A FUZZY DELPHI METHOD - DEVELOPING HIGH-PERFORMANCE LEADERSHIP STANDARD FOR MALAYSIAN SCHOOL LEADERS

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ABSTRACT

The purpose of this study is to develop a standard of high-performance leadership standards for Malaysian School Leaders. All principals and headmasters in all schools become high-performance leaders have been enshrined in the Malaysian Education Development Plan and Institut Aminuddin Baki was given the responsibilities to ensure that the goals outlined in this plan are achieved in 2025. In order to ensure that all principals and headmasters become high-performance leaders by 2025, a tool or standard that can be rated by principals and headmasters should be developed. Additionally, this standard will then be the gauge to rank Malaysian school principals and headmasters as high-performing leaders. This study was conducted in three (3) phases, namely the need analysis phase, design and development phase, and evaluation phase. The use of Fuzzy Delphi Method (FDM) is in the second phase of design and development phase which is the most important phase in the entire study. A total of 100 respondents were involved in this phase comprising of high-performance principals, senior assistants, inspectors, and lecturers from leadership training instituitions. Data was analysed using Triangular Fuzzy Number and Defuzzification Process. The findings indicated from 370 items and only 308 items were accepted. Meanwhile, there are 62 items were dropped because they did not meet the fuzzy score requirements. The result of the expert agreement has resulted in 22 indicators for the standard such as i) clear direction, ii) empowering teachers, iii) linkages and networks, iv) school culture and climate, v) learning leaders, vi) leading and managing changes, vii) self-esteem, viii) emotional stability, ix) organizational awareness, x) communication, xi) challenging status quo, xii) conceptual thinking, xiii) proactive, xiv) catalytic change, xv) team leadership, xvi) driving creativity and innovation, xvii) coaching and mentoring, xviii) utilising relationships, xix) encouragement, xx) trust, xi) courage, and xii) initiative. The findings of FDM ensured content validity because it involved 100 specialists in the field of leadership. These findings then further continued with the development phase that applied the Exploratory Factor Analysis (EFA) to verify items and indicators.

Keywords: standards, Fuzzy Delphi (FD) method, high-performance leaders

INTRODUCTION

The Malaysia Education Blueprint 2013-2025 is an education development plan that has outlined 11 shifts to produce the desired change for all Malaysians. The 5th shift in particular is to ensure that high-performing leadership is placed in each school. Based on the need to build abilities and capabilities of the nation's education system, the ministry has devised a transformation to be implemented in three (3) waves with several initiatives aimed at ensuring high-performing leaders are placed in Malaysian schools. However, after the first wave of completion, how much the exact percentage of high-performance leaders have been successfully produced and what are the gauges that the principals have reached a high-performance leader. The Institute of Aminuddin Baki (IAB) has been entrusted with ensuring that the 5th shift is realised by 2025. Nevertheless, does IAB comprehensively train all leaders and future leaders to achieve a high-performance leader effectively? If so, how to measure it? The findings of current studies conducted in Malaysia generally only attempts to cover a wide variety of principals' and headmasters' practices in high-performance schools and do not specifically examine high-performance leadership.

The results of the literature review found that existing studies such as Jamilah and Yusof Boon (2011) looked at leadership practices at high-performance schools and developed a transformational leadership-based model (Leithwood et al., 2006a, 2006b, 2008). The study by Rosnah Ishak, Muhammad Faizal, and Saedah (2014) focused on the practice of leadership of learning organisations in high-performance schools in Malaysia. Sufean (2014) made comparisons of school culture and instructional leadership in high-performing and low performing schools. Zanariah Aziz Omar, Kamaruzaman Jusoff, Sharina Tajul Urus, Salina Salleh, and Zarinah Abdul Rasit (2011), also reviewed leadership performance among primary schools in Malaysia. Recent research by Yahya Don, Yaakob Daud, Abd Latif Kasim, Zuraidah Juliana, and Siti Noor Ismail (2016) found that high-potential leadership at school was influenced by emotional competence and leadership of the situation consisting of intrapersonal, interpersonal, stress management, adaptation, and feelings general.

The studies listed indicate that the focus of the study is more focused on principals' practice in high-performance schools, but it does not exhibit a standard practice. High performing schools practices diversify the leadership characteristics according to the situation and whether this indicates they are high-performing leaders. According to Blasé, Blasé, and Philips (2010), there are 14 elements of high-performance leader: (1) Learning; (2) Being Model; (3) Focusing; (4) Leading for Achievement (Instructional Leadership); (5) Study (Instructional Leadership); (6) Development (Instructional Leadership); and (7) Teaching and Learning (Instructional Leadership). Delaney (2016) observed that there are ten (10) elements characteristics of a high-performance leader: (1) Positive Combined with Energy; (2) Courage and Confidence; (3) Disciplined; (4) Reflection; (5) Patience; (6) Strengthen Fatigue; (7) Targeted; and (8) Belief.

Based on studies and scholars' opinions on high-performance leaders, principals' and headmasters' practices in high-performance schools does not all that meet the criteria of high-performance leadership standard (HPL). Therefore, a study should be carried out to comprehend if the actual criteria of a principal or headmaster can be recognised as a high-performance leader. The literature review also shows that there is no single standard that can measure the criteria of high-performance leaders. In this regard, research has to be carried out to develop a HPL standard in order to be used as a guide for measuring high-performance leaders in accordance with Malaysia standard.

In order to produce HPL standard, FDM has been used because FDM is the best way to obtain expert consent in determining the elements that can be included in the design of the model. FDM is parallel to the nature of delphi technique in obtaining a consensus view of the expert such as i) transparency, ii) regulatory feedback, and iii) group statistics analysis. According to Jared Bourgeois, Laura Pugmire, Keara Stevenson, Nathan Swanson, and Benjamin Swanson, Delphi speciality lies in its reliability, given the variation of human opinion, and its ability to be administered remotely and without direct interaction. It is best used for relatively simple evaluation of new products and developments, but it is one of the most complex methodologies available and this method is simplified with FDM.

There are a number of studies that applied FDM such as a model development SkiVes training curriculum (Mohd Ridhuan, 2016), the determination of teachers'competence towards teaching and learning management (Mohd Ridhuan, Shariza, & Mohd Ibrahim (2014), *'riadhah ruhiyyah'* for the professionalism of teaching in Islamic education (Habibah & Artini et al., 2014), Facebook (FB) rating, design guidelines in learning psychology for secondary schools (Nurulrabihah et al., 2015), framework for the development of stakeholders in marine engineering (Nazirah et al., 2015), and so on. According to Hsu and Brian (2007), FDM is an approach that has been widely used and adopted collecting data based on the experts'group agreement of an issue being studied. The strength of this method has also resulted in the diversification of techniques in obtaining empirical data such as FDM.

Therefore for this study, FDM is used to ensure that:

- i. is capable of avoiding boredom for researchers and expert groups for being able to reduce Delphi's lap.
- ii. is capable of avoiding the loss and leakage of data cited by researchers on a group of experts in the study.
- iii. experts can fully express their opinions, ensuring consistency, and giving consistent opinion.
- iv. take into account the inevitable blurring of the study process. This method does not misinterpret the original opinion of the expert and provides an overview of their real reaction.
- v. it processes ambiguity on predictive items and content of respondents' information.
- vi. the individual characteristics of the participants can be explained.

Chang, Huang, and Lin (2000)

The relevance of FDM is clearly supported by the findings from previous studies and a study investigating FDM would be interesting. This study therefore concentrate on the investigation of how FDM can assist HPL standard in Malaysia.

PURPOSE OF STUDY

The study aims to produce high-performance leaders' standard among headmasters and principals in Malaysia based on high-performance leadership practices in Malaysian schools. This study was conducted using Design Development Research (DDR) model in three (3) phases, namely the need analysis phase, design and development phase, and evaluation phase. For this study purpose, the discussion is only to develop a more rigourous understanding on design phase using FDM.

RESEARCH OBJECTIVE

To identify the appropriate design of the HPL standard to be implemented in Malaysian schools based on an expert agreement.

RESEARCH QUESTION

What is the appropriate design of the HPL standard to be implemented in Malaysian schools based on an experts agreement?

CONCEPTUAL FRAMEWORK

The framework of this research is built on design and development (DDR) approach and according to Richey and Client (2007), there were three (3) main phases namely the need analysis phase, the design and development phase, and the evaluation phase. The most critical phase in this study is the design and development phase. According to Ven Den Akker, Gravemeijer, McKenney, and Nievee (2006) in Mohd Ridhuan (2016), there are three (3) main factors that this phase is very important namely: (1) a product of either the model, curriculum, relevant to the field of education; (2) the development and construction of a product is of scientific value and is very practical with the field of education and through theories that can be propagated; and the latter (3) the development and design of a product strives to strengthen and develop teaching and learning practices in education. However, in this article only design phase will be discussed involve two (2) domains and 22 indicators. The first domain practice with six (6) major indicators namely: i) clear direction; ii) empowering teachers; iii) networking and linkages; iv) school culture and climate; v) learning leaders; and vi) leading and managing changes. The second domain were personality with 16 indicators namely: i) self-confidence; ii) emotional stability; iii) organisational awareness; iv) communication; v) challenging status quo; vi) conceptual thinking; vii) proactive; viii) catalysts change; ix) team leadership; x) coaching and mentoring; xii) utilising relationships; xiii) motivator; xiv) belief; xv) courage; and xvi) initiative.

METHODOLOGY

This study goal is to produce the HPL standard, using quantitative approaches involving a total of 100 respondents consisting of 30 high-performance principals, 50 high-performance headmasters, ten (10) senior assistants, and ten (10) Ministry of Education

(MOE) officers. Data were collected using a questionnaire that was develop in the need analysis phase. Data was analysed using FDM in order to designing domain creation and construction. The constructs and key elements of each indicator were using FDM where it is through the agreement of an experts' group to verify, evaluate, reject, and add every indicator or element in the developed model. The selection of experts is very important and it should be consistent with the context of the study.

FDM is a modified measurement method based on the Delphi method. This method was introduced by Kaufman and Gupta in 1988. FDM is a combination of the fuzzy numbering set and the Delphi method itself (Murray, Pipino, & Vangigch, 1985). Thus, it is best suited for the creation of a model or guidelines. This means that it is not a new approach because it is also based on the classic Delphi method in which the respondents involved must be among the experts in a field that is appropriate to the context of the study. These improvements indirectly make the FDM as a more effective measurement approach where it is able to solve problems that have uncertainties for an issue being studied. This fuzzy set theory was introduced by a mathematician in 1965, Lotfi Zadeh (Zadeh, 1965) and it functions as an extension of the classic set of theory in which each element in a set is based on the binary set (Yes or No). The fuzzy set theory also allows gradual assessment of each element being studied. Ragin (2007) stated that the values for the fuzzy pagination are 0 to 1 or within the unit interval (0, 1).

There are two (2) main factors in the analysis of FDM, Triangular Fuzzy Number and Defuzzification Process. Triangular Fuzzy Number consists of values m1, m2, and m3 where m1 represents the smallest value, m2 represents the most plausible value and m3 refers to the maximum value. The three (3) values in this Triangular Fuzzy Number can be seen in Figure 1 which shows the graph of the triangular min against the triangular value.

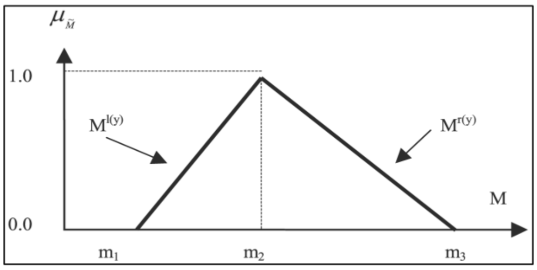

Figure 1: The Mean Triangle Graph against the Triangular Value

Based on Figure 1, these three (3) values are also in the range 0 to 1 and coincide with fuzzy numbers (Ragin, 2007). In the Triangular Fuzzy Number stage, there are two (2) conditions that need to be followed to determine the acceptance of an element that is examined by the expert agreement: (1) the first condition involves the threshold value (d) and (2) the second condition is the percentage of the expert group for an element. The determination of threshold value (d) is based on the predetermined formula. Both of these conditions will be explained in the part of the study procedure using the FDM on the next sub topic.

Defuzzification process refers to a process of determining the ranking of each construct, component, element, issue, variable, and sub variable found in the study. The purpose of this process is to help the researcher see the required level of variables and sub-enabling requirements. It also seeks to determine the ranking and priorities of each element being studied. This ranking process will help generate data based on the needs based on the expert agreement that serves as the respondent of the study. There are three (3) formulas that can be used in the defuzzification process. Researchers can choose any of these three (3) formulas to determine the ranking in their studies. The three (3) formulas in this process are as follows:

i. Amax = 1/3 * (a1 + am + a2)
ii. Amax = 1/4 * (a1 + 2am + a2)
iii. Amax = 1/6 * (a1 + 4am + a2)

In the defuzzification process, there is also a condition that needs to be followed to show the acceptance of the expert group for an element being studied where the use of the median value which is supposedly known as the alpha-cut (α-cut) value is used. To understand more about the triangular fuzzy number and defuzzification process, it is described in detail in the next sub topic.

Procedures for Conducting a Study Using FDM
The findings obtained using the FDM approach, need to follow some procedures. Compliance to this procedure is an empirical finding. Figure 3 shows a flowchart of study procedures in using FDM.

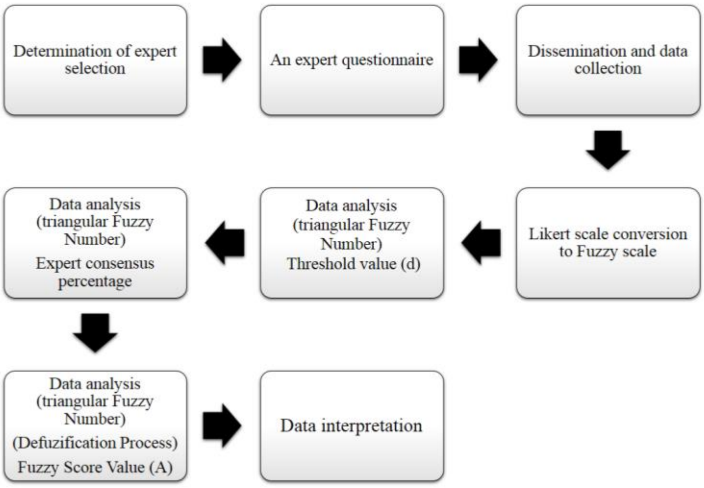

Figure 3: Flowchart of FDM Approach (Mohd Riduan, 2016)

Figure 3 shows the flow chart of procedures in using FDM to get the expert agreement as follows:

a. Step 1

Determination and selection of experts involved in the context of the study. The selection of this expert is very important to ensure that the selected specialist is able to provide the right view with the context of the study conducted. Adler and Zinglio (1996) recommended that the number of experts is 10 to 15 persons if there is a high level of uniformity among the experts. However, Jones and Twiss (1978) suggested that in the course of the Delphi method, the number of experts involved would be 10 to 50 experts. For this study, a total of 100 experts were selected using purposive sampling method based on their respective fields of expertise consisting of HPL, MOE officers, and senior assistant teachers.

Respondent selection for Fuzzy Delphi analysis based on the proposed HPL named by State Education Office or District Education Office from the school in each district based on the criteria set: (1) Serving as Principal or Headmaster in the same school for at least 3 years; (2) There is a band increase for schools under the leadership of the principal or headmaster based on composite score, iv) Unified Instrument Score (UI) 95 and above; and iv) Principal and headmaster with X factor who possess strategic thinking, making improvements for school excellence, instructional leader, and having high quality personality (trouble shooter). While MOE officers are comprised of lecturers and school inspectors who are involved directly in providing training and assessment to the principals and headmasters.

b. Step 2

An expert questionnaire is conducted. In this process, the construction of an expert questionnaire can be conducted through several methods, namely: (1) interviews and (2) literature review. Powell (2003) asserted that the Delphi method is a very flexible method for getting expert deals. Powell (2003) also pointed out that the usual first round of Delphi was conducted to identify an issue with expert interviews. However, these issues are also available through open ended questions. Other alternative approaches also can be applied to use the questionnaire taken from the literature review related to the issues studied (Dullfield, 1993). For the HPL standard design phase analysis, the basis for the selection of study constructs is based on a combination of mapping analysis from the literature review and interview findings on HPL. A total of 370 items for 22 indicators representing the practice domain (166 items) and personality (204 items) were developed for HPL questionnaire.

The items in this questionnaire consist of indicators which are practice domain: i) clear directions; ii) empowering teachers; iii) networking and linkages; iv) school culture and climate; v) learning leaders; and vi) leading and managing change. Indicators for personality domains are: i) self-confidence; ii) emotional stability; iii) organisational awareness; iv) communication; v) challenging status quo; vi) conceptual thinking; vii) proactive; viii) change catalyst; ix) team leadership; x) drive creativity and innovation; xi) coaching and mentoring; xii) utilising relationships; xiii) motivator; xiv) belief; xv) courage; and xvi) initiative. Table 1 describes the details of HPL questionnaire items developed from the mapping analysis in the literature review and interview findings on HPL.

Table 1 Questionnaire Content for HPL_1

PART	CONSTRUCT	NO. ORIGINAL ITEM
A	**DEMOGRAPHY**	**10**
B	**PRACTICE**	**166 items**
	Clear Direction	28
	Empowering Teachers	25
	Networking and Linkages	44
	School Culture and Climate	13

	Learning Leaders	40
	Leading And Managing Changes	16
C	**PERSONALITY**	**204 items**
	Self-confidence	15
	Emotional stability	22
	Organizational Awareness	13
	Communication	21
	Challenging Status Quo	5
	Conceptual Thinking	10
	Proactive	11
	Change Catalyst	13
	Team leadership	25
	Drive Creativity and Innovation	13
	Coaching and mentoring	19
	Utilising Relationships	6
	Motivator	18
	Belief	5
	Courage	4
	Initiative	4

The number of items in Part A is 10 items in total. Part B, however, is required to state the agreement on their practice domain in their respective schools while senior assistant teachers, teachers, and MOE officers are asked to give their perception of principals and headmasters' practice. There are 166 items in six (6) major constructs namely: i) clear direction (28 items); ii) empowering teachers (25 items); iii) networking and linkages (44 items); iv) school culture and climate (13 items); v) learning leaders (40 items); and vi) leading and managing changes (16 items).

In section C, principals and headmasters were asked to state the consent of their own domain in their respective schools while senior assistant teachers, teachers, and MOE officers were asked to give their perception of PGB's personality. There are 204 items in 16 constructs: i) self-confidence (15 items); ii) emotional stability (22 items); iii) organisational awareness (13 items); iv) communication (21 items); v) challenging status quo (5 items); vi) conceptual thinking (10 items), vii) proactive (11 items), viii) catalysts change (13 items), ix) team leadership (25 items); x) coaching and mentoring (19 items); xii) utilising relationships (6 items); xiii) motivator (18 items); xiv) belief (5 items); xv) courage (4 items); and xvi) initiative (4 items). Respondents comprising principals and headmasters, senior assistant teachers, teachers, and MOE officers were asked to respond using the 5-point Likert Scale indicating agreement on the items as 1= Strongly disagree, 2= Disagree, 3= Less agree, 4= Agreed and 5= Strongly agree.

c. Step 3

For data dissemination and data collection, there are several approaches that have been used, namely: (1) meeting with individual experts and (2) the spread of the questionnaire that has been developed in the google form as well as the URL extended via email and WhatsApp.

d. Step 4

All linguistic variables were converted into triangular fuzzy numbering. Assume that the fuzzy r_{ij} number is the variable for each criterion for expert K for i = 1, ..., m, j = 1, ...n, k = 1 ... .., k and $r_{ij} = 1 / K (r1_{ij} \pm r2_{ij} \pm rK_{ij})$. Table 2 shows the linguistic variables for five (5) scales where it displays the measurement statement for an item and the fuzzy scale value it represents.

Table 2: The 5-point Linguistic Variable Scale

Likert Scale	Linguistic Change Enable	Fuzzy Scale
1	Strongly Disagree	(0.0, 0.0, 0.2
2	Disagree	(0.0, 0.2, 0.4)
3	Less Agree	(0.2, 0.4, 0.6)
4	Agreed	(0.4, 0.6, 0.8)
5	Strongly Agree	(0.6, 0.8, 1.0)

e. Step 5

The data analysis is based on the triangular fuzzy number where it aims to get threshold value (d). Therefore, the first requirement to be followed is threshold value (d) must be less or equal to 0.2 (Cheng & Lin, 2002). The use of vertex method was carried out to calculate the distance between the average rij. The threshold value (d) of the two (2) fuzzy numbers m = (m1, m2, m3) and n = (m1, m2, m3) are calculated using the formula:

$$d(\tilde{m},\tilde{n}) = \sqrt{\frac{1}{3}\left[(m_1 - n_1)^2 + (m_2 - n_2)^2 + (m_3 - n_3)^2\right]}.$$

Table 3 shows an example of the threshold value (d) produced for six (6) items reviewed based on the view of 100 experts. In this table, it shows that the threshold values for each item and the specialist value threshold (d) overall for each item. The threshold value (d) is the threshold value (d) which exceeds 0.2.

Table 3 The Threshold Value (d) Generated for Six (6) Items

Expert / Items	A1.1	A1.2	A1.3	A1.4	A2.1	M4.1
1	0.13	0.12	0.08	0.14	0.15	0.15
2	0.13	0.12	0.08	0.16	1.03	0.15
3	0.13	0.12	0.08	0.14	0.15	0.15
4	0.13	0.18	0.08	0.16	0.15	0.15
5	0.13	0.12	0.08	0.16	0.15	0.15
6	0.18	0.12	0.08	0.14	0.15	**0.35**
98	0.18	0.18	0.08	0.16	0.15	0.15
99	0.18	0.18	0.08	0.14	0.15	0.15
100	0.13	0.12	0.08	0.14	0.15	0.15
***d* Value Every Items (Threshold)**	0.17	0.16	0.13	0.19	0.19	**0.23**

e. Step 6

In this process, the determination of the second condition is done where determining the percentage value of the expert agreement is executed. The second condition that needs to be observed is that the percentage of experts' agreement must be equal to or greater than 75.0% (Chu & Hwang, 2008; Murry & Hammons, 1995). Table 4 shows the percentage of specialist agreements for the six (6) items studied using the agreement of 100 experts in the study. Percentages show items A1.1, A1.2, A1.3, A1.4 and A2.1 reach an agreement of experts exceeding 75.0%, then this item is accepted instead the item that is bold M4.1 only reaches 64.0% means that this item need to be dropped.

Table 4: Percentage of Experts' Agreement for Six (6) Items

Items	A1.1	A1.2	A1.3	A1.4	A2.1	M4.1
Number of Items d ≤ 0.2	96	97	81	93	93	64
Percentage of Each Item d ≤ 0.2	96.00	97.00	81.00	93.00	93.00	**64.00**

f. Step 7:

The data analysis used average of fuzzy numbers @ average response (Defuzzification Process). In this analysis, it is aimed to get the score of fuzzy score (A). To ensure the third condition is followed, the value of the fuzzy score (A) must be greater than or equal to the median value (α - cut value) of 0.5 (Bodjanova, 2006, Tang & Wu, 2010;). This indicates that the element is accepted by an expert agreement. Among other functions, the value of fuzzy scores (A) can be used as a determinant and a priority for an element according to experts' opinions. The formula involved in getting the score of fuzzy (A) is as follows:

$$A = (1/3) * (m1 + m2 + m3)$$

Table 5 shows an example of fuzzy scores (A) that is carried out using defuzzification process analysis based on FDM approach.

Table 5: The Score of Fuzzy Scores (A) Analysis of Defuzzification Process

Items	A1.1			A1.2			A1.3			A1.4			A2.1		
Fuzzy Scale	m1	m2	m3	m1	m2	m3	m1	m2	m3	m1	m2	m3	m1	m2	m3
1	0.6	0.8	1	0.6	0.8	1	0.6	0.8	1	0.6	0.8	1	0.4	0.6	0.8
2	0.6	0.8	1	0.6	0.8	1	0.6	0.8	1	0.4	0.6	0.8	0	0	0.2
3	0.6	0.8	1	0.6	0.8	1	0.6	0.8	1	0.6	0.8	1	0.6	0.8	1
4	0.6	0.8	1	0.4	0.6	0.8	0.6	0.8	1	0.4	0.6	0.8	0.6	0.8	1
5	0.6	0.8	1	0.6	0.8	1	0.6	0.8	1	0.4	0.6	0.8	0.4	0.6	0.8
Average Each Units	**0.52**	**0.71**	**0.91**	**0.52**	**0.72**	**0.92**	**0.55**	**0.75**	**0.95**	**0.51**	**0.71**	**0.91**	**0.50**	**0.70**	**0.90**
Fuzzy Score Value (Average)	**0.72**			**0.72**			**0.75**			**0.71**			**0.70**		
Rangking	**2**			**2**			**1**			**4**			**5**		

FINDINGS TO FUZZY DELPHI STUDY

A total of 370 items for 22 indicators representing the practice domain (166 items) and personality domain (204 items) were developed and *HPL* questionnaire was tested through the content validity testing using FDM. Table 6 shows the findings for the analysis using a fuzzy numbering triangle. The findings showed 18 practice items and 44 items of personalities were dropped because they did not pass the second condition, the percentage of experts' agreement must exceed 75%. In the same table also shows the summary findings of Fuzzy Delphi have detailed the findings of items dropped as they did not pass the second condition. The rest of the item received is 148 items for practice and 160 items for personality. There are four items that C2.5, C2.8, C2.9 and M2.2 were not dropped because in the second condition, the expert agreement was reached and the items have been discussed to be maintained.

Table 6: Summary of Fuzzy Delphi Findings

CONSTRUCT	NO. ITEM	1st Condition Proposed Number Of Items Removed (*d* Value Threshold >0.2)	2nd Condition Proposed Number Of Items Removed (expert agreement NOT ACHIEVE 75%)	3rd Condition ITEMs (a - cut value THRESHOLD >0.5)	No. Nett ITEM
PRACTICE					
Clear Direction	28	A3.1	A2.11, A3.1, A4.4	> 0.5	25
Empowering Teachers	25		B1.3	> 0.5	24
Networking and Linkages	44	C2.6, C2.8, C2.9	C1.11, C1.13, C1.15, C1.16	> 0.5	40
School Culture and Climate	13		D1.6	> 0.5	12
Learning Leaders	40		E2.26	> 0.5	39
Leading And Managing Changes	16	F1.8	F1.1, F1.2, F1.3, F1.5, F1.8, F1.11, F1.14, F1.16	> 0.5	8
TOTAL	**166 items**	**18 items**		**NILL**	**148 items**
PERSONALITY					
Self-confidence	15		G3.1, G3.2,G3.3, G4.1, G4.3, G5.1	> 0.5	9
Emotional stability	22		H1.3, H1.4, H2.3, H2.4	> 0.5	18
Organizational Awareness	13		I1.1, I1.3 I1.5, I2.1 I3.1, I4.1	> 0.5	7
Communication	21	J2.11	J1.4, J2.5, J2.6, J2.7, J2.8, J2.10, J2.11	> 0.5	14
Challenging Status Quo	5		K1.5	> 0.5	4
Conceptual Thinking	10		0	> 0.5	10
Proactive	11	M2.2, M4.1	M1.3, M4.1	> 0.5	9
Change Catalyst	13		0	> 0.5	13
Team leadership	25		O1.1, O1.2, O5.4, O6.1, O6.2, O6.4	> 0.5	19
Drive Creativity and Innovation	13		P1.1	> 0.5	12
Coaching and mentoring	19		Q1.1, Q1.2	> 0.5	17
Utilising Relationships	6		0	> 0.5	6
Motivator	18		S1.3, S1.4, S2.1, S2.2, S2.7, S2.8	> 0.5	12
Belief	5		T1.4, T1.5	> 0.5	3
Courage	4		0	> 0.5	4
Initiative	4	V1.4	V1.4	> 0.5	3
TOTAL	**204 items**	**44 items**		**NILL**	**160 items**

The findings of the Fuzzy Delphi analysis of the items received were 148 items for 16 indicators of practice domains and 160 items for 16 indicators of personality domains through subsequent tests to see face verification. This process was done in the sub phase of development by using EFA.

DISCUSSION

The use of Fuzzy Delphi has resulted in a preliminary finding on the draft of a HPL standard from a practice domain where HPL has clear direction, empowering teachers, building networks and networking, creating school culture and climate, becoming leaders of learning and leading and managing change. The success and effectiveness of these practices is influenced by the personality of HPL which has emotional stability, conceptual thinking, driving creativity and innovation, team leadership, self-confidence, change catalyst, communication, coaching and mentoring, motivator, proactive, belief, challenging status quo, courage, utilising relationships, organisational awareness, and initiative.

Initial findings using Fuzzy Delphi have high validity and reliability. In short, FDM can be used to obtain agreement of experts who act as respondents based on the use of quantitative methods. The findings of using FDM can also establish a predominant indicator and in this study, the personality indicator of emotional stability is a dominant element of personality that is HPL ability to manage the emotions and to understand the emotions of others that affect the performance of school leadership by inspiring to develop others. The ability to control emotions is a key element in determining the success of an organization (Yahya Don & Yaakob Daud, 2011). This is because if the leader is too emotional to interrupt the members of the organisation, the findings of this study are in line with Jeff Noe (2012) view, that the effectiveness of school-leader leadership is influenced by emotional competence. In the context of this study to ensure students'outcome, HPL ensures the stability of emotions affecting practice in setting clear directions, empowering teachers, building networks and linkages, creating school culture and climate, becoming leaders of learning, and leading and managing change.

Organisations in Asian countries including Malaysia are beginning to ride the wave of Industry 4.0 that is across-the-board global manufacturing. The 'fourth (4^{th}) Industrial Revolution', Industry 4.0 will build the 'smart factories' of the future such as seamless operational systems equipped with autonomous robots, big data and analytics, augmented reality, additive manufacturing, horizontal and vertical system integration, simulation, the Cloud, and cyber security functions. So, this is a high time for us to get future-ready and rethink traditional operational models or standards. It is an innovation to transform and creating models or standards into a new height as to embrace and harness the latest technology. The contribution of this study is obvious as the resulting outcomes can be capitalised as guidelines to Malaysian School Leaders to remain competitive in a rapid evolving industry. The standard produced offers tremendous potential for schools leaders seeking new drivers of growth towards greater efficiency and productivity.

Overall, in addition to the emotional stability of study analysis, 15 other indicators such as conceptual thinking, motivating, creativity and innovation, team leadership, self-confidence, change catalyst, communication, coaching and mentoring, motivator, proactive, belief, challenging status quo, courage, utilising on relationships, organisational awareness, and initiative also influenced HPL practices in establishing clear direction, empowering teachers, building networks and linkages, creating school culture and climate, becoming leaders of learning and leading and managing changes to ensure the students' outcome achieved as intended in Malaysian Education Development Plan (Malaysia Education Blueprint, 2013-2025).

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