

Application of the Fuzzy Delphi Method to Identify Middle Leaders' Competencies in Crisis Management

Juliza Adira Mohd@Ariffin^a, Ahmad Aizuddin Md Rami^b

¹Universiti Putra Malaysia, julizaadira@gmail.com*

²Universiti Putra Malaysia, ahmadaizuddin@upm.edu.my

Published: 10 June 2023

To cite this article: Mohd @ Ariffin, J. A., & Md Rami, A. A. (2023). Application of the Fuzzy Delphi Method to Identify Middle Leaders' Competencies in Crisis Management. *Management Research Journal*, 12(1), 26–37. <https://doi.org/10.37134/mrj.vol12.1.3.2023>

To link to this article: <https://doi.org/10.37134/mrj.vol12.1.3.2023>

Abstract

In today's VUCA world, a crisis can strike at any time. An organization must always be ready to face a crisis by ensuring that the organization has not only equipment or procedures for managing a crisis but also employees who are efficient in handling a crisis to prevent the failure of the organization. In order to disseminate knowledge, it is important to expand research on crisis leadership competencies. Keeping this in mind, the goal of this study is to identify the most important leadership competencies during a crisis. Using the Fuzzy Delphi Method (FDM), this study aims to obtain expert agreement on the construct of humanistic competency for middle leaders in Malaysia's Ministry of Education (MOE). An instrument containing constructs and a list of elements was presented to a total of 15 experts from related fields. According to the findings of this study, the expert panel agreed with the presented constructs and elements of crisis management competencies for middle leaders in MOE. All the 10 elements tested have also met the conditions set in FDM, which are above 0.2 for the threshold value ($d \leq 0.2$), obtained expert agreement above 75% with values ranging from an 87% to 100% agreement, and passed the alpha cut value above 0.5 ($\alpha\text{-cut} \geq 0.5$) with values ranging from 0.918 to 0.960. The defuzzification process used by FDM also rearranges all the elements according to priority based on expert consensus. Among all the elements agreed upon by experts, it has been found that two elements occupy the highest rank in the construct of humanity and are considered the most crucial skills for a contemporary leader in managing crises: communication skills and the ability to prioritize team harmony. In conclusion, this study successfully presents new constructs and elements for crisis management competency in the context of educational organizations and middle leaders. The findings from this study will provide benefits for the theoretical evolution, and policy development for organizational education, and also in terms of practice, especially for middle leaders in educational organizations. For organizations, these findings can serve as a reference for providing training to cultivate exceptional leaders. As for the mid-level leaders themselves, these findings can serve as guidelines for assessing their leadership effectiveness. Furthermore, regarding the limitations of this study, it focused solely on the Ministry of Education in Malaysia. Therefore, in order to broaden the literature in this field, the researcher encourages future scholars to expand the scope of research by involving other educational organizations.

Keywords: Fuzzy Delphi Method, Competency, Crisis Management, Middle Leaders

INTRODUCTION

Crisis management is an unexpected or unplanned event that causes damage in an emergency response, where time injuries are severe and loss of life or substantial financial damage will occur (Van Wart & Kapucu, 2011). In the field of Human Resource Development (HRD), a crisis is defined as an unexpected

event that can cause significant changes in many aspects, either individuals or organizations (Wang & Hutchins, 2010). In today's world, natural disasters, economic collapse, disease outbreaks, and similar crises occurring anywhere in the world affect all social, cultural, and organizational areas. For example, due to the outbreak of COVID-19, many organizations are affected due to factors such as movement restrictions and so on (Atilgan & Kaplan, 2022). Since a crisis situation necessitates quick decision-making in critical conditions and places decision-makers in an urgent decision-making situation with the obligation to minimize potential consequences, a crisis situation, therefore, requires effective crisis management that is led by effective leaders in the respective organizations (Bekdash, 2019).

Table 1 presents various types of crises that can affect organizations (Pearson & Clair, 1998). Despite their differences, all types of crises share common elements, making crisis management a critical skill for effective leadership.

Table 1: An array of organizational crises (Pearson & Clair, 1998)

Type of Organization Crisis
Extortion
Hostile takeover
Product tampering
Vehicular fatality
Copyright infringement
Environmental Spill
Computer tampering
Security breach
Executive Kidnapping
Product/Service Boycott
Work related homicide
Malicious rumour
Natural Disaster that disrupts a major product/service
Natural Disaster that destroys organizational information base
Bribery
Information Sabotage, Workplace Bombing, terrorist attack
Sexual harassment
Escape of hazardous materials
Personal assault
Assault of customer
Product recall
Counterfeiting
Natural disaster that destroys corporate headquarters
Natural disaster that eliminates key stakeholders

Even if a leader has extensive experience in leadership, this may not work if they are unable to handle panic or critical situations during a crisis. As reported by Dirani et al. (2020) in their study, news, and social media have exposed how some leaders are failing in their efforts to save organizations and jobs during a crisis, especially due to a lack of competencies among leaders in dealing with the duration and severity of the crisis. In fact, some organizations tend to face a variety of consequences as a result of crisis management failure, including reputational damage, financial loss, and even death. If a crisis is not well managed, the crisis will not only impact the organization itself but may also have a psychological impact on the employees in the organization such as emotional exhaustion, low work motivation and poor job

performance, adverse mental health, low employee engagement with their work, absenteeism, and the intention of employees to quit their job (Peerayuth & Tipnuch, 2020).

In dealing with a crisis, an organization needs competent leaders in crisis management to manage the organization because managing organizations in crisis generally require different skills compared to managing organizations in a normal situation. Leaders, regardless of at which levels nowadays, need to be trained and provided with appropriate training or references as a guideline to give them an understanding of the competencies needed in managing a crisis. However, according to Gani et al. (2020), there are currently no specific references that especially highlight competencies as a guideline, especially for public organizations in Malaysia, including the Ministry of Education Malaysia (MOE). Besides, the existing reference used by public organizations nowadays is too general. Since the nature of organizations varies from one organization to another, it is important for each organization to have its own version of competency reference. This is because each job requirement requires different skills and competencies, especially for different organizations with different customers or clientele.

In the MOE, a few management issues always happen since this organization is managed as a central and top-down system (MOE, 2018). Among the management issues that always arise include overlaps in federal, state, and district responsibilities, limited coordination across divisions and administrative levels, policies that are sometimes implemented with insufficient information or support, and weak outcome-based monitoring and follow-through (MOE, 2013). This becomes more challenging when the organization is in a crisis situation. Thus, the organization needs highly strong and competent leaders because managing organizations in crisis require different skills as opposed to managing organizations in a normal situation.

When discussing leadership in organizations including educational organizations, the focus is not solely on the organization's top leaders such as the department directors or principals/head teachers but also on the role and involvement of middle leaders (De Nobile, 2017). Middle leaders play an important role in achieving organizational goals, particularly in ensuring smoothness, effectiveness, empowerment, and education at large. Furthermore, they are the driving force behind the organization's operations and serve as a middleman between the employees and upper management. Generally, in the federal office of MOE, middle leaders refer to officers who hold a position as the Head of the Unit or the Deputy of Director.

Based on a review of previous studies, particularly those on crisis management, the research focus is usually on the top leaders of organizations, such as the CEOs and directors, and on the principals and headmasters in schools (De Nobile, 2017) rather than the middle leaders. Although middle leaders play an important role in educational leadership, there is very little research focusing on them, including in the educational sector (Hallinger & Wang, 2015).

Accordingly, the current study was carried out to identify the competencies required by middle leaders in crisis management at the federal level in MOE. Middle leaders at the federal level constitute members of a managerial and professional group who hold positions such as Deputy Director or Chief Assistant Director. As the middle leaders at the federal level in MOE, they are responsible for reporting to the Director while also serving as policymakers who operate the organization's policies, vision, and mission. Besides, they must also manage, direct, plan, prepare a working paper, and supervise all officers, support staff, and teachers.

Previous studies have found a variety of competencies that are recommended in crisis management. Hence, this study was designed to identify specific competencies for middle leaders in educational organizations through research questions: (a) Is there an expert agreement on the elements of crisis management competency for middle leaders in the MOE?; and (b) Based on the expert consensus, what is the priority order of the crisis management competency elements for middle leaders in the MOE?

Developing a set of unique core competencies would be key to creating a sustainable competitive advantage and thereby reaching success in any industry. The present circumstances within an exceedingly unpredictable and volatility uncertainty, complexity, and ambiguity (VUCA) global setting can additionally be regarded as a driving force for fostering innovation and effectiveness. Certain organizations respond to these fluctuations by cultivating a fresh array of skills, enabling them to endure and thrive amidst profound crises. Consequently, it becomes crucial to recognize these pivotal skills in order to facilitate the

enhancement of employee competencies, particularly among top executives, in effectively steering the company during times of crisis (Marneros et al., 2022).

Previous research has brought several meanings related to competence based on the diversity of the fields studied. However, in general, competence can be defined as an individual's skills and knowledge in the field in which he is engaged. McClelland (1976) introduced competency studies, describing competencies as characteristics underlying superior organizational performance. Boyatzis (1982) defines competencies as an underlying characteristic of a person, which can encompass a motive, trait, aspect of one's self-image or social role or a body of knowledge that one uses to achieve excellent performance. Additionally, competencies can distinguish one person's competence from that of another (Spencer & Spencer, 1993). Leaders who master the competencies assigned to them will be able to demonstrate and produce better results than those who lack competencies in the same field (Beram et al., 2021).

The Competency Causal Flow Model introduced by Spencer and Spencer (1993) as shown in Figure 1 indicates that certain underlying competencies will lead to job performance. According to Spencer and Spencer (1993), competencies can influence one's behavior in the act and will give an impact on someone's performance. In general, the chronology of competencies starts from the expected personal characteristics (intent), followed by the behaviorist (action), and finally the impact (outcome) on work performance. Different modes of environmental emergency management involve different capabilities of the actors and represent different ways of organizing and regulating collective action (Tang et al., 2022).

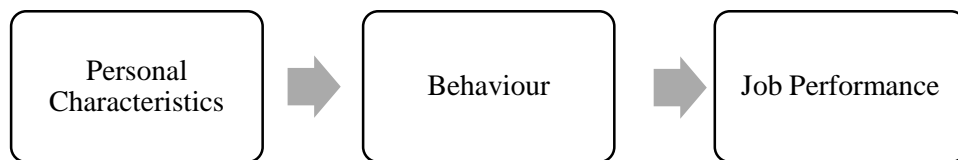


Figure 1: Competency Causal Flow Model (Spencer & Spencer, 1993)

According to Le Deist and Winterton (2005), competencies include four dimensions, namely cognitive competence (knowledge), functional competence (skills), social competence (attitudes and behavior), and meta-competence (facilitating the acquisition of other substantive competencies). Actually, every organization requires different competencies for its employees, including its leaders based on the nature of the organization. Because of this situation, general references to the competencies required by the leaders need to be filtered first before being used by the organization as a reference.

As an excellent organization with strategic human resources development, the organization must ensure that it has identified, described, and provided a list of core competencies needed for each type of position in the organization in order to help its employees develop their respective competencies. In essence, this is the main responsibility of human resource development in any organization (Clardy, 2008), apart from its greater responsibility to provide competency development training to employees. According to Katz (1955), there are three main general competencies that leaders must have in order to be competent in their job, as follows:

Technical Competency

Technical skill is defined as knowledge of and proficiency in a specific type of work or activity. This generally necessitates specialized knowledge, analytical abilities, and the ability to employ appropriate tools and techniques.

Humanistic Competency

Humanistic competency refers to the understanding of and the ability to work with people. This focuses on the interpersonal relationships between leaders and subordinates. Through this competency, leaders can

effectively collaborate with subordinates, peers, and superiors to achieve the organization's goals. In general, a leader's interpersonal skills enable them to assist group members in working together to achieve common goals.

Conceptual Skill

Conceptual skill refers to the mental work of shaping the meaning of organizational or policy issues, as well as understanding what a company stands for and where it is or should be going.

Competency in Crisis Management

Comprehensive handling of a crisis is called crisis management (Hidayat et al., 2020). A crisis situation necessitates effective crisis management by an effective leader. Even if a leader has extensive leadership experience, this may not be enough if the leader is incapable of handling panic or critical situations during a crisis (Dirani et al., 2020). Crisis management necessitates making quick decisions in critical situations, as well as putting decision-makers in an urgent decision-making situation with the obligation to limit potential consequences. Organizational readiness is essential for promptly acknowledging emerging developments that have the potential to escalate into immediate threats. To achieve this, an organization needs to possess the ability to systematically monitor such developments, collect pertinent data, accurately interpret it, and effectively communicate warnings across various organizational and political levels. The information regarding the threats must be thoroughly analyzed, comprehended, and prioritized (Boin & Rhinard, 2023).

Burnet and John (1998) proposed a crisis management model with crisis management steps. This model suggests several key steps such as goal formulation, environmental analysis, strategy formulation, strategy evaluation, strategy implementation, and strategic control. Leaders need to implement these steps in managing a crisis, develop a crisis strategy, and assist the organization in responding to the crisis through strategy implementation and strategic control. Without suitable competencies, the leaders will fail to implement the steps.

According to Jin (2010), the process of handling crisis management necessitates some basic psychological knowledge by leaders. These findings are supported by Zamoum and Gorpe (2018), who stated that psychological factors such as self-control, self-confidence, and coolness are also important for the individual in charge of crisis management. In addition, Coldwell (2017) made an important discovery that ethical leaders who are empathetic, humble, good listeners, able to accept criticism, and empathetic are crucial for meeting the challenges of crises. Bowers et al. (2017) also agreed that environmental sensitivity, unconventional behavior, and sensitivity to members' needs all have a positive impact on crisis management. Furthermore, Skorková and Joniaková (2021) expanded this finding by elaborating on crisis communication, which is one of the pillars of successful crisis management and their findings confirm a greater impact of information background as well as the sharing of the necessary information during the initial stage of the crisis on teamwork outcomes.

METHODOLOGY

This study is a quantitative study in which data were analyzed using the Fuzzy Delphi Method (FDM) in order to obtain expert agreement on the need for crisis management competency elements based on expert consensus. This method has been widely used in a variety of research fields where the agreement of knowledgeable experts in the aspects being studied is required. In general, the FDM involves the use of the fuzzy set theory, which has been integrated with the classic Delphi Method (Zadeh, 1965), where the Likert scale chosen by the experts will be converted to a fuzzy scale by using fuzzy numbering that consists of

numbering binary terms (0,1). The integration of this fuzzy numbering will produce three values, namely the minimum value, the most reasonable value, and the maximum value that will be selected by the experts.

A questionnaire was used as an instrument to obtain quantitative data. Instruments were formed based on the literature highlights and expert interviews (Mohd et al., 2014). This questionnaire has also gone through language validity and content validity with the field experts. Additionally, this research instrument uses a 7-point scale to describe the value of the fuzzy linguistic scale. Thus, a 7-point Likert scale is selected since the higher the number of scales, the higher the reliability and accuracy of the data (Rashidah et al., 2018). Table 1 shows the 7-point Likert Scale used to replace the fuzzy value.

The questionnaire includes the level of expert agreement on ten competencies, which are deemed important for a middle leader when dealing with crises in educational organizations. This competency list was compiled based on a literature review and expert opinions.

Table 1: Likert Scale, Linguistic Variables, and Fuzzy Scale

Likert Scale	Linguistic Variable	Fuzzy Scale
1	Extremely disagree	(0.0, 0.0. 0.1)
2	Highly disagree	(0.0, 0.1. 0.3)
3	Disagree	(0.1, 0.3. 0.5)
4	Fairly agree	(0.3, 0.5. 0.7)
5	Agree	(0.5, 0.7. 0.9)
6	Highly agree	(0.7, 0.9. 1.0)
7	Extremely agree	(0.9, 1.0. 1.0)

The ten elements placed under the humanistic competency construct (Table 2) were derived from the literature and interviews with experts in education, leadership, and crisis management. Purposive sampling was used in this study as it is the most suitable and appropriate sampling method for obtaining a consensus view in Fuzzy Delphi Method (Mohd & Noh, 2020, Siraj et al (2021). Precisely, the 15 experts were purposely chosen based on expert criteria suggested by Berliner (2004) and Adler and Ziglo (1996).

Table 2: List of Proposed Elements

No.	List of Elements in Humanistic Competency Construct
1	Communication Skills
2	Negotiation Skills
3	Empathy
4	Humility
5	Ability to Develop Partnerships and Networks
6	Idealized Influence
7	Motivator Skills
8	Conflict Management Skills
9	Empower Subordinate Skills
10	Prioritising Team Harmony

Data analysis for the Fuzzy Delphi Method is based on the threshold value (d), the percentage of expert agreement, and the fuzzy score, where the threshold value (d) for each item measured must be less than or equal to 0.2 (Cheng & Lin, 2002), the percentage of the expert agreement must exceed or equal to 75% (Chu & Hwang, 2008), and the value of the fuzzy score must equal to 0.5 or above. For the ranking purpose, the highest fuzzy score value (A) is considered in the first position. A detailed explanation for all three conditions is given below.

a. Triangular Fuzzy Numbers: Threshold value (d) is ≤ 0.2

Condition 1 involves the threshold value (d). To measure the expert group agreement, the resulting threshold value (d) must be smaller or equal to the value of 0.2. In this study, three decimal points were used and each item containing a threshold value (d) that does not reach a value of 0.2 or above will be translated as accepted based on the expert agreement. The determination of the value of this threshold (d) is based on the following formula:

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

b. Expert Agreement Percentage is ≥ 75%

Condition 2 involves a percentage of the expert group agreement. This condition is based on the traditional Delphi method where the value of this percentage is determined based on the number of items containing a threshold value (d) that does not reach a value of 0.3 and above. This means that each item with a threshold value (d) equal to or less than 0.2 will be accepted and converted to a percentage value based on the traditional Delphi method.

c. Defuzzification Value: Fuzzy score (A) value is ≥ 0.5

For Condition 3, the determination of the value of the fuzzy score (A) is based on the value of α– cut, which is 0.5. If the fuzzy score value (A) is less than 0.5, then the measured item is rejected based on the agreement of the expert group; however, if the value is equal to 0.5 and above, then it is accepted. The further process of determining the position and priority of items can be performed where the highest fuzzy score value (A) is considered in the first position. The determination of the value of the Fuzzy (A) score is based on the following formula:

$$A = (1/3)*(m_1 + m_2 + m_3)$$

RESULTS AND DISCUSSION

A total of fifteen (15) experts have agreed to participate in this study. This expert panel consists of senior officers from the MOE and senior lecturers from selected universities. All the experts have more than 10 years of experience in the field of study. The list of experts is as follows:

Table 3: List of Experts Involved

Expert	Position	Experience
Expert 1	Senior Officer at MOE	More than 10 years of experience in the field of study
Expert 2	Senior Officer at MOE	
Expert 3	Senior Officer at MOE	
Expert 4	Senior Officer at MOE	
Expert 5	Senior Officer at MOE	
Expert 6	Senior Officer at MOE	
Expert 7	Senior Officer at MOE	
Expert 8	Senior Officer at MOE	
Expert 9	Academician	
Expert 10	Academician	

Expert 11	Academician
Expert 12	Academician
Expert 13	Academician
Expert 14	Academician
Expert 15	Academician

The next finding of this study refers to the FDM analysis. The first condition that must be met using the FDM is that the threshold value must be smaller than or equal to 0.2 ($d \leq 0.2$). The analysis of the threshold value data obtained through the Fuzzy Delphi instrument involving a total of 15 experts is shown in Table 4 below.

Table 4: Threshold (d) Value for All Elements in the Humanistic Competency Construct

Expert	CS	NS	E	H	ADPN	II	MS	CMS	ESS	PTH
E1	0.010	0.031	0.072	0.046	0.320	0.020	0.020	0.020	0.031	0.010
E2	0.010	0.031	0.072	0.046	0.072	0.020	0.020	0.020	0.031	0.010
E3	0.010	0.122	0.085	0.046	0.085	0.132	0.132	0.020	0.122	0.010
E4	0.010	0.031	0.072	0.046	0.072	0.020	0.020	0.020	0.031	0.010
E5	0.143	0.122	0.085	0.108	0.085	0.132	0.132	0.132	0.122	0.143
E6	0.010	0.031	0.320	0.346	0.320	0.020	0.020	0.020	0.031	0.010
E7	0.010	0.031	0.072	0.046	0.072	0.020	0.020	0.020	0.031	0.010
E8	0.010	0.031	0.072	0.046	0.072	0.020	0.020	0.020	0.031	0.010
E9	0.010	0.031	0.072	0.046	0.072	0.020	0.020	0.020	0.031	0.010
E10	0.010	0.031	0.072	0.046	0.072	0.020	0.020	0.020	0.031	0.010
E11	0.010	0.031	0.072	0.046	0.072	0.020	0.020	0.020	0.031	0.010
E12	0.010	0.031	0.072	0.046	0.072	0.020	0.020	0.020	0.031	0.010
E13	0.010	0.031	0.072	0.046	0.072	0.020	0.020	0.020	0.031	0.010
E14	0.010	0.122	0.320	0.108	0.072	0.020	0.020	0.132	0.122	0.010
E15	0.010	0.031	0.072	0.046	0.072	0.020	0.020	0.020	0.031	0.010
Average d value for each item	0.019	0.049	0.107	0.074	0.107	0.035	0.035	0.035	0.049	0.019
d Value for Construct	0.053									

Based on Table 4, the average threshold value 'd' for each of the elements tested has met the condition ($d \leq 0.2$), and the threshold value (d) for all ten elements is between 0.019 and 0.107. In terms of Communication Skills, the average d value is 0.019, while the average d value for Negotiation Skills is 0.049. As for Empathy, the average d value is 0.107, while the average d value for Humility is 0.074. Furthermore, in terms of the Ability to Develop Partnerships and Networks, the average d value is 0.107, which is similar to Empathy. As for Idealised Influence, Motivator Skill, and Crisis Management Skill, all three elements show the same average d value of 0.035. Finally, in terms of Empower Subordinate Skill, the average d value is 0.049, while the average d value for Prioritizing Team Harmony is 0.019. All the ten elements are accepted as components of the humanistic competency construct. The overall threshold value

for the construct humanistic competency is 0.053 and the result also meets the threshold condition ($d \leq 0.2$). This finding directly indicates that an expert agreement has been reached for the constructs and elements tested. In this regard, the analysis can be furthered by examining compliance with the percentage of expert agreement (Mohd et al., 2017).

Table 5 shows the percentage of expert agreement for each element in the humanistic competency construct, as well as the average percentage of expert agreement for all elements. According to the data, the percentage of expert agreement is between 87% and 100%, and the average percentage of all the ten elements is 97%, which meets the requirements of the Fuzzy Delphi Method (above 75%). Evidently, for the elements of Communication Skill, Negotiation Skill, Idealised Influence, Motivator Skill, Conflict management Skill, Empower Subordinate Skill, and Prioritising Team Harmony, the percentage of expert agreement is 100%. In general, the value of 100% indicates that all 15 experts agreed that this element is important in the humanistic competency construct. Nonetheless, the Humility element shows 93% of expert consensus, while the elements of Empathy and Ability to Develop Partnership and Networking both show 87% of expert consensus.

Table 5: Percentage of Expert Agreement

	CS	NS	E	H	ADPN	II	MS	CMS	ESM	PG/TH
Each Item ($d \leq 0.2$) Percentage	100%	100%	87%	93%	87%	100%	100%	100%	100%	100%
Total Item ($d \leq 0.2$) Percentage	97%									

Once the two FDM conditions have been met, the next test analyzed defuzzification to determine the ranking of each element. Following the calculation of the ranking process, the position of all elements in the humanistic competency construct of middle leaders is shown in Table 6. This ranking process was made based on the value of the fuzzy score (A) from the highest to the lowest.

Based on the data in Table 6, Communication Skills and Prioritising Team Harmony occupy the main ranking compared to other elements since their fuzzy scores show the highest value, which is 0.960. This is followed by Idealised Influence (0.953), Motivator Skill (0.953), and Conflict Management Skill (0.953) on the second rank, while Negotiation Skill (0.947) is on the third rank and Empower Subordinate Skill (0.945) is on the fourth rank.

The fifth rank belongs to Humility (0.936), while the sixth rank belongs to the Ability to Develop Partnerships and Networks (0.918) and Empathy (0.918), respectively. In essence, as for the elements with the same ranking position, it can be deduced that these elements have the same weighting and, hence, are equally important in the humanistic competency construct.

Table 6: Ranking of Elements for the Humanistic Competency Construct

Element	Fuzzy Score (A)	Ranking
Communication Skill	0.960	1
Negotiation Skill	0.947	6
Empathy	0.918	9
Humility	0.936	8
Ability to Develop Partnership and Networking	0.918	9
Idealized Influence	0.953	3
Motivator Skill	0.953	3
Conflict Management Skill	0.953	3
Empower Subordinate Skill	0.945	7
Prioritising Team Harmony	0.960	1

CONCLUSION AND RECOMMENDATIONS

Based on the findings of this study, the expert panel agreed that middle leaders, especially in educational organizations, require all the ten elements of the humanistic competency construct to carry out their tasks in managing organizational crises. Communication Skills, Negotiation Skills, Empathy, Humility, Ability to Develop Partnerships and Networks, Idealised Influence, Motivator Skills, Conflict Management Skills, Empower Subordinate Skills, and Prioritising Team Harmony are all the ten elements proposed in this humanistic competency construct. In addition, all the experts involved also agreed that all of these elements will make a middle leader more competent in crisis management. The current findings are consistent with previous studies on crisis management competence conducted by previous researchers (Alkhawlan, 2016; Abu Rumman, 2016; Hanslik, 2018; Dirani et al., 2020). Their studies, however, focus on organizational competency management in general, whereas the list of competency elements in this study is directed and focused on middle leaders in educational organizations.

Furthermore, this study has also successfully tested the ten elements required by middle leaders in crisis management, and all elements were ranked by expert consensus. All elements were accepted and passed the alpha cut the value of greater than 0.5 based on the FDM findings after the defuzzification process. The element with the highest fuzzy score (A) value was selected by the experts and placed first. This procedure applies to all ten elements in the order of priority, from first to tenth. Thus, the FDM can be used in decision-making (Ding, Kou, & Tai, 2019) related to the elements of crisis management competence for middle leaders. This discovery also demonstrates that the FDM can aid in the process of determining the importance of elements in the order of priority, with the most important competencies placed first.

In conclusion, this study has demonstrated that the construct of humanistic competency, which consists of ten major components, namely Communication Skills, Negotiation Skills, Empathy, Humility, Ability to Develop Partnerships and Networks, Idealised Influence, Motivator Skills, Conflict Management Skills, Empower Subordinate Skills, and Prioritising Team Harmony for the MOE middle leaders have received expert approval. After passing all three FDM conditions and successfully being tested, all elements are accepted with expert consensus.

In terms of research contributions, the findings of this study will benefit the theoretical evolution, policy development, and practice at large. In terms of theoretical evolution, this study contributes to the theory and practice of HRD, specifically in the context of Malaysia, the public sector, and the education field. As for policy development, the model developed in this study can serve as a guideline for organizations, especially the ones related to education to review their existing policy in order to enhance competencies among middle leaders in their organizations. In terms of practice for practitioners, this study can also be used as a guideline for middle leaders in dealing with their work, top leaders, and also

subordinates, especially during a crisis. Abo-Murad and Al-Khrabsheh (2019) stated that research and knowledge about crisis management in Malaysia are still underexplored and, therefore, it is difficult for people out there to find any reference regarding this crisis management area.

REFERENCES

- Abo-Murad, M., & AL-Khrabsheh, A. (2019). Turnover Culture and Crisis Management: Insights From Malaysian Hotel Industry. *Academy of Strategic Management Journal*, 18(2), 1–14.
- Abu-Rumman, S. B. (2016). The Impact of Transformational Leadership in Preparedness to CM. *Jordan Journal of Business Administration*, 407(3971), 1–17.
- Adler, M., & Ziglio, E. (1996). *Gazing into the Oracle: The Delphi Method and Its Application To Social Policy And Public Health*. Jessica Kingsley Publisher.
- Alkhawlan, M. A. S. (2016). *The Impact of The Leadership Styles on Crisis Management: A Study At Yemen Private And Public Institutions*. Master Dissertation, University Utara Malaysia.
- Atilgan, D., & Kaplan, T. (2022). Investigation of the relationship among crisis management, decision-making and self-confidence based on sports managers in Turkey. *Spor Bilimleri Araştırmaları Dergisi*, 7(1), 49-67.
- Dirani, K. M., Abadi, M., Alizadeh, A., Barhate, B., Garza, R. C., Gunasekara, N., Ibrahim, G., & Majzun, Z. (2020). Leadership Competencies and The Essential Role of Human Resource Development in Times of Crisis: A Response to Covid-19 Pandemic. *Human Resource Development International*, 00(00), 380–394. <https://doi.org/10.1080/13678868.2020.1780078>
- Ding, J., Kuo, J., & Tai, W. (2019). A Fuzzy Evaluation Model of Choosing a Middle Manager for an International Shipping Service Provider. *Brodogradnja*, 70(1), 93–107. <http://dx.doi.org/10.21278/brod70107>
- Bekdash, M. O. (2019). Leadership and Decision-Making Style for Airline Crisis Management in Emerging Markets. *Euromed J. of Management*, 3(2), 89. <https://doi.org/10.1504/emjm.2019.104324>
- Beram, S., Awang, M., Ismail, R., & Noor, N. (2021). Application of the Fuzzy Delphi Method to Organisational Leadership Competencies for Educational Middle Leaders. *Management Research Journal*, 10, 82-93. <https://doi.org/10.37134/mrj.vol10.sp.7.2021>
- Berliner, D. C. (2004a). Expert Teachers: Their Characteristics, Development and Accomplishments. *Formacio Del Professorat Ensenyament De Las Ciències Socials* (pp. 13-28). Barcelona, Spain.
- Boin, A., & Rhinard, M. (2023). Crisis Management Performance and The European Union: The Case of COVID-19. *Journal of European Public Policy*, 30(4), 655-675.
- Boyatzis, R. E. (1982). Leadership Motive Pattern and Long-Term Success in Management. *Journal of Applied Psychology*, 67(6), 737-743.
- Bowers, M. R., Hall, J. R., & Srinivasan, M. M. (2017). Organizational Culture and Leadership Style: The Missing Combination for Selecting the Right Leader for Effective Crisis Management. *Business Horizons*, 60(4), 551–563. <https://doi.org/10.1016/J.bushor.2017.04.001>
- Burnet T, John J.: A Strategic Approach to Managing Crises. *Public Relations Review* 24 (1998): 475-488 (1998)
- Cheng CH, Lin Y. (2002). Evaluating The Best Main Battle Tank Using Fuzzy Decision Theory With Linguistic Criteria Evaluation. *European Journal of Operational Research*, 142(1), 74-86.
- Chu H.C. & Hwang G.J. (2008). *A Delphi-Based Approach To Developing Expert Systems With The Cooperation Of Multiple Experts*. *Expert Systems with Applications* 2008, 34: 28, 26-40.
- Coldwell, D. A. (2017). Ethical Leadership in Crisis Management: The Role of University Education in Aida Alvinus (Ed.) *Contemporary Leadership Challenges*. *Intechopen*. 131-149. <https://doi.org/10.5772/65497>
- Clardy, A. (2008). The Strategic Role of Human Resource Development in Managing Core Competencies. *Human Resource Development International*, 11(2), 183–197. <https://doi.org/10.1080/13678860801932998>
- De Nobile, J. (2018) Towards a Theoretical Model of Middle Leadership in Schools. *School Leadership & Management*, 38(4), 395-416. <https://doi.org/10.1080/13632434.2017.1411902>
- Gani, A.S.A, Salim, B. and Udin, N.M. (2020) The Implementation of Risk Management in Malaysian Public Sector to Sustain Federal Government's Revenue. *International Journal Of Accounting, Finance and Risk Management*. 5(2), 76-83.
- Hallinger, P., & Wang, W. C. (2015). *Assessing Instructional Leadership with the Principal Instructional Management Rating Scale*. Dordrecht, Netherlands: Springer.
- Hanslik, M. K. (2018). *The Use of Charismatic Leadership In Crisis Management In Policing*. (Unpublished Master Dissertation). Texas State University.

- Hidayat, D., Anisti, Purwadhi, & Wibawa, D. (2020). Crisis Management And Communication Experience In Education During The Covid – 19 Pandemic In Indonesia. *Jurnal Komunikasi: Malaysian Journal of Communication*, 36(3), 67–82. <https://doi.org/10.17576/JKMJC-2020-3603-05>
- Jin, Y. (2010). Making Sense Sensibly in Crisis Communication: How Publics' Crisis Appraisals Influence Their Negative Emotions, Coping Strategy Preferences, And Crisis Response Acceptance. *Communication Research*, 37(4), 522-552.
- Katz, R. L. (1955). Skills of an Effective Administrator. *Harvard Business Review*, 33(1), 33–42.
- Le Deist, F. And Winterton, J. (2005). What Is Competence?. Human Resource Development. *International Human Resource Development International Journal*, 8(1), 27-46.
- Marneros, S., Papageorgiou, G., & Efstathiades, A. (2022). *Developing Hospitality Management Core Competencies Framework. Proceedings of the 5th International Conference on Tourism Research, 2022* .The School of Hospitality and Tourism.
- Mcclelland, J. L. (1976). Preliminary Letter Identification in the Perception of Words and Nonwords. *Journal of Experimental Psychology: Human Perception and Performance*, 2(1), 80-91. <https://doi.org/10.1037/0096-1523.2.1.80>
- Ministry of Education Malaysia (2018). *Yearly Report, 2017. Malaysia Education Blueprint 2013-2025*.
- Mohd, J.M.R., Siraj, S., Hussin, Z., Noh, M.N. & Arifin, M. (2014). *Pengenalan Asas Kedah Fuzzy Delphi Dalam Penyelidikan Dan Pembangunan*. Bangi, Minda Intelek.
- Mohd, J.M.R., Siraj, S., Hussin, Z., Noh, M.N. & Ahmad, A. S. (2017). *Pengenalan Asas Kaedah Fuzzy Delphi dalam Penyelidikan Reka Bentuk dan Pembangunan*. Selangor. Minda Intelek.
- Mohd, J.M.R and Noh, M.N (2020). *Kepelbagaian Metodologi dalam Penyelidikan Reka Bentuk dan Pembangunan* (Izra Noh, Ed.; second edition). Qaisar Prestige Resources.
- Peerayuth Charoensukmongkol & Tipnuch Phungsoonthorn, (2020). The Effectiveness of Supervisor Support in Lessening Perceived Uncertainties and Emotional Exhaustion of University Employees During the Covid-19 Crisis: The Constraining Role of Organizational Intransigence. *The Journal of General Psychology*, 148(4), 431-450.
- Rashidah, M., Siraj, S. & Hussin, Z. (2018). Aplikasi Kaedah Fuzzy Delphi Dalam Pembangunan Modul Pengajaran Pantun Melayu Berasaskan Maksud Al-Quran Mengenai Keindahan Flora, Fauna Dan Langit Tingkatan 2. *Jurnal Pendidikan Bahasa Melayu*. 8(2), 57-67.
- Siraj, S, Tony, L.A, & Rozkee, R.M. (2021). *Pendekatan Penyelidikan Rekabentuk dan Pembangunan: Volume 2*. Universiti Pendidikan Sultan Idris
- Skorková, Z., & Joniaková, Z. (2021). How to Lead Self-Government Employees Through the Crisis Empirical Evidence on Impact of Crisis Management Competencies on Team Performance in COVID-19 Pandemic. *Scientific Papers of the University of Pardubice, Series D: Faculty of Economics and Administration*, 29(1), 1-13. <https://doi.org/10.46585/sp29011246>
- Spencer, L., & Spencer, S. (1993). *Competence At Work* .(pp. 210–212). Library Of Courages Cataloging in Publication Data.
- Van Wart, M., & Kapucu, N. (2011). Crisis Management Competencies: The Case of Emergency Managers in the USA. *Public Management Review*, 13(4), 489–511. <https://doi.org/10.1080/14719037.2010.525034>
- Wang, J., & Hutchins, H. M. (2010). Crisis Management in Higher Education: What Have We Learned from Virginia Tech?. *Advances In Developing Human Resources*, 12(5), 552–572. <https://doi.org/10.1177/1523422310394433>
- Wei, Y.C. (2018). The Department Chair's Troubles: Leadership Role of Middle Managers. *Journal of Cases In Educational Leadership*, 21(4), 100–111. <https://doi.org/10.1177/155545891876748>
- Tang, L., Fan, B., Li, C., & Zhao, G. (2022). Empirical Evaluation of The Environmental Emergency Management Capability Of Local Governments In China. *Sustainability*, 14(11), 6760.
- Zadeh L.A. (1965). Fuzzy sets and systems, System Theory (Fox J., ed.). Microwave Research Institute Symposia Series XV, Polytechnic Press, Brooklyn, NY, 29-37. *Reprinted in Int. J. of General Systems*, 17, 1990, 129-138.
- Zamoum, K., & Gorpe, T.S. (2018). Crisis Management: A Historical and Conceptual Approach for a Better Understanding of Today's Crises. *Crisis Management - Theory and Practice*.