# Guest editorial



## 1. Research methods in humanitarian logistics

### *1.1 Background and introduction*

Research in humanitarian logistics is maturing, and numerous calls have been made for not only empirical research, but also mixed methods in humanitarian logistics and operations research. Currently, mixed methods are not used and empirical evidence in publications is scant, thereby undermining both the rigor and the relevance of humanitarian logistics research. There is no shortage of ideas, however – 43 review articles alone could be found in the last decade (see Kovács and Moshtari, 2019 for a meta-analysis of these). Conceptual papers and studies on models, which are based on assumptions and tested by hypothetical data, are abundant. To increase the quality of research (i.e. relevance and method rigor), scholars have suggested a number of strategies. These include reaching out to humanitarian organisations and formulating research questions (Kunz *et al.*, 2017), using real and field data (e.g. Gupta *et al.*, 2017), understanding the pros and cons of research methods in humanitarian logistics, matching the methods and research questions in humanitarian logistics (Kovács *et al.*, 2018), taking a complementarity view on the different types of methods (i.e. explorative, theory building, theory testing and analytical modelling), collaborating with researchers with expertise in different methods, and using a mixed-methods approach. However, not only are there no mixed methods, but empirical evidence in publications is scant, and this has undermined the rigor and relevance of humanitarian logistics research. Aside from the capability trap, which can serve as a barrier to using multiple methods, another issue may be related to the fact that researchers are not fully acquainted with the limitations of their set of methods and the positive value and potential of other methods.

Humanitarian logistics, humanitarian operations and supply chain management need evidence-based decision-making, and therefore, empirical research. Researchers, however, struggle to gain access to the field and to apply the various methods. Notwithstanding, there is no shortage of data (Starr and van Wassenhove, 2014). Apart from the vast number of humanitarian organisations and their programmes, there are also increasing volumes of data online and even endeavours to share data in this field via, for example, the Humanitarian Data Exchange and the Humanitarian OpenStreetMap. All the same, questions have arisen regarding the quality of the data, data gaps and missing data vs Big Data (Gupta *et al.*, 2017; *JHLSCM*'s special issue 2016, Vol. 6 No. 3) – and the availability of relevant data for a particular decision.

Relevant data can also originate from other angles, such as forecasting the path of a hurricane for evacuation models, meteorological data for mobilisation, natural hazard patterns for facility location, migration data for planning integrated development plans and refugee programmes, agricultural production data for potential famines, pandemic data for various health crises, and political risk monitoring for general crisis outbreaks. Humanitarian logistics therefore can – and does – borrow insights and theories from related disciplines (Tabaklar *et al.*, 2015), not just logistics, operations, and supply chain management. Disaster management, cartography, geology, meteorology, peace research, epidemiology, public health, among others, are also considered. Nonetheless, humanitarian logistics can do more in this regard when it comes to research methods.

## 2. Problematisation of data access and how to overcome it

Apart from an abundance of modelling approaches in humanitarian operations (for a recent review, see Kovács and Moshtari, 2019), there have been repeated calls for more

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evidence-based studies in humanitarian logistics and supply chain management (Kunz *et al.*, 2017), not least as a basis for modelling (Starr and van Wassenhove, 2014). There are, however, some hurdles to overcome to be able to collect empirical data, including:

- a lack of access to disaster areas and conflict zones;
- the impact of disaster on, for example, transport, energy, and telecoms infrastructure, which can make data collection more difficult and time-consuming, or data collected beforehand obsolete;
- not wanting to stand in the way of aid delivery during a disaster when collecting data;
- a lack of willingness of humanitarian organisations to grant access to their data;
- ethical questions about collecting data from vulnerable people;
- security considerations when handling data from conflict zones; and
- an excruciatingly low survey response rate in humanitarian contexts combined with a low finite number of potential respondents with the relevant expertise.

Not surprisingly, many researchers in humanitarian logistics turn to secondary data or, nowadays, to open data and/or social media data to overcome some of these restrictions. Big Data are also available in a disaster (Gupta *et al.*, 2017), although handling it requires a solid understanding of its quality, as well as how to identify and address the gaps in such data. The latter point is the most important as the most vulnerable people may not have access to the technologies required to communicate their needs (e.g. social media), and a lack of data from a particular region may be the best indication for that region having been hit the most severely by a disaster. The absence of data may actually be the data to look for. Gupta *et al.* (2017) revisited many types of secondary data and suggested specific measures to increase the quality of Big Data analysis in humanitarian operations.

At the same time, there are solid approaches to accessing primary data, including field research (Sohn, 2018), case research (Vega, 2018) and partial least square method to evaluate survey results from smaller resultant samples (Moshtari, 2016). Many of the issues with these types of methods are delineated in the *Palgrave Handbook of Humanitarian Logistics and Supply Chain Management* (Kovács *et al.*, 2018).

Field and case research can be used to overcome the problem of accessing disaster areas and/or humanitarian organisations. Designing a research project and co-defining research questions with humanitarian organisations can also be used to overcome this issue (Kunz *et al.*, 2017). Collaborative research brings researchers together with practitioners and means that researchers can include both traditional researchers as well as practitioners (Campbell, 1969). Khoury's (2019) article offers a prime example of how a humanitarian practitioner conducted research on his and his organisation's activities. It is one of the articles in the Practice Forum of *JHLSCM* that so aptly combines research and practice. Similarly, humanitarian logistics research can be conducted by means of participant observations, action research, and constructive research, with the researcher being part of the practice in all cases. This is perhaps most common for both practitioners themselves (like Khoury) and researchers who are on the rosters of humanitarian organisations.

From both researcher and practitioner perspectives, collaborative research (e.g. Sabri *et al.*, 2019) highlights the importance of unearthing new methods of enquiry and analysis as humanitarian supply networks, humanitarian work, humanitarians themselves and the overall humanitarian context evolve. Collaborative research can be brought about by having researchers in the field and acts to introduce different perspectives and to explain the reasons things are done in certain ways. This approach has added advantages as the research must evolve with the rest of the (humanitarian) context. Researchers understand that

knowledge is constantly changing, and their responsibility is to capture this knowledge. Collaborative research is also a way for researchers to be responsive to the needs of the humanitarian community and, importantly, to affected communities and people of concern.

Furthermore, for researchers, collaborative research allows the rigor and efficacy of the methods used in both academia and practice to be tested. Another advantage of collaborative research is that it helps overcome the limitations of prior research by facilitating the exchange of information (i.e. in transferring findings) from one context to another. Importantly, however, for collaborative research to be truly beneficial, it should be relevant to users, academics, and practitioners (Stokols, 2006). Another positive aspect of collaborative research is that it enhances relationships and trust (Fry, 2006). This is valuable for longitudinal research and allows researchers to regularly test their methods and findings using many snapshots in time to give them a more coherent picture. In bringing together differing points of view, collaborative research may offer new solutions to difficult problems.

When talking about collaborative research and fieldwork, it is important to think about how to collect data within the specificity of the humanitarian context. This brings to light another important area touched on in this special issue: the use of innovative approaches to data collection itself, such as games (see Lukosch and Comes, 2019) and the Delphi method (Gossler *et al.*, 2019). Authors such as Gordon (1970) and Shubik (1989) pointed out that methods available to researchers include those of simulations and games. In such cases, researchers and practitioners can learn from participating in games, as well as in the analysis from subsequent discussions (Thatcher, 1990). Overall, the variety of approaches humanitarian logistics researchers can use to overcome problems with access to data is astounding and attests to their innovativeness.

## 3. Innovative research methods in humanitarian logistics

This is a special issue on research methods in the field of humanitarian logistics and supply chain management. The articles in this issue do not provide an overview of all possible approaches, but they offer very good insights into their variety and demonstrate how to use them. This special issue consists of seven empirical research papers, and each of them utilises a different method: one of the papers uses mixed methods, two can be classified as qualitative, and the rest are quantitative. This variety of methods provides a reliable mix of ways to address the topic of humanitarian logistics beyond the most common approaches (i.e. modelling, simulations and case studies) (Kunz and Reiner, 2012).

The issue starts with an article from the journal's Practice Forum that truly embodies research by practitioners. Khoury's (2019) article is on the highly current topic of cash-based interventions, with a perspective from an otherwise highly inaccessible conflict zone in Syria. Lukosch and Comes's (2019) article also deals with the problem of conflict zones. They present an innovative solution to help overcome problems with data access and to elicit deep insights, namely, a simulation game for the purposes of data collection. As they state, "gaming is a suitable research method to explore and analyse behaviour and decisions in emergent settings that require team work and collaborative problem solving" (Lukosch and Comes, 2019). They further discuss the suitability of gaming for humanitarian logistics, with details given from simulation gaming and an actual demonstration of their approach showing how they used a physical board game called Plaitra to collect in-depth data, which was later validated through the use of a computer-assisted simulation game.

The paper by Sabri *et al.* (2019) applies the collaborative methodology proposed by Sabri (2018) to a case study, thus making an empirical contribution to validate the methodology. The focus is on the process of collaborative research and the phases of forming a collaboration team, understanding the problem and context, data collection, practitioner orientation, collaborative data analysis, joint planning for action, implementation and

evaluation, and monitoring within a case setting. In so doing, the paper contributes to the literature by testing the use and contextualisation of collaborative research in a humanitarian logistics setting. While the process itself ends with implementation and monitoring, future research could also add possible academic outcomes, such as the high-level publication of the collaborative process.

Novel research methods aside, the knowledge base of humanitarian logistics is changing, and specific methods are needed to study such changes. Two articles stand out here in this respect. First, Obaze (2019) sought to understand how humanitarian services are changing over time. To do so, she applied mixed methods to study the supply, distribution, and transportation of charitable resources to underserved communities. She used systems dynamics (SD) (Forrester, 1961) as a concept mapping methodology, which employs both qualitative and quantitative modelling, to analyse complex systems. Obaze also applied a qualitative SD model, which included the use of causal loop diagrams (CLDs) and archetypal structures, to analyse the descriptive, judgmental and numerical data. The paper thus provides a relevant overview with references regarding the pros and cons of SDs and explains how CLD is conceptualised qualitatively and which kinds of software are available for CLD. While providing interesting insights into CLD, the method could be compared with the traditional integration and dimensionalisation of concepts (Spiggle, 1994; Gioia, Corley, and Hamilton, 2012) to provide the possible development of both methods.

Second, Gossler *et al.* (2019) also aimed to understand future developments by using the Delphi method to understand outsourcing in humanitarian logistics. Their article further demonstrates the use of Calibrum Surveylet software (Aengenheyster *et al.*, 2017), which electronically administers two-way Delphi (i.e. e-Delphi) (Hasson and Keeney, 2011). The Delphi data were analysed with an NVivo type of content analysis and were complemented with two-day focus group data. The research process is explained in detail, and the article provides an overview of the rigors of several iterations of different data. It therefore serves as a model of one kind of research design.

Another type of content analysis and its automation is presented by Kunz (2019). While content analysis is commonplace in qualitative research, Kunz introduces the automated content analysis of documents to extract the quantifiable aspects of their content. In so doing, the paper also provides insights on the use of alternative (i.e. secondary) data, which is particularly important in humanitarian settings where primary data is often of an inferior quality. However, the drawback of the content analysis of existing text is that it is time-consuming and, thus, this paper introduces automated quantitative content analysis to make the coding process less irksome. The process starts with automatic word counting. Thereafter, the most frequently occurring words are further coded, and computer-aided (NVivo, Atlas) categorisation is explained. The novelty of the paper is that it offers a way to detect over-represented concepts.

Last but not least, Tacheva and Simpson (2019) present a different method to analyse the content of extant research. They propose the use of social network analysis (SNA) for humanitarian settings and provide guidelines on how to use SNA in this context by focussing on two case studies in which they applied SNA as a method.

## 4. Conclusions

Humanitarian logistics researchers often encounter limitations when attempting to access the object of their study (Oloruntoba and Banomyong, 2018). Despite the many challenges there are in accessing data, there are also good solutions and innovative research methods to help overcome them.

Collaborative research has been discussed at length as a way to overcome the lack of access to humanitarian data. The innovative approaches here were not simply used to

co-define research questions and to implement the research alone; rather, they systematically followed the approach by defining teams, jointly analysing data and even monitoring the study. Both researchers and practitioners can derive considerable benefit from the collaborative approach, which supports research with empirical evidence and increases the relevance of research while simultaneously supporting practice with evidence-based decision making and rigor. There is a range of ways to incorporate the researcher in such an approach, from collaborative teams, to researchers working as practitioners, to practitioners conducting research on their practice.

However, when access remains difficult or the verbalisation of insights proves inaccessible, the gamification of research may help elicit deep insights while simulating the decision under scrutiny. Traditionally, simulation approaches have been used to overcome both feasibility and security constraints, yet gamification adds another layer to this in research by focussing on issues that may otherwise not even have surfaced.

Technology adds a further layer to innovative research approaches. Technology such as online simulations can be used for data collection and validation (Lukosch and Comes, 2019), the coding and analysis of data (whether with ACQA, NVivo, Atlas, Calibrum or others), or the automatisation of data analysis. More and more, empirical researchers are turning to the use of analysis software, some even to the actual coding of such analysis software, and the use of various apps for visualisation. While it can make researchers' lives easier, it is nevertheless important that researchers also understand the limitations of the software they use, and that research – and research on methods – is less about the tool and more about the knowledge a study contributes.

**Gyongyi Kovacs**
*HUMLOG Institute/Supply Chain Management and Social Responsibility, Hanken School of Economics, Helsinki, Finland*

**Mohammad Moshtari**
*Laboratory of Industrial and Information Management, Tampereen Teknillinen yliopisto, Tampere, Finland*

**Hlekiwe Kachali**
*HUMLOG Institute/Supply Chain Management and Social Responsibility, Hanken School of Economics, Helsinki, Finland, and*

**Pia Polsa**
*Department of Marketing, Hanken School of Economics, Helsinki, Finland*

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