation. The study aims to develop and validate the instrument for measuring the public leadership construct of school leaders in Malaysia. The instrument was adapted from the previous study and modified to suit the current study. The study also added ten new items to complement the original instrument of public leadership initiated by Tummers and Knies (2016). The target population is school leaders in the national-type primary schools in Malaysia. A simple random sampling method was utilized to select a random sample of 381 participants from the sampling frame of eligible school leaders in the country. Content validity and exploratory factor analysis (EFA) was conducted on the instrument before the confirmatory factor analysis. The Confirmatory Factor Analysis (CFA) procedure confirmed the existence of four sub-constructs of the public leadership construct that are accountability leadership, rule-following/lawfulness leadership, political loyal leadership, and network governance leadership. The CFA process has deleted four items due to poor factor loading (less than 0.6). The fitness indexes for all fit categories have achieved the required level of a model fit. Meanwhile, the Average Variance Extracted (AVE) and Composite Reliability (CR), which reflect the convergent validity and construct reliability, respectively, have also achieved the required level of a model fit. Hence, the revised instrument for measuring the public leadership construct of school leaders in Malaysia is valid and reliable for use to determine the policy implementation performance of the public primary school leaders in Malaysia.

Keywords: educational policy, leadership, public leadership, policy implementation performance, confirmatory factor analysis, accountability leadership, rule-following/lawfulness leadership, political loyal leadership, network governance leadership

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INTRODUCTION

Government policies are critical for the success of a country. Evidence suggests that policies are among the most critical factors where all people in the country shall have equal opportunities to develop their character and behavior of good citizenship (Ball, 2017). Policies are designed to influence and determine each key decision and action, as well as all activities that take place within the organization's limits. Policies are also fundamental to any organization since there is a set general plan of actions used to guide the organization to achieve the desired outcomes in policies. Government across nations have made numerous adjustments to educational policies to improve the people's quality of life through education. The importance of education in improving a nation's well-being and social growth has been proven in reports made by the Organisation for Economic Cooperation and Development (OECD, 2018). It has been recognized that school leaders play critical roles in the implementation of educational policies. For this reason, the efficacy of leadership among principals and the management teams in schools is critical to the successful implementation of educational policies (Schleicher, 2012; Spillane & Kenney, 2012; Davis & Darling-Hammond, 2012; Walker & Ko, 2011).

POLICY IMPLEMENTATION & LEADERSHIP

Policymakers and academics have been debating policy implementation for more than half a century (Moulton & Sandfort, 2017). After agenda-setting and policy development, policy implementation is the third stage of the policy cycle, closed by policy evaluation and termination (Jenkins, 1978). The process of placing the policy's assertions into action by carrying out, undertaking, completing, and accomplishing the policy's aims and outcomes are known as policy implementation. According to Van Alfen (2003), the nature of policy implementation is vital because properly executed policies produce incentive and empowerment rather than just limits and constraints to leaders. As policy implementation is based on a complex system of social and political interactions, there are many challenges and impediments to overcome to achieve policy success (May & Jochim, 2013; O'Toole, 1986). Many factors were found to be influencing policy implementation (Brynard, 2009). Giacchino and Kakabadse (2003) proposed many factors that affect successful policy implementation, including commitment, leadership, skills and abilities, and the values or beliefs on the policies. It has been ascertained that there must be a significant relationship
between the process and people in policy implementation (Brynard, 2009).

To guarantee that educational policies are implemented successfully, we must not overlook the contributions of those in positions of responsibility for achieving the policies’ outcomes. Principals are primarily responsible for policy implementation in schools (Hallinger & Lee, 2012; Hope & Pigford 2002). Principals and the school’s management team were held responsible for setting conditions that would support policy implementation, which included interpreting the policy, putting it into action, and guiding it through the implementation process (Carter, 2018; Woullin, Donaldson & Gonzales, 2016; Reform Support Network, 2015; Retallic & Fink, 2002; Forsyth & Tallerico 1998). The ability of school leaders to encourage stakeholders in schools to act and perform according to policies is crucial for policy success. School leaders should effectively prepare for policy implementation to achieve success (Lynn, 1987). School leaders’ leadership practices are crucial to ensure that educational policies and reforms are executed effectively.

PUBLIC LEADERSHIP
The concept of public leadership starts with the principle that every strucure of government requires leadership (Hart, 2014). Thoughts on public leadership raises several theoretical questions for researchers, including differences in leadership across areas, how leadership functions at different levels of the administrative chain of command, the right values that public leaders should exemplify, and leadership in cross-jurisdictional settings, such as public-private partnerships or networks (Terry, 2015; Currie et al., 2011; Crosby, 2010; Ospina & Foldy, 2010; Crosby and Bryson, 2005; Vinzant & Crothers, 1998).

Public leadership is broader than administrative leadership. According to Van Wart (2013), administrative leadership focuses solely on the people and processes involved in leading, managing, and guiding government and non-profit agencies. The contemporary landscape of public leadership has become increasingly fluid (Frederickson, 2007). Public leadership is widely acknowledged as a critical component of good government governance (Cetin, 2012). According to the Organisation for Economic Cooperation and Development (2019), public leadership is critical to effective and efficient government. Therefore, to implement educational policies, school leaders must possess the knowledge and skills of public leadership.

Public leadership starts with the premise that every system of governance requires leadership (Boin, Stern, & Sundelius, 2016). There are three lenses that frame the current research on public leadership, which are: the lens that examines the character of public leadership as it imitates everchanging authority insights, the lens that sees the importance of public leadership functions such as accountability, collaboration, entrepreneurial efforts, and strategic engagement, and the lens that mirrors the limits of public leadership’s authority (Getha-Taylor et al., 2011). All three lenses emphasize the importance of numerous frames in comprehending the complexities of leadership, such as the how, what, and why of public leadership. Tummers and Knies (2016) found that there are four responsibilities that leaders must do in order to perform public leadership, that are: (1) accountability, (2) follow the legislative rules and policies (rule-following), (3) political loyalty, and (4) network governance. The accountability leadership promotes employees to justify and explain their activities to stakeholders, while the rule-following leadership pushes employees to follow the rules and regulations of the government. The political loyal leadership inspires employees to align their actions with politicians’ interests, even if it costs them money and causes them to see flaws, and the network governance leadership requires employees to actively connect and make new contacts with relevant stakeholders.

In a nutshell, public leadership is a complex, contentious, and empirically grounded activity. It is about mobilizing a diverse group of people and the general public, even in the face of conflict, competition, and divergent interests. Moreover, public leadership is and may be a thriving field of study that provides insights not only for those working in the public domain and with public beliefs and values, but also for those interested in general leadership theory.

METHODOLOGY
A cross-sectional survey was employed for this study since this type of survey has a much better validity than the results obtained from other types of survey design (Schwab, 2013). A cross-sectional survey collects data where inferences about a population of interest can be made at one point in time (De Vaus, 2013). The responses were gathered using a self-administered questionnaire provided to randomly selected Malaysian school leaders. The school leaders were given ample time to complete the survey at their own pace, without feeling rushed or afraid.

In this study, the unit of analysis were individuals, who are identified as a member of the school leadership team in the national-type primary schools in Malaysia. In a national-type primary school in Malaysia, the school leadership team comprises four important persons: the Headmaster, a Senior Assistant Teacher for Academic, a Senior Assistant Teacher for Student’s Affairs, and a Senior Assistant Teacher for Co-Curriculum. A multistage-cluster sampling is used to gather the participants from the northern, southern, eastern, central regions of Peninsular Malaysia and East Malaysia. A total of 381 school leaders participated in this research.

RESEARCH INSTRUMENT
The public primary school leaders are public civil servants who work in government-funded education institutions. In evaluating the leadership ability of school leaders towards policy implementation performance, the Public Leadership Scale developed by Tummers and Knies (2016) is employed, adapted, and customized to suit the research setting. Public leadership is described as a role where a person holds a public office, serves, and guides the community as a whole (Hart & Tummers, 2014).

According to Tummers and Knies (2016), the public leadership construct has four sub-constructs: accountability leadership, rule-following/lawfulness leadership, political loyal leadership, and network governance leadership. A person with accountability leadership stimulates self to justify and explain actions to stakeholders. The rule-following/lawfulness
leadership is an act following government rules and regulations. Network governance leadership is a concern being actively involved and connected with relevant stakeholders. The political loyal leadership has to do with actions aligned with the politician's interest, even though it is costly and has shortcomings.

The first public leadership instrument by Tummers and Knies (2016) consists of four sub-constructs with 21 items, namely: six items for accountability leadership, four items for rule-following/lawfulness leadership, five items for political loyal leadership, and six items for network governance leadership. All four dimensions of public leadership showed sufficient reliability, greater than 0.7, and exhibited construct and discriminant validity (Tummers and Knies, 2016).

Nonetheless, the researcher had added ten more items to the public leadership construct to conform to the research environment in Malaysia. Two items developed by the researcher are added to the sub-constructs of accountability leadership, network governance leadership, and political loyal leadership. Four items created by the researcher are inserted into the sub-construct of lawfulness leadership. In sum, a total of 31 items are utilized to determine the public leadership construct of this research after content validity and pre-tests. New items are added to the original public leadership instrument to conform to the discussions on the number of items needed to conduct Structural Equation Modelling analysis.

Essentially, Awang et al. (2018), Awang (2015), and Osborne and Costello (2009) argue that a factor with fewer than three items in an instrument is generally weak and unstable but having five or more strongly loading items (.50 or better) are desirable and indicate a substantial factor. Nevertheless, Hair et al. (2010) prefer three items and above to provide minimum coverage of the construct’s theoretical domain. Harvey, Billings, and Nilan (1985) recommend that at least four items per scale are needed to test the homogeneity of items within each latent construct. Hence, to measure the public leadership construct of the public primary school leaders in Malaysia, the survey has eight items used to determine accountability leadership, network governance leadership, and lawfulness leadership. Political loyal leadership is measured by seven items. The participants responded to the items based on a 10-point interval scale with "1 = Strongly Disagree" and "10 = Strongly Agree".

FINDINGS

Before performing the Confirmatory Factor Analysis of the public leadership construct, the researcher had conducted the content validity process, translating the items to Bahasa Malaysia (the national language used by the school leaders) and exploratory factor analysis. Nunally (1978) states that there are three processes in the development stage of content validity: domain identification, item generation, and instrument formation. These steps were taken by the researcher during the phase of recognizing the study’s research instrument.

Five experts are chosen to examine the content validity of the items generated, adapted, and customised to measure the public leadership construct. Three of them are academics with expertise in management, policy, and education, one is a methodology expert, and the other is a language expert. The experts’ mutual assessment determines the suitability of the final items for the public leadership construct. On 31 questions originally develop, adapted, and customised for the study, the experts were asked to rate each item on the construct's relevance on a four-point scale: 1=not relevant, 2=somewhat relevant, 3=quite relevant, 4=highly important. The implementation of a four-point scale complied with Lynn's (1986) guideline to avoid neutral and indecisive points. The researcher compiles a summary of all responses and comments after speaking with all of the content experts. The content validity index (CVI), the most generally used quantification of content validity, is then calculated. The CVI for the public leadership construct used in this study varied from 0.90 to 1.00, above the threshold of 0.7, indicating that the items in the public leadership construct were 'content valid' (Polit, Beck, & Owen, 2007).

At first, the items used to evaluate the public leadership of Malaysia's public primary school leaders were created in English. The official language of communication in Malaysian public schools is "Bahasa Malaysia" (Malay Language). Given that the school leaders in Malaysia employed the Malay language in all of the school's operations, there is a pressing need to translate all of the public leadership construct items into Malay Language. For this study, the committee translation methodology was chosen to translate the items into Malay Language since it is a superior way to direct translation and back-translation in terms of acceptable quality (Pan & De La Puente, 2005). Furthermore, the committee technique is complete and more collaborative than the other approaches because it requires pre-testing of the translated instrument and feedback from a team with a wide range of talents beyond those of a translator.

The value of the KMO for public leadership was 0.945 (marvelous) based on the exploratory factor analysis results; this value is higher than the threshold value of 0.5 (Kline, 1994; Tabachnick & Fidell, 2007; Hair et al., 2010, George & Mallery, 2001), and Bartlett's Test of Sphericity was also significant (Chi-square = 4784.551, p-value 0.000). Furthermore, a look at the correlation matrix across items that measure public leadership indicated many coefficients of 0.3 and higher. Using the PCA procedure with varimax rotation, four distinct components with eigenvalues greater than 1.0 were extracted, with a total variance explained of 66.174 percent for all four components, exceeding the minimum percentage of acceptable variance explained in factor analysis for a construct to be valid. The 31 items were separated into four components by the scree plot for the public leadership construct. The parallel analysis result indicated that the eigenvalues of the actual data for the four components exceeded the eigenvalue in the simulative data, backed up this conclusion.

As a consequence of the scree plot and parallel analysis results, the public leadership construct was found to have a four-factor component that needed to be preserved, consistent with the literature on public leadership. All 31 items were satisfactorily distributed into four components based on the rotated component matrix result for the public leadership construct, and the factor loading of the items for the public leadership construct was above 0.6. The EFA for public
leadership construct's final results revealed the presence of four-factor components with 31 items. Because no items from the original four components of public leadership were mixed, the sub-constructs labels were kept: (1) accountability leadership, (2) lawfulness leadership, (3) network governance leadership, and (4) political loyal leadership.

Public leadership has emerged as a second-order construct consisting of four components, as presented in Figure 1. Each component was measured with a certain number of items in the questionnaire. The study the components as accountability leadership (Account1), rule-following leadership (Lawful1), political loyalty leadership (Political1), and network governance leadership (Network1). Figure 1 presented the initial measurement model of the public leadership construct. The name of the component and their respective number of measuring items are accountability leadership (8 items), rule-following leadership (8 items), network governance leadership (8 items), and political loyalty leadership (7 items). The Confirmatory Factor Analysis (CFA) for the public leadership construct was conducted using IBM-SPSS-AMOS 21.0.

The initial CFA results for validating the measurement model of the public leadership construct are reported as follows: four items were detected to have a factor loading less than 0.6, even though the fitness indexes of the initial measurement model of the public leadership construct did achieve the required level of model fit, except for the value of TLI. One item each, AL3 (from accountability leadership component) and NG4 (from network governance leadership component), were deleted due to low factor loading. Another two items, namely LL4 and LL7 from the rule-following leadership component, were also deleted due to low factor loading.

To improve the validity and reliability of the instrument for measuring the public leadership construct, any items with factor loading less than 0.6 should be dropped from the model since these items do not contribute much for measuring the construct (Yusof et al., 2017; Mohmad et al., 2018; Asnawi et al., 2019; Bahkia et al., 2019; Rahlin et al., 2019, 2019a; Shkheer & Awang, 2019, 2019a; Mahfouz et al., 2019). The four items (AL3, NG4, LL4, and LL7) were deleted one at a time to avoid the biases of the results, while the remaining items with factor loadings more than 0.6 were re-analyzed with the same procedure to obtain a new, improved measurement model.

The re-specified measurement model for public leadership construct is presented in Figure 2, which indicates that the factor loadings for 27 items in every sub-construct are greater than 0.6. Besides, the results for the model fitness indexes were satisfied in the final measurement model of public leadership (ChiSq/df = 2.854 < 3.0, RMSEA = 0.070, CFI = 0.928 > 0.90, TLI = 0.922 > 0.09, and IFI = 0.928 > 0.90). Table 1 summarized the whole CFA results for the construct.

![Figure 2: Final Measurement Model for Public Leadership Construct](image2)

### Table 1: CFA Results - Initial & Final Measurement Model

<table>
<thead>
<tr>
<th>Index</th>
<th>Level of Acceptance</th>
<th>Initial Measurement Model</th>
<th>Final Measurement Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMSEA</td>
<td>Less than 0.08</td>
<td>0.070</td>
<td>0.070</td>
</tr>
<tr>
<td>TLI</td>
<td>Greater than 0.90</td>
<td>0.897</td>
<td>0.922</td>
</tr>
<tr>
<td>CFI</td>
<td>Greater than 0.90</td>
<td>0.903</td>
<td>0.928</td>
</tr>
<tr>
<td>Chi-square/df</td>
<td>Less than 5.0</td>
<td>2.872</td>
<td>2.854</td>
</tr>
</tbody>
</table>

**Construct Validity Assessment for Public Leadership**

The researchers need to assess the construct validity of a measurement model by ensuring that the fitness indexes achieved the threshold of model fit categories (Aziz et al., 2016; Aimran et al., 2017, 2017a; Mohamad et al., 2016, 2017, 2019; Affihanorhan et al., 2018). As shown in Table 1, the results indicate that the measurement model of the public leadership construct (Figure 2) had achieved the requirement for construct validity. The value of RMSEA under the Absolute Fit category was 0.070 (less than 0.08), while the value for CFI under the Incremental Fit category was 0.928 (greater than 0.9). In addition, the ratio of ChiSq/df under the Parsimonious Fit category was 2.854, achieving the requirement of less than 3.0. The pieces of evidence presented thus far support the indication that the measurement model of public leadership had fulfilled the condition for construct validity.
**Convergent Validity and Composite Reliability Assessment for Public Leadership**

To assess the convergent validity for the measurement model of public leadership construct, the researcher needs to compute the Average Variance Extracted (AVE). According to Awang (2015), a construct attained convergent validity if the AVE value surpasses the threshold of above 0.5. On the other hand, to determine the Composite Reliability (CR), this study ought to compute the CR for the construct and the sub-constructs of policy content meaningfulness. The CR values must exceed the limit of 0.6 for achieving the said reliability (Noor et al., 2015; Awang et al., 2015, 2018; Afthanorhan et al., 2017, 2018, Rahlin et al., 2019; Mahfouz et al., 2019). The construct of public leadership has four sub-constructs: accountability leadership, rule-following leadership, political loyalty leadership, and network governance leadership.

Table 2 shows the results of the AVE and the CR for the construct of public leadership and its sub-constructs: accountability leadership, rule-following leadership, political loyalty leadership, and network governance leadership. From this table, the AVE and CR values were above the threshold values of 0.5 and 0.6, respectively. Hence, it could substantially be concluded that the convergent validity and composite reliability for the public leadership construct have been accomplished accordingly.

**Table 1: AVE and CR for Public Leadership Construct**

<table>
<thead>
<tr>
<th>Construct</th>
<th>Sub-Constructs / Item Label</th>
<th>Item</th>
<th>Factor Loading</th>
<th>AVE (above 0.5)</th>
<th>CR (above 0.6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Leadership</td>
<td>Accountability</td>
<td>AL1</td>
<td>0.95</td>
<td>0.640</td>
<td>0.926</td>
</tr>
<tr>
<td></td>
<td></td>
<td>AL2</td>
<td>0.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AL4</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AL5</td>
<td>0.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AL6</td>
<td>0.94</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AL7</td>
<td>0.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AL8</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rule-Following</td>
<td>LL1</td>
<td>0.84</td>
<td>0.638</td>
<td>0.914</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LL2</td>
<td>0.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LL3</td>
<td>0.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LL6</td>
<td>0.76</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LL8</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>LL9</td>
<td>0.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Network Governance</td>
<td>NG1</td>
<td>0.80</td>
<td>0.638</td>
<td>0.925</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NG2</td>
<td>0.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NG3</td>
<td>0.78</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
As a school leader, I spend a lot of time maintaining the contacts. 0.81
As a school leader, I introduce relevant contacts to teachers. 0.83
As a school leader, I am the 'linking pin' between different between my school and other organisation. 0.78
As a school leader, I obtain assistance from the contacts to complete my work in school. 0.79

<table>
<thead>
<tr>
<th>Political Loyal</th>
<th>PL1</th>
<th>As a school leader, I accommodate the wishes of the politicians, even though they do not align with policy values. 0.84</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL2</td>
<td>As a school leader, I support the political decisions, notwithstanding when stakeholders oppose the policies. 0.81</td>
<td></td>
</tr>
<tr>
<td>PL3</td>
<td>As a school leader, I do not want to jeopardize the relationship with political heads with regard to policies. 0.83</td>
<td></td>
</tr>
<tr>
<td>PL4</td>
<td>As a school leader, I implement the political decisions, even if that means additional responsibilities should be taken. 0.80</td>
<td></td>
</tr>
<tr>
<td>PL5</td>
<td>As a school leader, I defend political choices, even if I see shortcomings. 0.81</td>
<td></td>
</tr>
<tr>
<td>PL6</td>
<td>As a school leader, I support political decisions, even when I see weaknesses. 0.80</td>
<td></td>
</tr>
<tr>
<td>PL7</td>
<td>As a school leader, I regularly seek information about current political issues concerning policies. 0.80</td>
<td></td>
</tr>
</tbody>
</table>

**CONCLUSION**
This study aimed to use Confirmatory Factor Analysis to reproduce the factor structure of the 31 items of the public leadership construct (Tummers and Knies, 2016; Noryati, 2020) on a sample of 381 public primary school leaders in Malaysia (CFA). The study has validated the measurement model for measuring the public leadership construct for school leaders in Malaysia. The measurement model of the public leadership confirmed the four sub-constructs that build the public leadership construct. As far as validity is concerned, the instruments have achieved construct validity, convergent validity, and discriminant validity. As for reliability, the instrument has achieved composite reliability satisfactorily. Decisively, the public leadership instrument with 27 items of four sub-constructs that include accountability leadership, rule-following leadership, political loyalty leadership, and network governance leadership is further recommended to determine the policy implementation performance of school leaders in Malaysia and other studies that include public leadership in the research framework. Leaders in government sectors, such as schools, must fully develop their public leadership skills to achieve the policy goals and move the country forward.

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