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Personnel needs assessment in times of crisis: a focus on management of disasters

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Abstract

Purpose – This study aims to explain the importance of human resources and attempts to identify the competencies required by the personnel involved in disaster management operations.

Design/methodology/approach – The research uses a qualitative methodology to explore the competencies required by the relief workers using a content analysis approach to analyze the disaster literature and the job advertisements. The data for the content analysis was developed with the help of 23 independent coders, and exploratory inferences were drawn.

Findings – A detailed review of the literature highlighted the importance of competent personnel in disaster relief organizations. The analysis listed 34 mutually exclusive competencies and their relative importance, which were further divided into four competency clusters. The study also creates a competency dictionary that defines the competencies with the expected behaviors.

Practical implications – Deploying the right resources in the acute time frame during a disaster event can make a difference, and with lives at stake, such deployment acquires prime importance. In addition to contributing to humanitarian logistics literature, the competency model developed will also help forecast the future requirements and help the organization choose "the right person for the right job."

Originality/value – The inferences drawn in the study are based on disaster management areas, unlike earlier research which also considered business logistics research.

Keywords Competency models, Content analysis, Disaster management, Humanitarian logistics, Job analysis

Paper type Research paper

1. Introduction

With increasing competition globally, the business landscape is also operating in an entirely volatile, uncertain, complex and ambiguous environment to which a linear model of response might only have organizations turn a blind eye to reality. Surviving in such fierce competition and constant changes is a new crisis that organizations worldwide have to face today (Kutz & Wade, 2013) and it is not likely that any linear model of response could help them.

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Besides, the adverse effects of human behavior on the natural environment activated climate change like never before. The increasing number of natural and man-made disasters around the world triggered an increasing amount of research in this field. Most of the disasters today have revealed that no country is fully equipped with relief resources that can be deployed for every magnitude of disasters. In a developing nation like India, where the adult literacy rate is 69.3% (United nations educational, scientific and cultural organization, 2021), it is all the more difficult for local communities to respond to the increasing intensity of disasters. Be it the Uttarakhand Cloud burst or the Visakhapatnam Cyclone or the Chennai floods, the traditional knowledge of the local communities could not effectively help facilitating relief operations.

The increasing magnitude of disasters and the exponentially increasing number of people affected bring relief organizations from across the globe to the disaster site Emergency Events Database (2021). In such emergencies, inter-organizational collaboration plays a key role and its efficiency can be determined by the collaborative approach of the relief personnel (Forsman, 2002; Kamarck, 2004; Poulin, 2009).

There is major evidence within the literature that the capacity-building initiatives of the human resources concerned with the humanitarian organizations are commonly neglected as a result of lack of time and money (Lewis, 2003; McLachlin, Larson, & Khan, 2009; Thomas & Kopczak, 2005; Strakos, 2013). The fact that 27% of the relief staff have no access to channelized training solely worsens the state of affairs (Thomas & Mizushima, 2005). The need for a competent humanitarian workforce is increasing at a rate of 6% a year (Walker Hein, Russ, Bertleff, & Caspersz, 2010) and lack of professional education and training is only intensifying the problem. Adding to this is the stressful nature of the work of humanitarian logisticians and the ineffective model of performance evaluation, leading to high attrition in the organizations operating in this sector (Chandes & Pache, 2010; Davidson, 2006). Davidson (2006) also points out the demotivating nature of performance evaluation, which often highlights inefficiency and brings about suspicion.

On the top of the critical success factors that determine the effectiveness of the performance of disaster relief operations is a skilled workforce (Pettit & Beresford, 2009; Meduri & Rao, 2020), who knows almost everything about the nature and consequences of the disaster, except the people they are required to work with and for (Hester, 2005). In a crisis that needs human intervention to respond effectively, matching the labor supply with the right competencies to the unexpected demand becomes the ultimate challenge (Meduri & Ahmed, 2017). Over the years, with the experience put in by the humanitarian organizations, they can comfortably overcome the challenge; however, the "right" nature of the supply remains a question even today. With human lives at stake and the acute timeframe, the humanitarian efforts become even more challenging.

Humanitarian research often highlights the "definite need to develop the skills of humanitarian logisticians so as to provide better relief to the affected in the minimum possible time" (Kovács Tatham, & Larson, 2012). Any disaster situation attracts many donations in terms of money, clothes, groceries, etc., but the competent personnel required to collect, sort and distribute it is often no match (Meduri & Ahmed, 2017).

Walker *et al.* (2010) highlighted the need to create and develop professional training programs that can help standardize the humanitarian competencies required for effective relief worldwide. The current article focuses on building the personnel teams that can handle sudden on-set disasters, natural or man-made and the detail of the competencies of such personnel, which improves the efficiency of relief operations.

2. Theoretical review

Disaster research has increased exponentially since the 1990s and the reasons are well-supported by EM-DAT data, which shows a significant increase in the number of disasters that occurred across the world (Guha-Sapir, Hoyois, Wallemacq, & Below, 2017). Less than 30 disasters were registered in 1990, while 2019 reported over 463 disaster events across the Indian Sub-Continent (EM-DAT), with the number of people affected increasing from 100 to 700 million over time. This enabled the research community to study the processes, technologies and possible solutions more thoroughly: from 846 research records in 1990 to over 50,342 records in 2019 (Proquest). With the increasing focus on disaster management by humanitarian organizations, local governments, international associations and academia, it is crucial to understand what the people involved in the process are required to know. Also, it is pertinent to remember that disasters can only be managed, their impacts can only be reduced but not prevented totally. Hence, the current article intends to study the humanitarian logistics (HL) dimension of disaster management so that the vulnerability of the affected can be reduced.

Ever since the Indian Ocean Tsunami in 2004, which was the biggest not only in terms of the havoc it has created and the damage it has done but also to the level of relief operations that were carried, humanitarian organizations started to redefine their strategies and operations. In India, a structured organization, National Disaster Management Authority was created after the disastrous tsunami and the National Disaster Response Force was trained to carry out relief operations. The Disaster Management Act (2005) was also defined post the event. Thomas and Kopczak (2005) defined HL as:

> [. . .] the process of planning, implementing and controlling the efficient, cost-effective flow and storage of goods and materials, as well as related information, from the point of origin to the point of consumption for alleviating the suffering of vulnerable people. The function encompasses a range of activities, including preparedness, planning, procurement, transport, warehousing, tracking and tracing, customs clearance etc.

To keep it simple, Russell (2005) defines it as a process "to procure, transport, receive and distribute supplies to the site of relief," while Van Wassenhove (2006) defines HL as "the processes and systems involved in mobilizing people, resources, skills and knowledge to help vulnerable people affected by the disaster."

2.1 Why competency library?

Ever since the seminal paper of McClelland (1973), the use of competency models knew no barrier. Though intended to be used in academic institutions, business organizations embraced competency models for more considerable benefit. Competencies, unlike skills, include behavioral attributes of an individual, which are observable, measurable and trainable. These are underlying attributes of an individual required to achieve a superior performance required on the job (Boyatzis, 1982). Over the years, many organizations and associated research also proved a significant and positive change in the performance of the organizations that adopted a competency model (Martone, 2003; Stephen & Neville, 2012). In addition, the general application nature of competency models makes them simple to develop and implement a model for any organization and business type.

A good amount of research was carried out to identify the competencies required by logistics and supply chain professionals of business organizations (Gowen & Tallon, 2003; Knight, Harland, Walker, & Sutton, 2005; Mangan & Christopher, 2005; Thai, Cahoon, & Tran, 2011; Van Hoek, Chatham, & Wilding, 2002; Sohal, 2013). However, evidence of competency models in the humanitarian context is minimal. Humanitarian researchers

strongly recommended the need for identifying and developing detailed competency models and define the standards of skill requirements of the emergency relief personnel (McCall & Salama, 1999; Chang, 2005; Mashni, Reed, Sasmitawidjaja, Sundhagul, & Wright, 2005; Alexander, 2003; Forsman, 2002; Heaslip *et al.*, 2019; Khan, Lee, & Bae, 2019; Besiou & Van Wassenhove, 2020), which can, in turn, develop the sustainability of HL (Khan, Sarmad, Ullah, & Bae, 2020).

In the humanitarian context, Tracey and Smith-Doerflein (2001), Kerka (2003), Gustavsson (2003) and Catts and Chamings (2006) supported the "use of competency frameworks for improved performance of the personnel." Gustavsson (2003), through a thorough experience analysis of humanitarian organizations and the context and challenges often faced by them, suggested that "competency-based capacity building initiatives and mechanisms" are developed and supported. The researcher also identified that the three major challenges faced by the humanitarian organizations are the movement of emergency relief staff that is often increasing cost; the lack of depth of knowledge of the relief workers; and the low investment in the communication technology. The study emphasizes that the depth of knowledge is to be improved through competency-based knowledge systems. As an outcome of this study, World Vision International, a relief organization, started working with the Australian Ministry of Education to create competency frameworks for its emergency relief personnel.

Walton, Mays, and Haselkorn (2011) emphasized that the complexity of disaster relief operations requires the personnel to be "skilled decision-makers" and have an organizational structure that enables a "bottom-up" decision-making process. A competency-based approach in this context helps to develop a model that points out the underlying characteristics of an individual leading to superior performance. These competencies will not only define the knowledge and skills but also highlight certain innate qualities that can impact the effectiveness of the humanitarian relief.

The skills models are not new in the humanitarian sector, and this is evident from the works of Maspero and Ittmann (2008), Kovács and Tatham (2010), Kovács and Spens (2011) Kovács *et al.* (2012), Allen Kovács, Masini, Vaillancourt, and Van Wassenhove (2013), to name just a few. The landmark study by Tatham, Kovács & Larson (2010) attempted to study the nature of skills required by the humanitarian logisticians. Though the research found its base on the T-shaped model of the business logistics skills (modified from Mangan & Christopher, 2005; Tatham & Kovács, 2009), it developed a skill model for humanitarian organizations. Interesting facts revealed that the business logistics skill models cannot be adopted directly into emergency relief contexts, and organizations should also develop the models specific to disaster management. The study also suggested that a detailed primary analysis of the skills required by the humanitarian workers would help create a new T-shaped model for the humanitarian organizations.

However, these models highlight the need for technical skills required by the emergency relief workers, but the behavioral attributes are not considered. Meduri and Ahmed (2017) highlight the necessity of including the behavioral attributes in a humanitarian set up and suggest a detailed model of the personal characteristics of humanitarian workers. Taking a cue from this, the current study intends to create a defined competency framework that includes the personal characteristics required of an emergency relief worker.

A *competency library* is a list of competencies required by the job along with their behavioral definitions (Rodriguez *et al.*, 2002; Pick & Uhles, 2012). It promotes a common language of expectations on the job and brings in a reasonable amount of clarity among all the stakeholders of the job (Nansubuga & Munene, 2013; Misra & Sharma, 2017). In a highly dynamic disaster management setting, every relief worker may have to wear multiple hats,

but the foundational job responsibilities are still required to be communicated and understood with clarity to a great extent.

The development of a competency framework is often planned to be used for developmental purposes, but in time, they tend to be used deductively for performance measurement, selection decisions and can significantly impact the positive nature of the frameworks (Bolden, 2005). What makes the competency models different from the skill frameworks is the behavioral definitions of the competencies that define each competency as required by the job families expected to use the model. The current study intends to present such behaviors required during disaster relief and rescue operations. These behaviors need not necessarily be similar to the ones required for business organizations. For example, leadership in business organizations may be defined as the ability to lead multi-culture teams to desired outcomes and these behaviors are generally exhibited through, whereas in a disaster operation, leadership is the ability to bring together different response teams and lead operational response teams, ground efforts and personnel processes in the shortest possible period.

The current article shall define the humanitarian logistician's competencies and also the job's behavioral expectations. The competency framework might as well help business organizations develop managers who also might operate in a complex and dynamic environment.

3. Research methodology

To develop usable competency models, the process of competency identification plays a crucial role. Pottinger's (1975) is one of the earliest works that discussed identifying competencies, but the work was restricted to academic competencies. DeFillippi and Arthur (1994) suggest a networked repository of skills possibly required by the organization that can be accessed and the competencies can be chosen as per the requirement of the job. Rodriguez, Patel, Bright, Gregory, and Gowing (2002) used behavioral questionnaires to collect data from the job incumbents and the supervisors to identify competencies. Finally, Patterson, Ferguson & Thomas (2008) used job analysis and conducted a content validity of the job analysis to identify competencies required for the jobs in question.

Together with the increasing research in the competency frameworks and the increase in the number of organizations adopting competency frameworks, a need to develop competency models for humanitarian organizations is also evolving. Therefore, a careful review of HL literature is crucial. Table 1 below presents a list of 31 competencies required by humanitarian logisticians, which were grouped from the original 110 competencies found, to remove redundancy.

Also, there is a general agreement that the job analysis does not give a complete picture of the actual responsibilities on the job (Taber & Peters, 1991) but is still used extensively in all personnel-related decisions in any organization. Hence, even for this study, it is assumed that the human resources decisions are carried out based on the job analysis used for the job advertisements; therefore, the competency model that we developed will only apply to the extent to which the job analysis is complete.

The current study attempts to analyze the contents of the job advertisements, for which the basis is the job analysis documentation maintained by the organizations. There is a significant amount of evidence from the literature, in which job advertisements are used to identify competencies required by the job through content analysis (Ahmed, 2005; Kennan *et al.*, 2009; Kennan, Cecez-Kecmanovic, Willard, & Wilson, 2009; Clyde (2002); Meduri & Ahmed (2015); Pooley & Dunn, 1994; Tatham *et al.*, 2010; Carliner *et al.*, 2015; Meduri & Ahmed, 2017). A similar methodology is adopted in the current study to identify the

S. no.	Competency	Author (s)
1	Ability to prevent exploitation and abuse	Harrell-Bond (2002)
2	Adaptability	Waugh & Streib (2006), Maon, Lindgreen, & Vanhamme (2009), Klumpp & Abidi (2012), Aardema & Muguruza (2014), Meduri & Ahmed (2017), Nazar & Nazar (2020)
3	Analytical thinking	Klumpp & Abidi (2012), Aardema & Muguruza (2014), Diwan (2010), Perry (2007), Waugh & Streib (2006), Tatham, Kovács & Larson (2010), Aardema & Muguruza (2014)
4	Approachability	Harrell-Bond (2002), Waugh & Streib (2006), Voak (2011), Multinational Interoperability Council Coalition Guide (2012), Meduri & Ahmed (2017)
5	Business process knowledge	Waugh & Streib (2006), Maon *et al.* (2009), Aardema & Muguruza (2014)
6	Capacity building	Harrell-Bond (2002), Tatham, Kovács & Larson (2010), Idris & Soh (2014), Humanitarian education and training conference report (2011), Aardema & Muguruza (2014)
7	Coordination	Gustavsson (2003), Waugh & Streib (2006), Perry (2007), Maon *et al.* (2009), Humanitarian education and training conference report (2011), Aardema & Muguruza (2014), Meduri & Ahmed (2017), Maon *et al.* (2009), Tatham, Kovács & Larson (2010), Majewski *et al.* (2010), Idris & Soh (2014), Klumpp & Abidi (2012), Multinational Interoperability Council Coalition Guide (2012), Heaslip *et al.* (2019)
8	Communication	Walton *et al.* (2011), Waugh & Streib (2006), Maon *et al.* (2009), Walker *et al.* (2010), McGovern (2014), Voak (2011), Klumpp & Abidi (2012), Multinational Interoperability Council Coalition Guide (2012), Meduri & Ahmed (2017), Tatham, Kovács & Larson (2010), Nazar & Nazar (2020)
9	Conflict management	Waugh & Streib (2006), Meduri & Ahmed (2017)
10	Decision-making	Waugh & Streib (2006), Aardema & Muguruza (2014)
11	Documentation	Tatham, Kovács & Larson (2010), Klumpp & Abidi (2012)
12	Empathy	Walker *et al.* (2010), McGovern (2014), Voak (2011), Meduri & Ahmed (2017), Nazar & Nazar (2020)
13	Field experience	Maon *et al.* (2009), Klumpp & Abidi (2012), Aardema & Muguruza (2014), Tatham, Kovács & Larson (2010), Heaslip *et al.* (2019)
14	Financial literacy	Aardema & Muguruza (2014), Diwan (2010), Tatham, Kovács & Larson (2010), Klumpp & Abidi (2012)
15	Resource management	Diwan (2010), Meduri & Ahmed (2017), Gustavsson (2003), Tatham, Kovács & Larson (2010)
16	Information technology	Gustavsson (2003), Maon *et al.* (2009), Tatham, Kovács & Larson (2010), Majewski *et al.* (2010), Idris and Soh (2014), Aardema and Muguruza (2014), Perry (2007), Walker *et al.* (2010), Klumpp and Abidi (2012), Heaslip *et al.* (2019)
17	Integrity	Maon *et al.* (2009), Walker *et al.* (2010), Aardema and Muguruza (2014), Meduri and Ahmed (2017), Tatham, Kovács & Larson (2010), Klumpp and Abidi (2012), Nazar and Nazar (2020)
18	Interpersonal skills	Meduri and Ahmed (2017), Tatham, Kovács & Larson (2010), Klumpp and Abidi (2012), Walker *et al.* (2010), Catts and Chamings (2006), Humanitarian education and training conference report (2011), Aardema and Muguruza (2014), Perry (2007), Majewski *et al.* (2010)
19	Knowledge related to disaster management	Maon *et al.* (2009), Klumpp and Abidi (2012), Diwan (2010), Heaslip *et al.* (2019)

(*continued*)

Table 1.
Refined competencies from literature review

S. no.	Competency	Author (s)
20	Leadership	Gustavsson (2003), Waugh and Streib (2006), Perry (2007), Tatham, Kovács & Larson (2010), Idris and Soh (2014), McGovern (2014), Humanitarian education and training conference report (2011), Voak (2011), Klumpp and Abidi (2012), Aardema and Muguruza (2014), Meduri and Ahmed (2017)
21	Logistics and supply chain management	Gustavsson (2003), Maon *et al.* (2009), Idris and Soh (2014), Tatham, Kovács & Larson (2010), Perry (2007), Klumpp and Abidi (2012), Perry (2007), Majewski *et al.* (2010), Perry (2007), Heaslip *et al.* (2019)
22	Mentoring	Aardema and Muguruza (2014), Meduri and Ahmed (2017), Klumpp and Abidi (2012)
23	Multicultural sensitivity	Waugh and Streib (2006), Idris and Soh (2014), Humanitarian education and training conference report (2011), Klumpp and Abidi (2012), Multinational Interoperability Council Coalition Guide (2012), Aardema and Muguruza (2014), Perry (2007)
24	Multi-tasking	Walker *et al.* (2010), Idris and Soh (2014), Meduri and Ahmed (2017)
25	Personal credibility	Catts and Chamings (2006), Maon *et al.* (2009), Idris and Soh (2014), Aardema and Muguruza (2014), Meduri and Ahmed (2017), Klumpp and Abidi (2012), Waugh and Streib (2006), Walker *et al.* (2010), Voak (2011)
26	Risk evaluation	Tatham, Kovács & Larson (2010), Klumpp and Abidi (2012), Heaslip *et al.* (2019)
27	Service orientation	Harrell-Bond (2002), Aardema and Muguruza (2014), Meduri and Ahmed (2017)
28	Stakeholder management	Tatham, Kovács & Larson (2010), Majewski *et al.* (2010)
29	Statutory compliance	Maon *et al.* (2009), Idris and Soh (2014), Aardema and Muguruza (2014), Tatham, Kovács & Larson (2010)
30	Strategic orientation	Maon *et al.* (2009), Tatham, Kovács & Larson (2010), Majewski *et al.* (2010), Humanitarian education and training conference report (2011), Klumpp and Abidi (2012), Aardema and Muguruza (2014), Heaslip *et al.* (2019)
31	Stress management	Maon *et al.* (2009), Tatham, Kovács & Larson (2010), Klumpp and Abidi (2012), Aardema and Muguruza (2014), Meduri and Ahmed (2017)

Table 1.

competencies required by the relief organizations in India through the job advertisements posted in ReliefWeb (humanitarian information portal between March–July 2018). The keywords used for the search were "humanitarian logistician," "emergency relief worker," "field volunteers," etc., and the results were filtered by country name – "India." Out of the 73 job advertisements that resulted, 44 were chosen for the study from different organizations to eliminate redundancy.

The 44 job advertisements were given to 23 coders who were identified and showed interest in the task. They were all knowledgeable about the competency frameworks. While roping them into the project, they were trained by the authors on identifying competencies from job advertisements in a 6-h training program, in which we explained the scope and objectives of the project. When the job advertisements used for the current study were shared, a sample coding of an advertisement (which was not among the 44 advertisements used for the study) was also shared. The coders were briefed through telephonic, online or personal conversation and coded the job advertisements for the competencies required by the relief organizations into 109 competencies.

Krippendoff's alpha was calculated to be 0.74, which confirmed the reliability of the content analysis since, according to Landis and Koch (1977) and Krippendorff (2012) standards, the reliability of the data is *moderate*, and thus, can be used for drawing conclusions.

3.1 Limitations

Even though a competency framework presents a clearer picture of the job responsibilities, it is also often criticized for showing a fragmented complexity of the disaster terrain in specific (Bolden, 2005). Hence, the model that we proposed through the analysis must only be used to guide further into the area of competency mapping for humanitarian logisticians but not declared as the final model. The proposed competency model must be tested empirically to understand its final usability. The further empirical investigation may validate the model.

4. Analysis

The 44 job advertisements from different job portals were given to 23 experts who were either trained or had experience identifying competencies from the job analysis (advertisements). The experts coded the job advertisements for the competencies required by the relief organizations and clustered them into 109 competencies. However, to remove redundancy, the competencies were grouped based on the characteristics of each. For example, "relationship management," "client orientation," "stakeholder management," "donor relationship," "human resource management" were all grouped under the competency "stakeholder management" in the new model, which finally contained 34 mutually exclusive competencies as presented in Table 2.

The analysis showed that the emergency relief workers require these competencies in one level of proficiency or the other. Although the competencies are intended to describe an independent set of attributes, behaviors, skills and other individual characteristics, there is

Table 2. Competencies of a humanitarian logistician

Skill no.	Competency	Skill no.	Competency
1	Ability to prevent exploitation and abuse	18	Interpersonal skills
2	Adaptability	19	Knowledge related to disaster management
3	Analytical thinking	20	Leadership
4	Approachability	21	Logistics and supply chain management
5	Attention to detail (accuracy)	22	Mentoring
6	Business process knowledge	23	Strategic orientation
7	Capacity building	24	Multi-tasking
8	Communication	25	Multicultural sensitivity
9	Conflict management	26	Openness
10	Coordination (internal and external)	27	Personal credibility
11	Decision-making	28	Presentation
12	Documentation	29	Resource management
13	Empathy	30	Risk evaluation
14	Field experience	31	Service orientation
15	Financial literacy	32	Stakeholder management
16	Information technology	33	Statutory compliance
17	Integrity	34	Stress management

an unseen tendency for the behaviors to overlap. Further empirical analysis of much deeper data might help eliminate such intersections and keep only mutually exclusive competencies.

Though the same set of job descriptions were given to all the competency coders and similar instructions about identifying competencies, not all coders identified the competencies the same way. As with any data collection model, the content extraction also accepts such errors. The mean value of competency data did not provide any useful information. As we are more interested in how often each job uses these competencies, we consider the frequency of their appearance. Table 3 presents the frequency of competencies identified. The more the competency is identified, the more important it is considered. It is interesting to note that three competencies were not identified through the literature review but were required by the relief organizations, namely, *attention to detail (accuracy)*, *openness* and *presentation*. Based on the frequency, *leadership*, *interpersonal skills*, *communication* and *personal credibility* are the competencies that were more frequently identified in the job advertisements with a frequency of 499, 455, 449 and 423 observations, respectively, while the least identified competency is the *ability to prevent exploitation and abuse* with a frequency of 6.

Table 3.
Frequency and relative weights of the competencies

Skill no.	Competency	Frequency	Cluster
20	Leadership	499	Personal
18	Interpersonal skills	455	Personal
8	Communication	449	Personal
26	Personal credibility	423	Personal
33	Strategic orientation	375	Functional
31	Stakeholder management	313	Functional
10	Coordination (internal and external)	309	Functional
29	Risk evaluation	248	Technical
6	Business process knowledge	237	Functional
3	Analytical thinking	235	Technical
23	Multi-tasking	229	Personal
7	Capacity building	207	Functional
19	Knowledge related to disaster management	154	Specific to disaster
16	Information technology	152	Technical
21	Logistics and supply chain management	146	Functional
17	Integrity	139	Personal
24	Multi-cultural sensitivity	122	Specific to disaster
2	Adaptability	95	Personal
27	Presentation	95	Technical
34	Stress management	85	Personal
12	Documentation	84	Technical
11	Decision-making	83	Functional
15	Financial literacy	73	Technical
28	Resource management	72	Functional
14	Field experience	61	Specific to disaster
32	Statutory compliance	59	Functional
30	Service orientation	57	Personal
22	Mentoring	47	Personal
5	Attention to detail (accuracy)	27	Technical
25	Openness	23	Personal
9	Conflict management	21	Personal
4	Approachability	17	Personal
13	Empathetic	10	Personal
1	Ability to prevent exploitation and abuse	6	Personal

Our list can be directly used for further analysis. However, it is common in the competency research to form competency clusters that categorize similar competencies (Houston & Howsam, 1972; McLagan, 1989; Ponterotto, Alexander, & Grieger, 1995; Salmon, 2000; Patterson *et al.*, 2000). The current study uses the model developed by Katz (1955), which contains three clusters, namely, *human*, *technical* and *conceptual* competencies, modified to be called *functional, personal* and *technical* competencies. Also, a new category was added to suit the disaster management research and called *specific to disaster*:

- Functional: The functional competencies cluster comprises competencies specific to a role in disaster relief operations. These competencies are more process-driven, which might be similar to the processes of business organizations, but the time and environment involved differentiates them from the business functional competencies.
- Personal: The personal competencies cluster included those competencies that defined an individual's personal and innate attributes that influenced disaster relief and rescue operations. The fundamental nature of these competencies indicates that they are more instinctive and define the personality of the individual involved in the rescue operations.
- Technical: The technical competencies cluster included competencies that are required to bring in effective control. These competencies are trainable and over a period of time, if exercised continuously, these skills turn into tacit knowledge and become a habit.
- Specific to disaster: Certain competencies cannot be included in any of the above clusters. These competencies are specific to disasters and disaster management.

The above classification does not alter the nature of competencies nor change the behavioral definition. The clusters only help us define the decision points for making personnel decisions. For example, the competencies listed under the technical cluster are trainable and a candidate who shows "adaptability" may learn them in time, whereas the competencies listed in the Personal cluster are more innate characteristics and require an individual to have them already. The organizations may conduct "awareness programs" about the competencies in the Personal cluster to make employees aware of how these competencies impact the relief operations, but it depends entirely on the individual to convert this awareness into tacit knowledge. Table 3 presents the frequency of observation of the competencies and the cluster that such competency belongs to.

This analysis reveals that the more innate and yet trainable competencies, such as leadership, interpersonal skills, communication and personal credibility, are the most sought-after competencies by relief organizations. Though earlier research focused more on skill models, which highlighted technical skills, the analysis of the current article showed that personal attributes define the "rightness" of the candidate more suitable for the responsibilities of a relief worker.

A closer look at the clusters shows the need for classification and the relative importance of each cluster. For example, the Personal competencies cluster presents competencies such as integrity, service orientation and openness that are more innate and define the difference between each individual. The initiatives of the humanitarian organizations might improve such competencies, but the basic level of proficiency should already be the defining attribute of the individual.

All the other competencies of other clusters are trainable and the extent of proficiency can be determined by the effectiveness of the training and development initiatives of the

humanitarian organizations. Hence, the clusters depicted in Table 3 must be the competencies required by all the personnel involved in emergency relief operations.

The competency model proceeds to the next level of mapping only when the competencies are defined. The fundamental objective of competency mapping is to bring objective clarity in defining the competencies included in the model (Boyatzis, 1982; Parry, 1996; Draganidis & Mentzas, 2006). This process of defining competencies not only brings in objective clarity but also attempts to eliminate the influence of perceptual differences that might occur during the implementation of competency models. Hence, it is essential that the current study also defines the competencies from a behavioral point of view, as presented in Table 4 below:

The clustering and the behavioral definition of the competencies enable the decision-makers to make more rational and relevant decisions. Identifying, training and deploying the "right" relief worker for the nature of the relief operation can make a massive difference in the efficiency of such operations.

5. Conclusion

The increasing number of disasters with multiplied intensity forced nations to focus on disaster management strategies. Increased awareness and focused research contributed to a better preparedness of different communities for facing, responding and recovering from disasters. However, with rapid climate change and depleting quality of natural resources, the increase in natural disasters has become evident, suggesting that we be better prepared.

As there is an absolute need to professionalize disaster relief operations, evaluating the quality of human resources involved in implementing all relief strategies is pertinent. Therefore, the current study attempted to understand the personnel requirements of the humanitarian organizations and developed a conceptual model of the competencies required as per the job advertisements and the relevant research in disaster management.

Based on the literature review, the most frequently cited competencies are coordination, communication, interpersonal skills, leadership, information technology and analytical thinking. From the content analysis carried out in the present article, the most frequently observed competencies are leadership, interpersonal skills, communication, personal credibility, strategic orientation, stakeholder management and coordination. In addition, the content analysis of the job advertisements has added three more competencies to the list, namely, attention to detail (accuracy), openness and presentation.

For the purpose of the study, the competencies were divided into four clusters or categories, namely, personal competencies, technical competencies, functional competencies and competencies specific to disaster management. Of the 34 competencies, 16 were identified as personal competencies, 6 as technical competencies, 9 as functional competencies and 3 as competencies specific to disaster management.

5.1 Scope for further research

The current competency model is designed based only on the review of the literature and the content analysis of job advertisements. Though the reliability tests allow the model to be used, the practical usability can only be determined after it is empirically tested. Therefore, a further study is planned using the current article's competency model, which will be validated through primary data from ground-level first responders.

A behaviorally anchored questionnaire must be elaborated to understand the real-time competencies that help in disaster relief operations. Also, the scale developed must record the frequency of such usage and its impact on the efficiency of relief operations.

Skill no.	Competency	Behavioral definition
1	Ability to prevent exploitation and abuse	Possess the ability to stop maltreatment of any individual
2	Adaptability	Ability to quickly alter styles to fit the situation
3	Analytical thinking	Ability to break down complex problems into simple and manageable components
4	Approachability	Exhibit friendly gestures to make people comfortable
5	Attention to detail (accuracy)	Work done requires little or no checking
6	Business process knowledge	Knowledge of inter-related business processes critical for decision-making
7	Capacity building	Ability to train people on relief-specific competencies
8	Communication	Ability to read, write and speak in a way that the receiver understands it as intended
9	Conflict management	Ability to resolve conflicts between groups through discussions
10	Coordination (internal and external)	Ability to interact and manage the different parties involved in disaster relief
11	Decision-making	Ability to think and rightly choose from the best alternatives
12	Documentation	Ability to record every activity for future reference
13	Empathetic	Ability to understand others' emotions standing in their shoes
14	Field experience	Possess on-field experience in managing an emergency
15	Financial literacy	Ability to understand financial terms and maintain monetary transactions
16	Information technology	Ability to operate computers effectively. Ability to understand software easily
17	Integrity	Possess the quality of being honest and have strong moral values
18	Interpersonal skills	Ability to get along well with people while getting the job done
19	Knowledge related to disaster management	Possess knowledge related to different disasters and understand the appropriate relief measures
20	Leadership	Ability to lead a group with a clear direction
21	Logistics and supply chain management	Understand the activities related to planning, implementation and control of resources from their point of origin to the point of consumption
22	Mentoring	Provide emotional support and feedback to improve the team's performance
23	Multi-tasking	Ability to effectively handle multiple activities simultaneously
24	Multicultural sensitivity	Aware of the differences and similarities from multiple cultures
25	Openness	Ability to easily build rapport with people and make them feel comfortable
26	Personal credibility	Personal quality of taking responsibility and feel accountable to team's performance
27	Presentation	Ability to present data and information in a way that is easily understood by every stakeholder
28	Resource management	Ability to effectively deploy resources when and where they are required
29	Risk evaluation	Ability to estimate risk during uncertainty
30	Service orientation	Exhibit a desire to help people beyond limits
31	Stakeholder management	Ability to form, monitor and maintain constructive relationships with every stakeholder involved in disaster relief
32	Statutory compliance	Understand and adhere to regulatory norms
33	Strategic orientation	Possess an ability to define the future direction of the organization
34	Stress management	Exhibit calmness under intense pressure

Table 4.
Behavioral definition of competencies

5.2 Practical implications

Human resource competency models can be used to cater to a variety of needs. For example, some organizations use the model to make selection decisions, while some use it to design compensation structures. Some organizations use the model to identify training needs and design development initiatives, while others use it to understand talent gaps. The variety of usabilities makes many organizations embrace competency modeling, even though the process demands time and cost to develop and implement.

The competency model developed here will not only help the relief organizations understand their present capabilities but also forecast the future requirements. Though the model does not include the in-depth technical training currently focused on, it will surely help the organizations choose "the right person for the right job." In addition, the model helps them classify the different operations so that personnel allocation and distribution at the time of emergencies becomes less complex.

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