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Validation of the Transformational Leadership Questionnaire Instrument, Teacher's Commitment Towards the Instillation of Al-Hikmah Values Using the Fuzzy Delphi Method

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This study aims to obtain expert consensus to validate an instrument for transformational leadership practices, teacher work commitment, and the instillation of Al-Hikmah values in teaching and learning using the Fuzzy Delphi method. The objectives of this study are to gain expert consensus on the items in the questionnaire developed based on four constructs of Transformational Leadership, three constructs of Teacher Work Commitment, and five constructs of Al-Hikmah Values application. The Fuzzy Delphi Method uses a 5-point Likert scale to obtain consensus from 11 experts from various fields and backgrounds related to Al-Hikmah Education implementation. The questionnaire is divided into three sections: Section A: Transformational Leadership, which includes Ideal Influence, Inspirational Motivation, Intellectual Stimulation, and Individual Consideration. Section B: Work Commitment, which includes Affective, Normative, and Continuous Commitment. Section C: Integration of Al-Hikmah Values in teaching and learning, which includes Habitualization, Advice, Role Model, Rewards, and Punishments. This study also aims to determine the ranking of each component. The data obtained were analyzed using Fuzzy Numbers, with rankings determined through the Defuzzification Process. The threshold values of all 101 tested elements met the requirement of $d \leq 0.2$, achieving a consensus level exceeding 75%, with values ranging from 76% to 100% agreement, and surpassing the alpha cut requirement of above 0.5 (α-cut≥ 0.5), with values between 0.162 and 0.182. The defuzzification process conducted through FDM reorganized the elements based on the ranking agreed upon by the experts. This study successfully presented constructs linking Al-Hikmah values in teaching and learning, involving the transformational leadership of school principals and teachers' work commitment.

Keywords: Transformational leadership; teacher work commitment, application of Al-Hikmah values; Fuzzy Delphi Method**.**

1. Introduction

Education is essential as a catalyst for change and the development of a nation's civilization. It has always been a focus and concern of society because it is closely related to the quality of the nation and the future of the generations to come. A high-quality generation arises from a balanced education system led by effective and dynamic administrative leadership. Effective administrative leadership produces quality teachers and encourages teacher commitment, resulting in sustainable educational impact and

student success (Yusoff, 2023). Teachers are also catalysts for the effectiveness of the education system in producing excellent human capital for the future (Masuwai et al., 2022).
The implementation of Al-Hikmah Education to instill Al-Hikmah values in schools affiliated with the Islamic Youth Movement of Malaysia (ABIM) is a major agenda in building a generation of youth with Islamic character and identity. Special emphasis is placed on the appreciation or internalization of divine values. Only through divine values will a pious character be formed. According to Imam Al-Ghazali (r.a.), a devout person is one who is close to God after successfully embodying God's attributes and names (al Asma' al-Husna). Al-Hikmah values are divine values practiced by Luqmanul Hakim in educating his child, serving as a symbol for Muslims to appreciate and practice, as stated in Surah Luqman, verses 12-19. These verses have been broken down into 16 values: wisdom, gratitude, compassion, monotheism, justice, al-birr, repentance, sincerity, good deeds/worship, righteousness, patience, ethics, knowledge, and aesthetics. These values shape the character of children and students (Fadzil, 2021) to reflect the desired character competencies, such as being knowledgeable, having leadership, courteousness, a Quranic cultural foundation, ethics, integrity, activism, sustainability, and a collective spirit (Fadzil, 2021; Kamaruddin, 2020).

Transformational leadership is the type of leadership that can cultivate the interests of subordinates, create awareness to achieve organizational goals, and can change attitudes and enhance subordinate commitment levels (Bernard M.Bass, 1985; Burns, 1978). Changes in attitude become an inspiration among followers by contributing new ideas. Arokiasamy, (2017) states that the transformational leadership of administrators can bring impactful change, create vision, mentor, and supervise; it demonstrates excellence, quality, and high performance. Bernard M. Bass (1997) describes four dimensions of transformational leadership: (i) Ideal Influence, which shows the admirable and exemplary behavior of leaders, (ii) Inspirational Motivation, where leaders express an attractive and inspiring vision, (iii) Intellectual Stimulation, where leaders take risks, challenge assumptions, and seek follower input, and (iv) Individual Consideration, where leaders listen to followers' concerns and act as mentors or coaches.

The transformational leadership of the principal must be supported by quality teachers and staff who are highly committed to performing their duties and applying Al-Hikmah values. Without high teacher commitment, the effort to instillation Al-Hikmah values into teaching and learning will be less effective, and the holistic success of students will not be optimized. Student success is not only reflected in academic and co-curricular excellence but also in the development of exemplary moral character, which brings pride to parents, the school community, society, and the nation.

Bernard M. Bass (1997) states that Allen and Meyer categorize commitment into three dimensions: affective, normative, and continuance. Affective commitment is referred to as an individual's emotional attachment, which involves building a psychological bond with the organization, forming a connection with it, and having a desire to remain, thus binding the employee's heart to the organization. After working for several years, employees invest time, specialized skills, and various efforts, which lead them to develop an affection for the organization (Meyer & Allen, 1991). Employees are more inclined to develop continuance commitment and provide a high level of commitment. Finally, employees show normative commitment, feeling obligated to remain responsible in continuing their work and feeling threatened if they leave the organization. When the organization has invested a lot of money and time in their professional development training, employees feel it is their moral duty to continue committing to the organization (Kareem et al., 2023).
Research on the instillation of Al-Hikmah values is still very limited in this country, especially in relation to transformational leadership and teacher commitment, as well as valid and appropriate measurement tools to evaluate transformational leadership practices and teacher commitment in applying Al-Hikmah values. Therefore, this study is necessary to develop a valid and reliable instrument to measure transformational leadership's effect on teachers' commitment in implementing Al-Hikmah values for instrument validation. This study will also help researchers use the Fuzzy Delphi Method (FDM) to achieve expert consensus on the constructed instrument. This method is more time-efficient, cost-effective, offers a better agreement rate, and ensures a higher level of consensus among experts

(Mohd Yusof et al., 2018). The selection of experts among lecturers and Al-Hikmah education practitioners meets the criteria of experienced and knowledgeable experts in their respective fields.

2. Problem Statement

Many studies on transformational leadership practices and teacher commitment have been conducted both nationally and internationally, but research specifically on headmasters' transformational leadership and teachers' commitment to instillation Al-Hikmah values has not yet been found. This is due to the fact that many researchers still rely on existing instruments, especially those developed in the West, related to transformational leadership and teacher commitment.

The instrument used must align with the study's objectives by assessing three types of validity: face validity, content validity, and construct validity (Li, W. L., Osman & Maat, 2018). In this study, initial validation was conducted using expert consultation with competent Educational Administration experts among lecturers at Public Higher Education Institutions (IPTA) and Teacher Training Institutes (IPG).

Several studies on instrument validity and reliability include studies on Arabic Language Collocation Learning Strategy: Analysis Using the Rasch Model, validation of the Distributive Leadership questionnaire instrument using the Fuzzy Delphi method (2020), expert consensus on the development of key components for Islamic education teacher competence based on the fundamental principles of Maqasid Shariah: Fuzzy Delphi Method application (2021), organizational leadership competence, middle-level leaders, Fuzzy Delphi Method, Organizational Leadership Competence for Middle-Level Leaders in Education (2021).

Purpose of the Study

This study aims to provide a questionnaire instrument related to Transformational Leadership and teachers' commitment to instillation Al-Hikmah values in teaching and learning that researchers can reference.

Research Objectives

1. To identify the main constructs of the headmaster's transformational leadership questionnaire instrument based on expert consensus.
2. To examine the priority ranking of the main constructs in the headmaster's transformational leadership questionnaire instrument based on expert consensus.

Concept of Instrument Validity

The validity of a measurement tool refers to the extent to which it accurately measures the intended data. The four main aspects of validity are content validity, construct validity, criterion validity, and consequential validity. Content validity refers to the extent to which the items constructed or used cover the content domain and requires expert consultation to obtain a valid tool to measure the variable. Construct validity investigates the trait measured by the instrument by determining how well performance on the instrument reflects the construct or concept described within it. Construct validity can be measured using the correlation value between each item's score on the instrument and the total score of the instrument. Criterion validity refers to the extent to which an instrument measures the intended criterion and the relationship between the instrument's items and external criteria (outcomes). Meanwhile, consequential validity refers to the expected or unexpected effects arising from the test or instrument being studied during its development (Shaari, 2022).

According to (Yaakub et al., 2020) in Diyana and Ahmad (2017), content validity is high when all test content targets cover the constructs within the instrument, as expert panelists review the items and justify that they encompass all the content being tested. This is evident because the purpose of validating an instrument is to ensure that the constructed items meet the criteria of appropriateness, truthfulness, meaningfulness, and usability, which allows the data to be inferred (Fraenkel, J.R. & N.E, 1996).

Previous Studies on Instrument Validity

According to Karim et al. (2017), content validity can be verified using the Fuzzy Delphi Method (FDM). This method can be used and is suitable for obtaining expert consensus across various (Eshak & Zain, 2020; Hasim et al., 2023). The FDM is a modified measurement method based on the Delphi method and combines Fuzzy Number sets with the Delphi method (Mohd. Jamil & Mat Noh, 2020). According to Yusoff et al. (2021), the FDM is an improvement on the Delphi FDM and is accepted as a more effective measurement tool due to its precision and reliability in research fields (de Hierro et al., 2021; (Sabtu et al., 2024). Various studies have established instrument validity based on specific research objectives (Sabtu et al., 2024). Researchers have developed instruments using the Fuzzy Delphi Method for purposes such as Beram et al., (2021) on leadership competency for middle-level education leaders, Yaakub et al., (2020) on distributive leadership, Mazlan & Lateh, (2021) on competencies of Islamic education teachers based on Maqasid Shariah principles, and developing and evaluating the model of moral practices for Muslim trainee teachers at the Malaysian Teacher Education Institute (Harun, 2018) among others.

Researchers have constructed instrument items based on theories and constructs relevant to the study topic to assess content validity after consulting with and achieving consensus from appointed experts. The content validity of an instrument should align with the constructs and requires a high level of expertise to obtain a more accurate, valid, and reliable instrument suitable for real research (Mohd Effendi et al., 2017).

Therefore, there exists a research gap on transformational leadership of school principals and teachers' commitment to integrating Al-Hikmah values through a panel of experts to strengthen instrument development.

3. Methodology

This study uses the Fuzzy Delphi Method (FDM), which is based on the Fuzzy Set Theory by Zadeh, (1965) with research by Thakur et al., (2022) initially introduced by Murray et al., (1985) and later revisited by Kaufman dan Gupta (1988). Previously, the Delphi Method was used for more than half a century (Ramlan and Ghazali, 2018) to achieve consensus among expert groups, introduced by Olaf Helmer and Norman Dalkey from RAND Corporation in 1953. However, it was found that expert opinions did not fully reflect human thought processes. The Fuzzy Delphi Method (FDM) combines the Delphi Method with fuzzy set theory.

FDM is a combination of fuzzy set numbering used in the traditional Delphi technique, an improved measurement method Mohd. Ridhuan et.al (2018) in (Eshak & Zain, 2020). This method has been widely used across various fields of research, with evolving applications in empirical research, particularly in measurement and data analysis (Ahmad, 2018), based on the consensus of a group of experts (Lateh et al., 2017). FDM has been extensively applied in fields such as education (Green, 2014). According to Ding et al. (2019) and Mohd. Ridhuan et al. (2018), FDM uses the concept of linguistic variables, converting words into measurable quantitative values, especially useful in solving complex problems as introduced by Lotfi Zadeh (1965). Fuzzy sets gradually interpret each element within a range between 0 and 1, making FDM an effective tool for addressing uncertainties in research (Ding et al., 2019; Regin, 2007; Zadeh, 1965). Two key components in FDM are the Triangular Fuzzy Number and the Defuzzification Process. Triangular Fuzzy Numbers have three values (m1, m2, m3): minimum, most reasonable, and maximum values. Defuzzification enables ranking of elements based on expert consensus.

Thus, FDM is a technique, method, and rebranded measurement instrument based on the Delphi Technique (Zulkifli et al., 2022). In this study, FDM is used to gather expert consensus on constructing items for the integration of Al-Hikmah values in teaching and learning, allowing experts to express ideas, critique, and improve the items designed by the researchers. This method is considered more effective, advanced in statistical application, and consistent with fewer rounds needed to reach expert consensus (Gnanasagaran et al., 2023). Therefore, evaluation factors can be conducted more objectively and systematically.

Study Participants

This study involves FDM with 11 experts in management, Al-Hikmah education, Islamic education, and pedagogy, selected based on their extensive experience. According to Sareen, S., & Haque, M. (2024), sampling in Delphi-based techniques cannot be obtained statistically, as it requires pre-identification of participants. A questionnaire containing elements of transformational leadership, teacher work commitment, and Al-Hikmah values practices was distributed to selected experts, including university lecturers, Islamic Teacher Education Institute (IPG) faculty, Takmir Education Foundation, and Dar Al-Hikmah College practitioners of Al-Hikmah education. The expert panel assessed their agreement on the main constructs on a 5-point Likert scale, which was translated into a Fuzzy scale, and the data were analyzed using the Fuzzy Delphi linguistic scale. Analysis of Expert Panel's Experience Duration on Table 1 as follows:

Table 1: Analysis of Expert Panel's Experience Duration

Experience Duration (Years)	**Years of Service (No. of Experts)**	**Qualifications (No. of Experts)**
1-5	-	-
6-10	-	-
11-15	2	Phd
16-20	5	Phd
>20	4	Master's

Study Instrument

Through the FDM technique, the instrument was developed based on literature review, pilot studies, or experience or using expert interviews or nominal group techniques (Beram et al., 2021). Based on this approach, a 5-point Likert scale questionnaire was prepared to represent the linguistic Fuzzy scale values. This scale was then converted into Fuzzy set values, with each element assigned a value range between 0 and 1. The values m_1, m_2, and m_3 were generated automatically in the Fuzzy Delphi Excel software from analysis of 11 Fuzzy Delphi experts, with values of $m_1 = 0.4$, $m_2 = 0.6$, and $m_3 = 0.8$ for sub-constructs. These values applied to the constructs of Transformational Leadership Practices, Teacher Work Commitment, and Al-Hikmah Values Practices.

4. Findings and Discussion

The Fuzzy Delphi data in this study were analyzed using Microsoft Excel software introduced by Mohd Ridhuan et al. (2014), following these 7 steps:

(i). Determining the Number of Experts in the Study

For this study, the researcher determined that 10 to 15 experts are sufficient (Adler, M., & Ziglio, 1996). For this purpose, the researcher used 11 experts and analyzed the data using Excel software.

(ii). Setting the Fuzzy Delphi Scale Levels

The researcher used a five-point Likert scale in the Fuzzy Delphi Questionnaire and converted the Fuzzy Delphi score values into Fuzzy scale values, as shown in Table 1. The Fuzzy Delphi survey score data were then input into the Excel Fuzzy Delphi software.

(iii). Obtaining the values of m_1, m_2, and m_3

The values of m_1, m_2, and m_3 were automatically generated in the Fuzzy Delphi Excel software from the analysis by 11 Fuzzy Delphi experts, resulting in values of $m_1 = 0.4$, $m_2 = 0.6$, and $m_3 = 0.8$ for the sub-constructs. These sub-constructs included Transformational Leadership Practices, Teacher Work Commitment, and Al-Hikmah Values Practices.

The scale is based on Table 2 as follows:

Table 2: Display of Values m_1, m_2, and m_3

Experts	Fuzzy numbering range								
	ITEM 1			**ITEM 2**			**ITEM 3**		
	m1 (n1)	m2 (n2)	m3 (n3)	m1 (n1)	m2 (n2)	m3 (n3)	m1 (n1)	m2 (n2)	m3 (n3)
1	0.4	0.6	0.8	0.4	0.6	0.8	0.4	0.6	0.8
2	0.4	0.6	0.8	0.4	0.6	0.8	0.4	0.6	0.8
3	0.2	0.4	0.6	0.4	0.6	0.8	0.2	0.4	0.6
4	0.6	0.8	1	0.6	0.8	1	0.6	0.8	1
5	0.6	0.8	1	0.6	0.8	1	0.6	0.8	1
6	0.6	0.8	1	0.6	0.8	1	0.6	0.8	1
7	0.6	0.8	1	0.4	0.6	0.8	0.6	0.8	1
8	0.6	0.8	1	0.6	0.8	1	0.6	0.8	1
9	0.6	0.8	1	0.6	0.8	1	0.6	0.8	1
10	0.6	0.8	1	0.6	0.8	1	0.6	0.8	1
11	0.6	0.8	1	0.4	0.6	0.8	0.6	0.8	1
AVERAGE	**0.5273**	**0.7273**	**0.9273**	**0.5091**	**0.7091**	**0.9091**	**0.5273**	**0.7273**	**0.9273**

(iv). Threshold Value

The threshold value is obtained by summing the ddd values for each item and dividing by the total number of items for the relevant sub-construct to get the average. Threshold Values on Table 3 as follows:

Table 3: Threshold Values

Experts	**Item**								
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1	0.194	0.167	0.194	0.361	0.417	0.417	0.389	0.111	0.444
2	0.194	0.167	0.194	0.056	0.111	0.111	0.083	0.111	0.139
3	0.500	0.167	0.500	0.361	0.417	0.111	0.083	0.111	0.139
4	0.111	0.139	0.111	0.250	0.111	0.194	0.222	0.194	0.183
5	0.111	0.139	0.111	0.250	0.194	0.194	0.222	0.194	0.183
6	0.111	0.139	0.111	0.361	0.194	0.194	0.222	0.194	0.183
7	0.111	0.167	0.111	0.056	0.111	0.194	0.083	0.111	0.139
8	0.111	0.139	0.111	0.250	0.194	0.417	0.389	0.417	0.139
9	0.111	0.139	0.111	0.250	0.194	0.194	0.222	0.194	0.167
10	0.111	0.139	0.111	0.250	0.194	0.194	0.222	0.194	0.167
11	0.111	0.167	0.111	0.056	0.194	0.111	0.083	0.111	0.167
Min	**0.162**	**0.151**	**0.162**	**0.227**	**0.212**	**0.212**	**0.202**	**0.177**	**0.186**
d	**0.183**								

(v). Determining the Percentage of Agreement

The percentage of expert agreement for each item is determined by counting the number of items with d≤0.2 and dividing by the total number of sub-constructs. For example, in the Transformational Leadership sub-construct, all 11 experts agreed on the item (11/11 x 100 = 100%). The percentage of expert agreement for items in Transformational Leadership, Teacher Commitment, and Al-Hikmah Values Application is 100%. To calculate the overall percentage for the sub-construct, the total d≤0.2 from all items in the sub-construct is used. The calculation is 143/187x 100 = 76%. The agreement percentage value is 76%. The calculation is (143/187 x 100 = 76.47%), rounded to 76 percent. Display

of expert agreement percentage on Table 4 as follows:

Table 4: Display of Expert Agreement Percentage

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
D<0.2	10	11	10	8	9	9	4	10	10	10	10	5	10	6	4	7	10
Total		**143**															
Percentage	91 %	100%	91 %	73 %	82 %	82 %	36 %	91 %	91 %	91 %	91 %	45 %	91 %	55 %	36 %	64 %	91 %
Total		**76 %**															

Total: 76%

(vi). Defuzzification Value

The defuzzification value is obtained to determine the rank or position of items for each sub-construct. The calculation of the defuzzification value can be done using the following formula: Amax = 1/3 * ($m_1 + m_2 + m_3$). Table 4 shows that the Fuzzy evaluation for Principal Transformational Leadership is 8.000. The average Fuzzy defuzzification value is as follows on Table 5:

Headmaster Transformational Leadership;
1/3 * (m_1 + m_2 + m_3)
1/3 * (0.527 + 0.727 + 0.927) = .0.727

Table 5: Display of Defuzzification Item Values

	Item 1			**Item 2**			**Item 3**			**Item 4**		
Total of each element	5.80	8.00	10.20	5.60	7.80	10.00	5.80	8.00	10.20	4.80	7.00	9.20
	m1	m2	m3	m1	m2	m3	m1	m2	m3	m1	m2	m3
Fuzzy Evaluation	8.000			7.800			8.000			7.000		
Average of Each Element	0.527	0.727	0.927	0.509	0.709	0.909	0.527	0.727	0.927	0.436	0.636	0.836
	m1	m2	m3	m1	m2	m3	m1	m2	m3	m1	m2	m3
Average Fuzzy Number (Alpha cut value, Defuzzification)	**0.727**			**0.709**			**0.727**			**0.636**		

(vii). Rank Item

Item Rank for Sub-Construct on Table 6 as follows:

Table 6: Display of Item Rank for Sub-Construct

RANK		**DEFUZZICATION VALUE**	**ITEM**
ACCORDING TO THE PRIORITY OF VALUES	1	0.727	1
	2	0.727	3
	3	0.727	10
	4	0.709	2
	5	0.691	9
	6	0.691	11

7	0.673	6
8	0.673	8
9	0.673	5
10	0.673	13
11	0.673	17
12	0.655	7
13	0.636	4
14	0.636	16
15	0.618	14
16	0.6	15
17	0.582	12
MEDIAN	**0.673**	

The process of interpreting FDM analysis data involves obtaining the rank for items, where the rank of each item can determine the strength of expert consensus on the variables studied. The main purpose of item ranking in this study is to establish the position of items within the questionnaire instrument. However, three conditions for the Fuzzy Delphi analysis findings must be met to ensure that the data produced can be accepted as sub-constructs and constructs for this study.

Threshold Value d≤ 0.2

The threshold value d≤ 0.2 for items and sub-constructs obtained must be less than or equal to 0.2 (Md Zain et al., 2021). However, if the ddd value obtained exceeds 0.2, it is recommended that the item be discarded or subjected to a second round with experts who disagreed with the item or sub-construct.

Expert Consensus Value >75%

According to Mohd Ridhuan et al. (2014), and Murray & Hammons (1995), an expert consensus value of 75% or above is accepted for items or sub-constructs. Items that do not reach 75% or above are suggested to be discarded, removed, or subjected to a second round with experts who disagreed with the item or sub-construct.

Alpha α – cut Value as Threshold

Tang & Wu (2000), Bodjanova (2006), and Mohd Ridhuan et al. (2014), in (Harun, 2018), reported a standard alpha α – cut value of 0.5 as the median threshold between fuzzy numbers 0 and 1. If the average fuzzy value is more than 0.5, the item or sub-construct is accepted based on expert consensus. Otherwise, the item or sub-construct is rejected by experts.

This study followed seven main steps in analyzing data using Microsoft Excel software for handling Fuzzy Delphi data analysis (Mustapha et al., 2017). The software helps facilitate the researcher, reduce calculation errors, and save time. Table 7 shows the values obtained from the analysis, the statistical formulas used, and the compliance conditions for FDM analysis.

Table 7: FDM Data Analysis and Conditions

Analysis Result		Formula	Condition
i.	Treshold Value	$d(\overline{m},\overline{n})$ $\sqrt{\frac{1}{3}[m1-n1)^2+[m1-n1)^2+[m3-n3)^2}$	Threshold Value d≤ 0.2 (Chan 2000; Cheng & Lin, 2002; Mohd. Ridhuan et al., 2014
ii.	Expert Consensus Percentage Value	$=\begin{bmatrix}\bar{A}1\\ \bar{A}2\\ \bar{A}m\end{bmatrix}$ $i=1,\dots\dots,m$ $\frac{1}{3}*(m1+m2+m3)$	Expert Consensus Value >75% (Chu & Hwang, 2008; Murray & Hammons, 1995)
iii.	Defuzzification Value		Value α – cut ≥ 0.5 (Tang & Wu 2000; Bodjanova, 2006;Mohd Ridhuan et al. 2014).

This study was conducted to obtain consensus from 11 experts on the elements required in the constructs of headmaster transformational leadership, teacher commitment, and the application of Al-Hikmah values. The findings indicate that the expert panel agrees that teacher work commitment and the application of Al-Hikmah values require the influence of the headmaster's transformational leadership to fulfill responsibilities more effectively. With a threshold value of 0.182, which is less than or equal to the threshold ($d \leq 0.2$), this indicates that this item is highly significant in relation to teacher work commitment (Mohd Ridhuan et al., 2014). The percentage of consensus is 76%, calculated as (143/187 x 100 = 76.47%), rounded to 76 percent. This shows that the item or sub-construct is accepted, as Mohd Ridhuan et al. (2014), and Murray & Hammons (1995) state that an expert consensus value of 75% or above indicates acceptance of the item or sub-construct.

This study aligns with the findings of Mazlan & Lateh (2021), where expert opinions reached a consensus level exceeding 75 percent (%). The threshold value also meets the requirement of being less than 0.2 ($d<0.2$), and the α-cut exceeds 0.5, which satisfies the criteria for constructing key competency components for Islamic Education teachers based on the foundational principles of Maqasid Shariah, contributing significantly to the transformation of knowledge and education. Similarly, the study by (Wan Mohamad et al., 2020) found a defuzzification value of 0.947, a threshold value of 0.046, and 98% expert consensus, which met the requirements and successfully established a model of interaction with Allah and nature within communication skills for PAK21 Islamic Education. Additionally, a study on politeness in language use within drug treatment and rehabilitation through an Islamic psychospiritual and Sufism approach also reported a threshold value of less than 0.2 ($d<0.2$), with over 75 percent of experts agreeing, demonstrating a strong element of expert consensus (Osman et al., 2022).

Furthermore, this study successfully examined the elements required for teacher commitment through expert consensus. Based on FDM findings, after the defuzzification process, all tested elements were accepted and met the alpha cut threshold value requirement of greater than 0.5. Tang & Wu (2000), Bodjanova (2006), and Mohd Ridhuan et al. (2014) in (Harun, 2018) reported that the standard alpha cut value as a threshold is 0.5, serving as the median between fuzzy numbers 0 and 1. If the average fuzzy value exceeds 0.5, the item or sub-construct is accepted based on expert consensus. This process was applied to all elements, following a priority list from the first ranking to the last. This proves that the FDM technique used can be beneficial in decision-making regarding the elements of work commitment and the application of Al-Hikmah values needed. These findings also show that FDM can determine the ranking process of element importance according to priority (Beram et al., 2021). The item ranking achieved a median of 0.673, demonstrating that the rank of each item can determine the strength of expert consensus on the variables studied. The main purpose of item ranking in this study is to establish the position of items within the questionnaire instrument.

The main implication of this study is that it provides insights into teacher work commitment and the application of Al-Hikmah values, highlighting the importance of all validated elements of headmaster transformational leadership. The combination of these elements serves as a crucial asset in distinguishing high-quality, competent, or moderate levels of teacher work commitment and Al-Hikmah values application. According to Hidayati et al., (2023); Supanto et al., (2022), high teacher work commitment and quality are more effective than low work commitment or less competency. Additionally, middle leaders can use these validated leadership elements as the foundation for training and development activities for appointed middle leaders. Leadership competency-based middle leaders significantly support the stability of the school leadership team (Yaakub et al., 2020).

In conclusion, this study presents a novel approach to Al-Hikmah education, an area not yet extensively

explored through quantitative research. Therefore, it required expert consensus on the constructs and elements of teacher commitment in applying Al-Hikmah values specifically. This study has demonstrated that the constructs and elements of headmaster transformational leadership concerning teacher work commitment and the application of Al-Hikmah values have achieved expert consensus. All three conditions were accepted after testing and met the FDM criteria. The elements presented align well with teacher work commitment and the application of Al-Hikmah values, newly introduced in Malaysia. The obtained constructs and elements will subsequently undergo correlation and inference testing on teacher commitment and the application of Al-Hikmah values in teaching and learning, influenced by headmaster transformational leadership.

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