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“TUTTELI TO JAPAN”:
A CASE STUDY OF SPONTANEOUS COLLABORATION IN DISASTER RESPONSE

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DISSERTATION

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ABSTRACT

“Tutteli to Japan” (TTJ) is a case study of ordinary people, a group of Japanese women living in Finland, trying to figure out how to help disaster-affected citizens from a distance in coordination with likeminded strangers on-the-ground to accomplish aid supply delivery. Unlike commonly seen in citizen response to disasters, this case did not start as an extension of pre-existing social group activities or an informal group of volunteers under the name of TTJ. Rather, the effort emerged from individual responses on the Internet to the 2011 Great Tohoku Earthquake and Tsunami disasters in Japan, expressing their compassions and aspirations to do something for the disaster victims; some were on Twitter, some were on their blogs. As the devastation escalated, so did the people’s eagerness to do something about the inadequate distribution of resources, with a focus on the breastfeeding mothers in Japan who only had access to powder-based baby formula. Having this challenge left untouched by government or aid agencies, these concerned individuals, as novice learners of international aid work without a chain of command, continued seeking and sharing information in order to deliver the liquid baby formula regardless of informational, operational, and situational uncertainties surrounding them. Within the next forty days, these volunteer individuals were able to ship six times, a total of 12,000 cartons of formula, directly delivered and distributed to the hands of breastfeeding mothers in twelve different locations in the disaster-affected communities in Japan.

In this dissertation, I study the entangled, mutually collaborative nature of finding a way to help processes within and between likeminded individuals and the broader context of people and information with emphasis on information needs and learning. Drawing on a dataset that encompasses a range of real-time social media data as well as interviews and documentation, this single-case study traces how ordinary citizens interacting online develop the idea for delivery of

baby formula as emergency supplies and how these likeminded strangers collaboratively mobilized resources for the TTJ logistics and processes of packaging, dispatching and delivering large volumes of relief supply including: the fundraising volunteers in Finland, the drivers and distributors in Japan. This study aims to describe how such ordinary people's information interactions shape spontaneous collaboration in disaster response.

My findings suggest that independent public participation and collaborative efforts for disaster response perform as sources of tensions and various kinds of vagueness, but these are the functions that spontaneous volunteers can offer resourcefully. With learning by doing approaches, these compassionate individuals, both online and on-the-ground, muddled through unknown needs of unfamiliar activities in identifying, managing and processing different kinds of tasks, particularly by asking for information and acting on information received including uses of vague language and uncertain sources of information. This iteration of dual processes – searching for information to help and self-organizing under leaderless management – illuminates underlying processes of spontaneous collaboration. I argue that the TTJ illustrates the power of intention, which is the power of creativity among ordinary people acting on information processed through humane-driven technology use. These iterative information interactions can be best understood through a new concept articulated in this dissertation, *shared uncertainty*. This concept encompasses our understanding of independent public participation and collaboration and offers an interdisciplinary bridge between research in information behavior, computer-supported cooperative work, crisis informatics and disaster studies.

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CHAPTER 1: INTRODUCTION

“In Finland, there is a pack of milk that babies can drink...This infant formula is very convenient... On Twitter, Japanese mothers living in Finland started chatting about the formula, saying ‘Would it be possible to send them to Japan?!’ And now they started acting on it” (pullachan, 2011).

pullachan, a Japanese mother who moved to Finland with her Finnish husband several years ago, writes her blog post after the March 11th of 2011 Great Tohoku Earthquake and Tsunami disasters in Japan (the 3.11 disaster). Her blog post dated March 18th, the 7th day of the aftermath, introduces a Twitter conversation among other Japanese mothers whom she doesn't know personally but found through someone's tweet. As time goes on, pullachan's blog space becomes an open forum and it is now referred to as a knowledge repository tagged as “Miruku purojekuto [Milk project]”

“Tutteli to Japan” (TTJ), which I call it for the purpose of this study, refers to Japanese mothers living in Finland who volunteered in organizing a private relief effort in response to the 3.11 disaster. Unlike commonly seen in citizen response to disasters, these mothers (the Mothers) did not organize the effort together as an extension of pre-existing social group activities or introduce themselves as an informal volunteer group under the name of TTJ. Rather, the effort emerged from individual responses to the disaster on the Internet expressing their compassions and aspirations to do something for the disaster victims; some were on Twitter, some were on their blogs. At that very moment, I was reading one of their blogs (e.g., pullachan's) like the many other Japanese going online for timely information and monitoring what was being shared on social media related to the disaster.

While following those online responses, I recognized a phenomenon of social cohesion and collective sense-making among Japanese living abroad. The Mothers' messages (on Twitter and blogs) somehow converged on a genuine, common concern exclusively for breastfeeding mothers in Japan. That was the adversity and fear that the mothers of infants in Japan confront with Japanese baby formula that was only available in powder-based form, which requires water

at 70 Celsius/158 Fahrenheit degrees or higher (WHO/FAO, 2007) regardless of the blackout. As the devastation of the disaster escalated, so did the Mothers' eagerness to do something about the inadequate distribution of resources for those mothers in Japan. Having this challenge left untouched/unsolved by government agencies or aid organizations, the Mothers' casual conversation on social media pertinent to the concern quickly elaborated on an idea to send baby formula, Tutteli from Finland to Japan. This simple, well-intended action, rooted in cultural knowledge and experiences, powered the online presence of the Mothers so much so that their idea of TTJ prevailed among likeminded mothers and strangers in Japan on the Internet and through social relations (the participants). As a result, the Mothers and the participants were able to transport six separate shipments of formula, a total of 12,000 cartons across the globe and distributed these to twelve unique destinations in the disaster-affected region in Japan within approximately forty days.

Without a chain of command, but with informational, operational, and situational uncertainties at stake, the Mothers and the participants continued trying to figure out how to send the formula to Japan and persisted in delivering the formula to the hands of mothers in disaster-affected communities. Consequently, the Mothers and the participants were able to mobilize resources for the TTJ logistics and processes of packaging, dispatching and delivering large volumes of international relief supply including: the fundraising volunteers in Finland, the drivers and distributors in Japan. As novice learners of international relief coordination work, they muddled through unknown sequences of inexperienced activities: TTJ managed to persist in identifying, managing and processing different kinds of tasks, particularly by asking for information and acting on information received. This iteration of dual processes – searching for information to help and self-organizing under leaderless management – illuminates underlying processes of spontaneous collaboration.

In this dissertation, I study the entangled and mutually collaborative nature of finding a way to help processes within and between likeminded individuals and the broader context of people and information with emphasis on information needs and learning. I argue that TTJ illustrates the power of intention, which is the power of creativity among ordinary people acting on information processed through humane-driven technology use. Drawing on data from online observations, in-person interviews (and observations), and documentation, this study traces how

the Mothers' chatting online revolves around the idea for TTJ and how the Mothers and likeminded strangers collaboratively find a way to execute the on-site relief effort at a distance. This study aims to describe how such ordinary people's information interactions shape spontaneous collaboration in disaster response.

The structure of this dissertation is as follows. Chapter 2 situates this study in the academic literature. Chapter 3 explicates the research design and the methods developed to answer the research questions. Chapter 4 describes the TTJ participants and their information interactions, and collaborative processes of spontaneous collaboration. Chapter 5 integrates the analytical findings from Chapter 4 to answer this dissertation's overarching research question as well as sub questions. Finally, the closing Chapter 6 discusses the implications of this dissertation and future research directions.

The remainder of this chapter discusses the practical importance of this study. First, it addresses problematic opportunities for ordinary people to "participate" in disaster response and relief operations. The argument begins with current knowledge of individual disaster donation types, involving the uses of internet services.

1.1 The Horizon for Disaster Response and Contributions

Natural disasters are unexpected, and their growing impacts are extremely difficult to follow from afar. Watching from distant locales, concerned individuals are prone to go online in order to know what is happening and determine how they are able to help. Now that various information and communication technology (ICT) applications support instant and flexible interactions via social media applications /networking channels, the general public are in theory situated to easily gain access to information and/or make contributions online. These types of real-time relief efforts are available through three forms of donations: information, monetary, and material.

In the recent past, public participation in community-based, private efforts using web-based applications and social media accounts illustrates new opportunities for ordinary people acting on information through technology. For example, general internet users and browsers can post and seek information, such as a call for disaster relief donations and volunteer needs. Simply put, with ICT, they can turn into impulsive donors through websites and various online campaigns created by themselves and/or provided by other users including non-profit organizations specialized in grassroots charitable projects (i.e., online fundraising). On the individual level, ICT/social media platforms provide their users with streamlined, click-based opportunities for both donations to make and to host and create charitable events and projects. In addition to this information centric effort, more directional opportunities have become a staple web service. According to the Center for Disaster Philanthropy's Measuring the State of Disaster Philanthropy (n.d.), two major online donation platforms, Network for Good and GlobalGiving, raised approximately \$40 million from individual donors during 2017-2018. This amount benefited directly disaster-specific nonprofits with \$12.5 million as well as 243 disaster- supporting projects by 169 organizations. Moreover, some people send clothes, food, medicine, and other relief supplies to aid organizations. Although this type of giving happens in every disaster, it is perceived as a second disaster for the relief workers (Gray, 2010; Fessler, 2017). Jennifer Brookes, a former researcher at Harvard Humanitarian Initiative, calls for cash donation as "[D]onated goods raise the cost of the response cycle: from collecting, sorting, packaging and shipping bulky items across long distances to, upon arrival, reception, sorting, warehousing and distribution." (2018, para. 7). Similarly, National Public Radio published an article in 2013 during the Superstorm Sandy titled "Thanks, But No Thanks: When Post-Disaster Donations Overwhelm" (Hessler).

While all these means of contribution systematized by "middleman" charitable organizations and donor programs continue to evolve, the challenge remains how to match the well-meaning donations with actual, evolving needs of disaster-affected citizens. For ordinary people, obtaining local knowledge and updated information about the process and provider (i.e., middlemen) seems crucial. Otherwise, the general online users need a comprehensible navigation flow in the system so that they can make an impulsive but recognizable decision to "click" without going through lengthy lists and texts of charities and program information. This explains why "How-to" guidance and tips for quick decision making become popular information to share

(Brooks, 2017). ICT-mediated, instant and flexible disaster donation features have become inevitable tools for concerned individuals. However, they still need to entrust the money to the work and quality of the service as well as the organizations as a whole. Research finds that ordinary citizens play different roles during their participation in online disaster relief efforts, and that it is because either simplified tasks or skill-oriented tasks will enable them to take part in the effort (Reuter et al., 2013; Lowe & Fothergill, 2003). Even if a strong compassion leads to charitable information online and to consider active participation in it, it is little known what information or how people act on information that becomes available to them and leads them to participate and engage in the relief effort, especially involving not partial but combined operation of information, monetary and material coordination.

Next, the following section explains how the general public's involvement in disaster response and relief efforts is becoming collaborative and independent. This aspect of practical importance of this study lies in the fact that its primary dataset comes from the direct, real-time observation of distant individuals coming together and engaging in both online and on-the-ground disaster response activities.

1.2 Moving toward Independent Public Participation & Collaboration

Characterization of this type of citizen-led collaborative work (i.e., TTJ) yields an interesting influence on the existing knowledge of disaster and crisis management and response efforts, better known as “emergent/self-organizing groups,” “digital volunteers” or “virtual/digital convergence.” While each term originates from different empirical research in a different period that demonstrates diverse implications, its overarching feature includes new forms of organization, inconsistent members whose relationships are new, organizational and individual lack of training and preparation, and a “learning by doing” approach (Quarantelli, 1970; Quarantelli & Dynes, 1985; Lichtenstein, (2000); Drabek & McEntire, (2003); Lowe & Fothergill (2003); Majchrzak et al., 2007; Twigg & Mosel, 2017). According to the pre-1980's literature on community response to disasters I reviewed (Takazawa & Williams, 2011), such citizens' altruistic behavior was perceived as problematic for disaster and crisis agencies due to

the aforementioned features (Fritz & Williams, 1957). This perception seems rooted in the present times. Twigg and Mosel (2017) conducted a state-of-the-art survey of current research on emergent groups and spontaneous response cases, including crisis informatics research communities. Their comprehensive coverage demonstrates that due to a variety of group activities and the context-driven nature of emergent groups, it is challenging but necessary for disaster response and management practitioners “not only to acknowledge that voluntary action by citizens will inevitably take place, but also to integrate those citizens into the response effort” (p. 454).

In addition to the variation of group activities, due to the technological advancement, recent research provides supporting evidence for the challenge. That is, online and on-the-ground response activities are becoming increasingly “simultaneous and intertwined” (Palen, et al., 2007, p.2). In practice, information-centric, citizen-led hybrid response efforts have become prominent, especially initiated by distant citizens. For example, the photo shared on Twitter and a phone call to a local rescue team helped rescue senior citizens during Hurricane Harvey in 2017 (Marrero, 2017). Similarly, a Houston resident using her laptop, smart phone, Twitter and Facebook community page in her living room succeeded to connect rescue requests to on-site rescue teams (Sullivan & Holley, 2017). In other words, neither the essential research of documenting on-the-ground based collective behavior nor the recent interdisciplinary community specialized in ICT-mediated collaboration, as well as news coverage have depicted this small scale, yet globally extended disaster response that emerged from open dialog and led to cooperation in order to deliver emergency goods between ordinary distant citizens using everyday technology – social media applications, email, short-messaging services (SMS), videoconferencing, the internet search, word processing, etc. The “participants” of the TTJ case include those who initiated the idea, ones that supported digitally and informationally, others that helped to find appropriate resources with information and knowledge.

Furthermore, other contributors were found among the participants’ acquaintances who volunteered to deliver the goods directly to the hands of the people in need. Their specific features exclude serving or assisting formal organizations but represent independently executing relief work by themselves even under uncertain conditions, as a structure-free version of “peer-to-peer” communication and its uses in emergency management systems (Sutton et al., 2008;

Cho et al., 2013). While citizen-led collaborative efforts demonstrate distinctive characteristics, the TTJ primary dataset comprises myriad forms of interactions corresponding to mundane ways of doing things, both alone and together, in our everyday life. I argue that independent public participation and collaborative efforts for disaster response perform as sources of tensions, but these are the functions that spontaneous volunteers can offer, not only problematically but also resourcefully. That is the specific function that “can be allocated to [spontaneous] volunteers” (Twigg & Mosel, 2017, p. 454).

In our increasingly ICT mediated environment, disaster-affected citizens can be better served if we can make our voices heard and pay attention to a wide range of conversations as well as underlying meanings and principles. For such cultural and local knowledge to be acquired, a series of learning activities needs to be in place (Weigel, 2002). In order for learning activities to emerge, collaborative and cooperative space is necessary so that the participants are freely able to seek information and knowledge by asking a question in various ways including uses of vague language and uncertain sources of information. In short, use of vague language facilitates search (van Deemter, 2010), and uncertain sources of information facilitate verification (Wilson, 1999), “in which people, iteratively, do the following: recognise a need for information, find information, interpret and evaluate that information in the context of their goals, and use the interpretation to support their broader activities” (Blandford & Attfield, 2010, p.1).

Recent data analytics research utilizes localized terms and geocodes to identify the population working on or well-intended individuals trying to help disaster relief. However, as crisis informatics social media researchers reflect (Palen & Anderson, 2016), the tag- or keyword-based sampling methods leave contextual information undiscovered with the question remaining, “Are there meaningful data there?” (p. 225). Drawing on a dataset that encompasses a range of social media as well as interviews and documentation, this dissertation investigates this question in the context of ordinary citizens’ spontaneous collaboration in disaster response and by asking how ordinary information interactions shape spontaneous collaboration work. It also offers an interdisciplinary bridge between research in information behavior, computer-supported cooperative work, crisis informatics and disaster studies.

CHAPTER 2: LITERATURE REVIEW

2.1 Overview

This chapter presents a brief overview of information behavior studies and discuss the theoretical and scholarly importance of this dissertation. The literature on the topic of information behavior, which is understood as multiple facets of information activity in a broader definition (e.g., seeking, search, use, and sharing), tends to approach its process of construction, iteration, and meaning-making aspects of information behavior with well-defined information problems that are “solvable” within the given conditions. On the contrary, in this dissertation, I study compassionate individuals trying to figure out how to help disaster-affected fellow citizens by using the Internet and their social relationships via social media platforms, etc., in order to understand how such information interactions (e.g., information activity in social, collaborative, and evolving context) shape spontaneous collaboration to work.

Various models, theories, and frameworks of information behavior presented in the last decades have demonstrated how human information abilities entail instinctive human capabilities cultivated through individual experiences, self-reflection, and social learning (Wilson, 1997; Bates, 2005; Case, 2012). Also, the design of systems and technological development to support such behavior has expanded scopes of information activities that individuals can undertake. The present case represents novel outcomes of information activities in the use of contemporary technologies, specifically social media applications. However, this context-specific phenomenon provides properties of typical processes that are a mundane series of actions we experience in everyday life with information and available technologies. Drawing on existing relevant research and literature, this literature review covers three interrelated strands of literature, which form the primary focus of this dissertation. These are information seeking in context, collaborative information seeking, and information behavior studies. While each strand originates and has developed with disparate objectives and intentions, the majority of these works depict processes of information activities as a context-sensitive, interactive, evolving, and learning process.

In real-life situations, we act for the needs of “something”, begin to engage in browsing information, and act on the information we relate to, seek and use, whether we know, or we do not know what information we need however clear or vague. As the sources of information

respond to the “something”, interactive processes begin to communicate, make decisions, and get to know what needs to be known and what is known. To organize, coordinate, and manage the new information resulting from the interactive processes, other processes emerge that may include decision-making, problem solving, conflict management, cognitive processing and so forth. Furthermore, this series of actions may involve different kinds of questions, many retrieved items or recalled memory, may include activities of multiple people, and evolve over time. These interactive processes are rarely sequential and one-stop action. Rather, these processes are intertwined and iterative and conform to the information activities in the TTJ case.

The TTJ’s information activities are situated in its particular circumstances – as the TTJ emerged from a vague aspiration for offering meaningful aid directly and immediately to the victims of the 2011 national crisis in Japan. A loosely formed assemblage of likeminded individuals took part in the TTJ information activities, and these activities were carried out on different platforms involving both digital and physical spaces. Moreover, a number of other processing activities (or steps) were necessary in parallel in order to implement the idea of sending the baby formula, for example: the correspondence and reporting about the local transport (e.g., talking to Finnair Cargo), the coordination of tasks and procedures, the fundraising and procurement of the baby formula, the preparation for the exportation of emergency food rations, and the packaging and loading work. How the TTJ evolved and completed six shipments in a timely manner draws an analogy between typical processes of 1) the individual abilities of spontaneous collaboration (Wilensky, 2000); how people come together and work without initial commitment or a substantial mutual agreement to work together and 2) the reality of how information activities evolve; how people engage in information seeking and search even without knowing a particular need of information. To retain these processes in effect, however, one underlying mode of action is constantly present: a series of information activities at both individual and collaborative levels.

One of the prominent areas of research in library and information science examines this aspect of human behavior, called information behavior. Much work of information behavior informs us how people interact with information and how human information interactions coevolve through the uses of various sources of information, technologies as well as environmental surroundings and social shaping (Bates, 2009). More specifically, the research in

information seeking in context centers on such contextual factors as boundaries of individual, organizational, and social activities when people interact with information.

2.2 Information Seeking in Context & Everyday Life Information Seeking

As synthesized in Bates (2009), information seeking in context (ISIC) constitutes a study of specific contexts, most of which focus on people belonging to diverse groups such as academia, corporations, community organizations, and online communities. Savolainen (2008) categorizes context-specific information activities into either work (e.g. database and office) or non-work (e.g. leisure and home). Based on the types of information that the people seek directly relevant to their daily activities, for instances, health, consumer problems, housing and various kinds of hobbies, Savolainen (2009) calls these studies everyday life information seeking (ELIS). ELIS research finds that people tend to “favor human sources due to easy access to and the opportunity to get immediate feedback” (p. 1786, Savolainen, 2009). Savolainen (2008) differentiates ELIS from information behavior studies including ISIC in that ELIS examines the people who do not necessarily start their information activities because of information needs. In addition to problematic situations triggering information needs, ELIS does not use the concept of “needy” individuals. However, both ISIC and ELIS studies share a common denominator, that is the subject context that tends to be stable, and their informants are likely to share a certain degree of habitual place and space in which the informants develop their attitudes toward information needs. While these concepts were introduced in different times and framed with different methodological and theoretical approaches (Vakkari, 1997; Bates, 2009), there is the significant commonality to understand the information behavior, that is 1) information needs evolve over time, 2) information seeking is a highly dynamic and context-dependent activity, and 3) the informants utilize a number of sources in various orders.

In summary, it is obvious that the concepts of ISIC and ELIS studies embody a contextual abstraction of information activities in the TTJ case. While human information behavior can be viewed as an individual’s collaborative work with various sources of information including human sources in nonlinear structures, ISIC and ELIS typically examine patterns of information seeking among people as an individual or as in a particular group (e.g., social, cultural,

organizational or political) so that both evolving aspects of collaboration and information activities in social contexts are overlooked.

In parallel to ISIC and ELIS, there is another area of research focusing on collaboration in information seeking and search, collaborative information seeking and retrieval studies (CIS). Similar to ISIC and ELIS, CIS studies inform us that people act in response to information problems and needs, and CIS information activities are shaped by their contextual requirements and environmental expectations (Foster, 2006).

2.2.1 Collaborative Information Seeking

Our preliminary analysis (Takazawa & Twidale, 2013) using Shah's and his colleagues' Collaborative Information Seeking studies (CIS) reveals iterative processes of basic information interactions among the TTJ participants, different kinds of information, and loosely coupled participants carrying on varied information activities (see a review of CIS in Shah, 2014). While these CIS studies inform requirements for effective information seeking, search, and use in collaborative contexts, these requirements are based on empirical studies examining an information-intensive work environment within formal organizations or a structured work environment such as an emergency room (Reddy & Jansen, 2008) or team projects in professional settings (Byström & Hansen, 2005). Unlike their study settings, the TTJ instances are full of unstructured flow of emerging interactions carried out by different individuals who do not have any particular roles in the work; rather these interactions are casual dialog or conversational consultation. Since the people involved were not a formal or recognized "TTJ" team or group member, their information activities are embedded in social interactions. The TTJ information activities encompass emerging processes of different kinds of activities in addition to seeking and searching in response to specific information needs. Rather, information needs were gradually identified, and their social interactions led to nonlinear processes of various kinds of tasks that required information. These processes (not yet named) brought the TTJ members "information" that enabled action, and the action created new information needs, and the new information created further information needs.

This iterative interaction process reminds us of these classic instances of information behavior studies familiar within LIS. In order to further understand these activities, I adopt

approaches from the classic literature that address the basic concepts that underpin processes of information searching, seeking, use and retrieval (information behavior), in order to understand the phenomenon (Wilson, 2000; Belkin et al., 1982a & 1982b; Bates, 1989; Kuhlthau, 1999; Fisher et al., 2005).

2.2.2 Information Behavior Studies

Although the majority of Information Behavior models, theories, and frameworks characterize searching and seeking activities as solitary, they provide properties of fundamental activities for people's information search and seeking behaviors. The current case involves instances of figuring out how to locate information as well as what information needs to be sought. These are described in Wilson's (2000) definition of information behavior. Information behavior has been defined as:

“[t]he totality of human behavior in relation to sources and channels of information, including both active and passive information seeking, and information use. Thus, it includes face-to-face communication with others, as well as the passive reception of information as in, for example, watching TV advertisements, without any intention to act on the information given” (p. 49, Wilson, 2000).

Although the TTJ began as a simple blog entry to express personal empathy, the subsequent entries evolved in parallel to other social interactions undertaken in Twitter and other participants' blogs and personal websites. For instances, the below is an excerpt from one of the TTJ member's weblog entry dated on the third day after the disaster in Japan (translated idiomatically its original Japanese text and title in Finnish published on March 14th, 2011).

“PIENI JAPANI, ISO SIELU (small Japan, big soul)

I would like to send my condolences to all the people suffering from this tragedy,”

“[t]his is terrible! I am so far away and I am puzzled. I cannot comprehend what I am seeing on the news like Ustream Live Feed, Twitter, NHK World Channel, Finnish TV news, etc...so unreal, yet I feel emotionally connected (since I experienced the 1995 Kobe Earthquake). I wish I could do something other than just praying and crying...but of course I can't,”

What is really happening to my home country?!”

(TERVE!!, March 14, 2011).

To date, use of those public channels (i.e., social media and search tools) as well as other sources for information (e. friends, colleagues and professionals including online reference desk and services, etc.) has become embedded in people’s everyday life. As Wilson’s model (1999; 2000: shown below as Figure 1, Wilson’s expanded model, based on his 1996 model) depicts, in a given context, a person realizes an information need, and then proceeds, or is interrupted to proceed, to engage in some form of information-seeking behavior, and then proceeds to information processing and use and then loops back again to information need. In the TTJ case, however, the interactions were in a context of social spaces, so they indicate less obvious information seeking and searching unlike Wilson’s model that focuses on individual information behavior. Collaborative aspects of information behavior are explicit in the TTJ, unlike the classic information behavior models with implicit aspects of interactive, social, and collaborative aspects of information behaviors. Tasks are not always explicit, and tasks in regards to information are embedded.

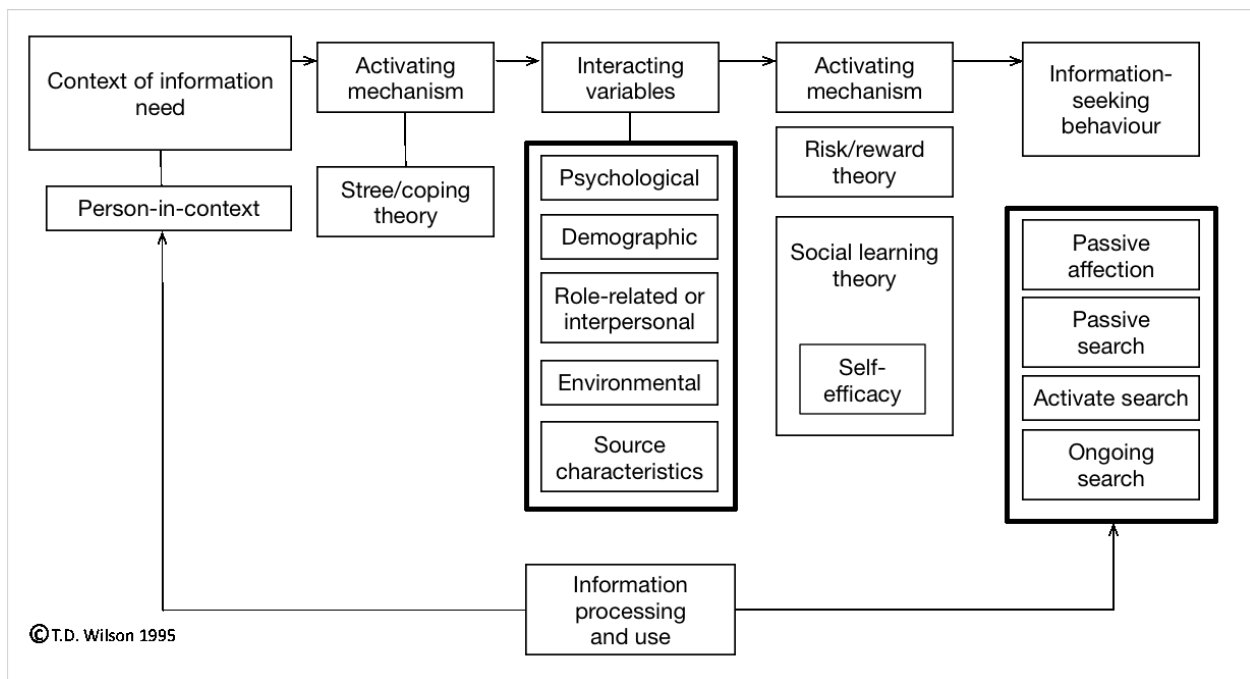


Figure 1: Wilson's expanded model (1996)

[Source: From Information Behavior: An Inter-Disciplinary Perspective: British Library Research and Innovation Report, 10, By T.D. Wilson & C. Walsh, University of Sheffield, Dept. of Information Studies: Sheffield, U.K., 1996]

Whereas Wilson’s conception of information behavior “perceives information seeking, searching and use as associated with the different stages of a goal-directed problem-solving

process, the stages being: problem recognition, problem definition, problem resolution, and (where needed) solution statement” (p. 53, Wilson, 2000), the TTJ case does not explicitly associate with “a goal-directed problem-solving” aspect in the model. Instead, the process of information behavior explicitly indicates undirected procedures, and many unclear “problem-solving” interactions, even though it includes instances of “problem recognitions”. For example, the lead member asked for information about the specific city names of the disaster sites which lacked relief distributions, so that there would be higher possibilities that mothers in need of baby formula would benefit from TTJ. Instead, the response to the leader’s information need was another question to her about the road conditions and ongoing traffic control of the disaster site, which enabled the lead member to know what information is needed to satisfy her initial information need. Therefore, the sequential process in the model; from problem recognition, definition, resolution, and solution statement, does not seem to apply fully in the TTJ case. In contrast to Wilson’s model that is associated with the different stages, the definition of information behavior, on the other hand, perceives more evolving aspects of behaviors during search and seeking. I find this gap intriguing as well as perceiving a “reality” challenge in the information behavior research.

2.2.3 Challenges in Information Behavior Studies

The “reality” challenge in the IB studies has been addressed as how to identify information needs in information systems. Earlier development of the information behavior model, particularly by Taylor (1968) and Belkin et al. (1982a), elucidated the issue.

Taylor (1968) identifies the “real” information need as *the visceral need*: that is “almost inexpressible in linguistic terms” (p.182). As Taylor describes, it is the information seeker’s “conscious or even unconscious need for information not existing in the remembered experience of the inquirer. It may be only a vague sort of dissatisfaction,” and “[T]his need (it really is not a question yet) will change in form, quality, concreteness, and criteria as information is added, as it is influenced by analogy, or as its importance grows with the investigation” (p. 182).

Taylor (1968)’s study on seekers of information in libraries conceptualizes the level of information needs including the visceral need as the first level. The seeker gathers bits and pieces

of information about the visceral need as she/he goes about different sources of information such as observing nature, searching literatures, asking a colleague, looking at personal files, going to library bookshelves, and asking for a librarian's help. The complexity in the seeker's information need is identified as "certain incompleteness in his picture of the world" (p. 181) so that the seeker tries to "fill out his picture of the world" (p. 182) as the seeker moves through one after another sources of information.

Taylor's information need conceptualization relates to the TTJ's initial stage as the lead members began to express their compassion for the victims of the disaster in Japan. Their mixed emotions include a wish to do something, frustrations of powerlessness, and a self-knowledge that the baby formula products that were available in Finland do not exist in Japan and sending them would be great help for the mothers in the disaster-affected communities.

While Taylor recognizes the visceral need as almost impossible to be expressed even through communication between the seeker and sources of information, Belkin et al. (1982a) identify the difficulty in expressing the "real" information need.

Belkin et al. (1982a) argue that it is unreasonable to ask or expect the information seeker to say explicitly what exactly it is that she/he needs to know, because that's what brought the seeker to the system in the first place. Belkin's hypothesis for this condition of the user is "[A]nomalous State of Knowledge." The ASK model enhances the importance of the initial, cognitive stage of the information seeker where "[A]n information need arises from a recognized anomaly in the user's state of knowledge concerning some topic or situation and that, in general, the user is unable to specify what is needed to resolve that anomaly" (p. 62).

Belkin et al. (1982a) and Belkin & Vickery (1985) address the problem in information search and retrieval system design, that is an attempt to best match what the user can say about what they think they are looking for. Users must be guided to describe what they do not know rather than to say what it is. In other words, the user most often comes to the information systems with unspecified needs. I find Belkin's perception of the condition of the seeker's information need useful in the TTJ case specifically when tasks are difficult to identify as in the TTJ case. From Belkin's ASK perspective, the participants of TTJ first approached information systems (Twitter

and weblogs), as they knew that they had strong compassion for offering help but did not know in what way or if they could do something to help.

As in Belkin and Taylor's studies, the development of the TTJ event indicates an assembly of a search process that eventually enabled the TTJ not only to identify but also to construct what information needs to be sought and thus make it extractable by use of systems such as the TTJ leaders and participants on social media. This eventual information need in Taylor and Belkin's ASK model emphasizes the information search process as evolving and not static. However, both studies perceive the process in a developmental manner from the perspective of search activity as a solitary individual, as in four levels of information needs in Taylor and levels of specificity in ASK. In the TTJ case the search process is also not static, but not developmental as characterized by Taylor and Belkin; rather it is almost inexplicit but constructive due to its contemporary context of social, open environment for interactions (social media, technologically mediated environment).

As Belkin (1982a & 1982b) challenged the traditional notion of information need conceptualization in information retrieval processes, Bates' evolving search model (Figure 2) illuminated the iterative aspect of "real" information search processes, which is berrypicking where the user employs a diverse set of search skills and goes around bringing in divergent sources of information accessible to the user (Bates, 1989). In the model, as depicted in Figure 2, the user's query evolves as the user moves through various kinds of information sources. The model highlights that the user's information need is refined during the searching processes where queries, divergent information sources, information literacy and skills tend to evolve through all of them interacting toward clarifying what is sought.

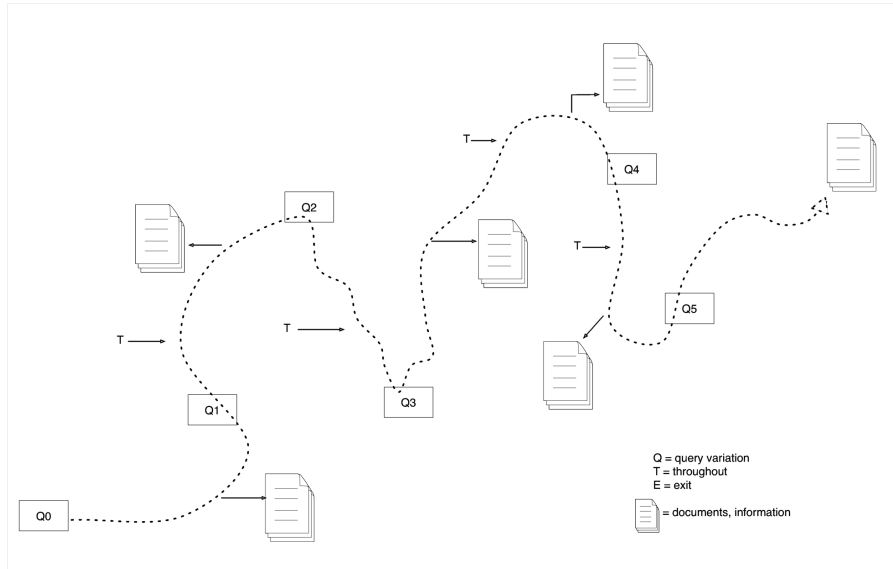


Figure 2: Bate's Berrypicking evolving search process (1989)

2.3 Browsing, Serendipitous Searching & Collaborative Learning

Based on the above studies, Twidale et al. (1995 & 1997) shed light on the interactive aspect of information behavior not only between users and systems, but also the users and systems and various sources of information that the users bring in during the search process. Twidale's study conceptualizes this dimension of interactivity in browsing. In the process of information behavior, users interact with both physical and virtual contexts – shelves, databases, librarians, and objects, in which users are situated to learn spontaneously how to search information collaboratively (Twidale et al., 1995 and 1997). To better design information services and searching technologies, their study explains the importance of human-human interaction in the course of information activities to identify how information needs are originally presented and meet the searching goal. Therefore, the process that the users go through to crystalize their information needs during their information searching is actually browsing, that is an “indeterminate, situated and serendipitous aspect of searching” (p. 365, Twidale et al., 1995).

The distinct feature of browsing in contrast to searching is 1) its implicitness of intentions of the act, 2) a wide spectrum of interactions with information sources including other individuals as a source, and 3) spontaneity of collaborative information work (figuring out what information is available, what is needed, and what is not needed, etc.) resulting from these interactions. For example, in real life, finding information involves a sequence of activities, regardless of having it as the goal or not. What the person thinks he/she is looking for may change, or it emerges from perceived sequences of what the person wants to accomplish (in other words, to find “the” information). In the process, the vagueness of what to look for becomes clear as different kinds of information are selected, interpreted, and reprocessed. To have this process of information activities begin, abundance of various kinds of information, in a variety of forms--digital and physical, visual and textual, static and interactive--increases the potential for transformative interactions.

At present, it appears that the popular use of information and communication technologies including emerging social applications facilitates browsing, which is carried out on social interactions and informal communication channels. Having social media and technology platforms as a technological amplifier that facilitates serendipitous searching, this concept of browsing, a simple, evolving form of searching, needs special attention.

Situated in divergent sources of information, browsing on social media platforms becomes more interactive and social. Browsing in social contexts, with such technological enablers with emerging interfaces, the ability of ordinary users (on these platforms) to look through online information (whether it is for specific or purposeless search) and to interact with various kinds of information sources including other individuals, in theory, opens up possibilities for serendipitous encounters. These serendipitous encounters are intertwined with browsing and searching as a form of implicit collaboration as the searcher interacts with both pieces of information that other people provide and those individuals that are available to interact on particular forums or platforms.

In addition, a variation of this collaborative encountering varies in two elements: 1) its directness of interaction, and 2) explicitness of searching goals. For example, searching for a vacation package online extends to multiple websites, while browsing online reviews and ratings.

This may start off from an advertisement/promotional email from an airline company, and then the searching is refined as the searcher encounters new information, first on expedia.com (travel agency brand) and then on kayak.com (travel search engine). The searcher interacts with the package description as well as other travelers' reviews and ratings. Through these interactions, browsing becomes a process of collaboratively figuring out what is the "information need", in this example the vacation package. In social contexts, together with those implicit collaborators that do not necessarily make a substantial commitment to work together with the searcher, but interact with him/her, these interactions undergo iterative and divergent processes that allow loosely coupled activities and accidentally encountered information sharing, resulting in learning about what to know, what can be known, where to know, what is known, and how to know. In short, browsing in social contexts becomes iterative and divergent processes of collaborative information activities (mixture of searching, seeking, retrieving, grounding, etc.) as well as learning (Bates, 2002).

Furthermore, Twidale et al.'s work (1995 & 1997; Twidale & Nichols, 2009; Nichols & Twidale, 2011) clarifies the complexity of the working-together with multiple sources aspect in information behavior by decomposing information behavior into two processes: learning about what to look for and learning about how to locate it.

Since users seek information from various sets of information sources to fulfill their information needs in order to crystalize the initial information need that is often vague, the process of information searching and seeking is in fact collaboration, "in together achieving tasks which they couldn't otherwise (p. 761, Twidale et al., 1997). In other words, tasks in information behavior are to illuminate the vagueness of information needs through interactions between users/seekers and sources of information including people.

Even though technology and communication platforms have advanced significantly since Twidale's study, this integrated perception of tasks and information needs aligns with the TTJ case in which divergent aspects of information behavior are carried out by multiple users (the participants) on social media platforms where the information need is highly likely evolving through conversations and interactions.

2.4 Chapter Conclusion

The TTJ case is filled with collaborative activities heavily involved with learning and browsing for “information” or “knowledge” – declarative and procedural in an iterative manner, as individuals had to continuously crystalize what they are looking for and how to locate it. Since the TTJ members are novice in disaster relief work and limited in their ability to access real-time information due to the great distance, they diversified their access to information, which resulted in collaboration with strangers online. Over the course of action that we observe in the TTJ case, their initial information need was guided through interactions involving different sets of responses, individual and collective; questioning back and forth, resulting in additional information searching and finding. In the TTJ case, the evolving nature of information needs was constant, in other words, continuously reiterated and reframed.

From the perspectives of Twidale, Belkin, Wilson, and Taylor, I claim that the “real” information need is a product of a gradual process of individuals engaging with “social browsing” that allows them to access information made available on social media platforms where heterogeneous networks of potential sources of information exist. As a result, this leads to unplanned informal and yet real-time communication that promotes serendipity (Twidale et al., 1995 & 1997).

I sought to identify basic features in the TTJ case drawn from existing literatures relevant to the TTJ phenomenon and contexts, such as collaborative information seeking, computer supported collaborative work, information behavior theories and models. Also, I found that the recent conceptualization and empirical research in information needs (Cole, 2012) as well as social and exploratory search (Evans & Chi, 2008 & 2010; Golovchinsky et al., 2012; Cole, 2014) attempt to shed light on the social, collaborative, and evolving aspects of information activities situated in social technologies. However, their empirical research remains bounded within purposive search and relies on controlled environments using focus groups and experimental methods. How indirect, opportunistic collaboration takes shape during unstructured information tasks remains understudied. The TTJ case demonstrates how intertwined these features are and that they are not as distinct as these literatures/frameworks explain. It raises questions about how information searching and seeking in social contexts are interleaved with

various kinds of information activities, and how individual information behaviors in social contexts are shaped and shape collaborative efforts.

CHAPTER 3: RESEARCH DESIGN AND METHOD

3.1 Introduction

This chapter describes the methods I developed to conduct this dissertation project in alignment with the research question. First of all, I introduce the case selection processes as the background that sets up the overall research design to apply a single-case study framework (Yin, 2013). Next, I describe the data collection techniques that applied to the case (i.e., “Tutteli to Japan” [TTJ]). Each description of online observation, in-person interviews and offline observation, and documentation includes the rationale for its application, the use of each technique, and data types that each produced. The multiple techniques of data collection used in this study are justified for increasing the validity of data that are gathered from multiple sources at different times of the case studied (2011-2017).

3.1.1 Selection of the Case

Rigorous process of case selection is crucial in qualitative research using, for case study due to its reliance on the researcher's interpretation (Stake, 2000). I acknowledge that multiple interpretations of the same phenomenon might be possible. I also recognize that I have my own research lenses to select and examine a case. However, I take this “interpretability” as an opportunity to conduct a multifaceted perspective of qualitative research. In order “to prevent a researcher imposing her or his own (etic) interpretation onto a participant’s (emic) interpretation” (p. 12, Yin 2010), I first describe and discuss the process of case selection that I pursued and ended up with a single-case study framework using “Tutteli to Japan” for this dissertation.

This research almost began accidentally as I was using the Internet for disaster-related information during the aftermath of the Tohoku Great Earthquake in Japan (“the 3.11 disaster”). Similar to Gray’s (2016)’s “EthnoTwitterography,” this research began with social media and the Internet as a context without any foresight for a research project. On the instance (see iii.3 or more detailed in Appendix D, “Entry vignette”), this research started out of following the breaking news upon the incident of the 3.11 disaster. Starting with the immediate aftermath of the disaster on March 11th, 2011, my online observation had begun. I followed the people on the internet, both social and traditional media, and personal blogs/websites, including

both people I know and those I don't. These include those who posted comments and video recordings both through their own devices and someone else's, those who shared news media coverage and press conference reports from the government, and those who expressed their responses to the disaster on social media. Also, I followed them wherever they went and I tried to gather whatever they provided, because I was also desperate to contact my family and friends living in Japan and keep myself updated about what was happening to the people affected by the disaster.

This direct and unstructured online observation (in short, "unstructured observation") continued as mainstream media especially international correspondents started to reveal the growing damage of the earthquake that was reaching nuclear plants adjacent to the epicenter. People in Japan and abroad began to react intensively due to the inadequacy of official information and response to such a disaster as well as the chaotic nature of the situation. Among many, some citizen efforts were found in the United States, for example ones by the Japanese American community and organizations in Berkeley and the Bay area. Similarly, others were in Singapore, United Kingdom, and Brazil. Aid items were varied in forms of monetary donations, handmade patchwork blankets, muslin cloths, and the like. While the recording of these observations began to grow, it showed some characteristics. On the one hand, most of those efforts were set up by preexisting organizations or affiliated groups; on the other hand, few were identified as solely by private citizens or individuals who described their actions, "on the go" or "first time."

The issue of a subjective bias and selectivity in sampling came to mind while I was observing the phenomena. In fact, as time went by, the form of observation was shifted from unstructured to more structured centering on the particular aspects of efforts which are: 1) impromptu, 2) organized by ordinary random people at a distance, 3) acting on information for the disaster. I was simply interested in learning about how people at a distance like myself were responding to this unprecedented scale and speed of disaster and its growing impact growing as well as the people responding in various ways. I remember that I was recalling similar experiences to the ones I observed as a master's student investigating the ICT uses in real-time when the 2004 Indian Tsunami and the 2005 Hurricane Katrina were happening. Simultaneously, I noticed that those characteristics of efforts were influenced by my preconceived notions about ICT uses in

disaster contexts (i.e., the above mentioned three contextual conditions). Reflected as the researcher's biases (Yin, 2010), this initial observation echoed theoretical propositions of my research interests at heart; people are not helpless but helping, regardless of how far they are distanced from disasters geographically (Takazawa & Williams, 2011) and temporally (Takazawa, 2010). The underlying question that I was/am interested to explore is its descriptive, qualitative inquiry: how these responses are carried out and how people use information to do so. Having these contextual conditions in mind, eventually I closely and longitudinally observed the following cases.

- A. Safecast: radioactive data gathering and mapping by MIT scientists and Media Lab Director, became a large-scale citizen science project (Big Data use)
- B. Muslin Square Project: sending baby items organized by Japanese expats in UK, became a not-for-profit organization
- C. みんなの図書館 “Library for all”: delivering books by a business owner in a neighboring state nearby Miyagi (one of the major states damaged) who voluntarily started delivering rations at random and became a “library set-up guy” (private library/book space) in various disaster- affected communities
- D. Tutteli to Japan: sending baby formula from Finland organized by Japanese women (mostly mothers living in Finland), expanded through Twitter and networks of people, and information made available on the internet, and eventually succeeded to deliver bulk supplies of formula to various locations in Tohoku

All these four cases have representative characteristics of case selection protocols (i.e., the contextual conditions described previously). However, except for D, the cases show applications of existing perspectives and theories in social and organization and management sciences (e.g., Turoff, Hiltz in CSCW and Information Systems; Comfort, Kapucu in Organization Science and Public Policy).

Going through these four cases, the case D stands out for an in-depth, holistic examination. To further verify this case selection, I designed a comparative case study between the case C and D (Takazawa, 2014) as well as a multiple case study (Takazawa, 2013). Still, due to both the variety of data sources and volume of data made available including data types as well as accessibility to multiple sources of evidence, specific aspects of the case D justify further investigations in depth. In the section below iii.3, I will elaborate on those aspects of the case D.

This time-consuming, costly process of examining potential cases for my inquiry increased the value of context-dependent knowledge that the case D would produce. For its selection process, I was not intending to “strategize,” but I wanted to delineate what I want to examine (form of understanding in context that I will learn from the case D) based on what I was observing driven by my interest in “how” inquiry. It revealed that 1) the case D produced a significant amount of data, 2) I was able to gain access to those data and gathered them for a long period of time, and 3) sufficient variety of data sources (e.g., Japanese news media) were identified. Next, I introduce briefly this case D, “Tutteli to Japan” as a rigorous and yet holistic single-case study.

3.1.2 “Tutteli to Japan”

The way this phenomenon unfolded as well as those individuals involved in it (the TTJ) who managed to send aid from Finland to Japan produced a variety of data, which is filled with lived experiences of the people driven by well-intended actions, thus presents itself as the most suitable case for empirical qualitative research.

First, one of the most critical aspects of this case is the fact that the researcher was able to observe the whole process of the case emerging and expanding in real-time and beyond. In the meantime, the case itself produced a significant amount of information about their experiences, and foremost these pieces of information were made publicly available on one of the case participant’s weblog. Also, the researcher’s personal background growing up in Japan and having experiences in emergency volunteer work in the 1995 Hanshin Awaji Great earthquake, surpassed technical barriers to expand “following” the people on the Internet as well as contacting those who were involved in the case.

In addition to the researcher's interests, the TTJ provides crucial evidence that justifies a single-case study: variety of data sources and access to those sources of data (Stake, 2000; Yin, 2010 & 2014; Eisenhardt, 1989). Moreover, the circumstances of the TTJ lead to a single-case research design that sheds empirical light about some theoretical concepts or principles which go beyond just the setting in which the subject case is situated.

Furthermore, existing empirical studies specifically in the case of contemporary disaster and crisis response by citizens suggest that this qualitative case study can make potential methodological contributions to research designs and analytical framework. Since most of those existing studies focuses on a specific "field" of interaction such as informational aid work using ICT in a large scale, this case study concentrates on intersections of information, people and technology in a specific context. Its quality of and accessibility to data allows it to apply a single case in depth, with a holistic multidisciplinary approach. In addition, this research adds a possibility and applicability of single-case study framework where contexts and boundaries are convoluted but reveals the most "close-to" reality (Yin, 2010 and 2014; Stake 2000; Patton, 2002).

Next, I discuss theoretical rationales for my decision to use Yin's single-case study framework for the TTJ.

3.1.3 Singe-case Study Framework

Yin (2014) describes five rationales for a single-case study design as follows. Single case represents:

1. a critical case in testing a well formulated theory
2. an extreme case or a unique circumstance
3. a typical case or is a representative of experience of a large institution
4. a revelatory case, or one that is previously inaccessible to the scientific community
5. a longitudinal case, or represents how certain conditions change over time

As I reviewed my selection processes in the previous section 1.1, the whole process was a mixture of intended and unintended encounters and decisions to take. I did not follow Yin's five rationales for a single-case study design to select the TTJ, but I followed my theoretical propositions of interest in people's disaster response using modern technology and their real-time information interactions. However, going through and applying existing theories and propositions that are relevant to the TTJ, it ends with missing explanations as a whole. For example, as a project that emerged in the real world and accomplished its ultimate goal in a timely manner, the TTJ did not grow out of well-trained or experienced individuals or a formal group. In Yin's vocabulary, the TTJ has a critical, typical, unique (and extreme), revelatory, and longitudinal characteristics.

TTJ represents a critical case in better understanding existing knowledge about collaborative information behavior and work. Unlike the typical start of collaborative information activities, the TTJ did not begin as a self-identified group with well-defined objectives, immediate information needs, specific problems or structured workflow and tasks (Wilson, 1981; Hansen & Järvelin, 2005; Reddy & Jansen, 2008; Shah, 2010). Instead, the phenomenon began with the idea to "do something for Japan," which is a typical phenomenon of compassionate citizens, especially for those living abroad and experiencing their home country devastated by disaster and crisis. This aspect of the TTJ represents a typical case as the TTJ was triggered by "I wish I could do something" in response to the disaster as an articulation of empathy. This typical, vague aspiration expressed with an explicit acknowledgement of powerlessness further triggered a compelling, atypical sequence of events that resulted in multiple shipments of the baby formula Tutteli from Finland to Japan that totaled 12,000 cartons of formula.

The outcome of the TTJ as a self-organization and online collaborative effort, suggests that TTJ emerged in a unique circumstance. TTJ relied on geographically dispersed individuals with and without social relationships to identify, coordinate and manage tasks. Unlike typical distant collaborations, specifically in the form of emergent organization, the members of the TTJ (both lead members and following supporters) openly indicated their lack of knowledge and experiences in disaster relief, history of working together, management in general, or domain knowledge in baby formula manufacturing and production, as well as no experiences of collaborative work at a distance and limited technological skills.

Another uniqueness is the context for what the TTJ accomplished across thousands of miles away. To form a group among individuals working geographically scattered and to function efficiently and effectively as a new group are an extremely demanding task, especially in a time-sensitive context as in delivering rations. Even with cutting-edge technologies, for such a temporary group to function requires rapid coordination and disciplined execution. Remote collaborative work adds a layer of complexity both technically as well as culturally (Goggins & Mascaro, 2013; Olson & Olson, 2003 & 2013). In contrast to other cases of humanitarian efforts organized by distant volunteers, the TTJ case is unique in terms of the items that they coordinated to send remotely. In most cases those volunteers provide informational assistance to navigate distant aid workers, local officials and victims who are in need of rescue coordination (Starbird et al., 2012; Murano, 2013). Even though the TTJ participants had to overcome emerging tasks and challenges that became increasingly convoluted by the time differences and geographic boundaries, they continued trying to figure out how to send the formula to Japan and persisted in delivering the baby formula to the hands of mothers in disaster-affected communities. This persevering effort of volunteer participants, being action-oriented, constantly learning through doing and discovering characterizes an unusual assemblage or extreme case in the construct of emergent organization or self-organizing collaboration work. Without having the work history or extended relationships and relevant expertise, it becomes time- and labor-intensive work to develop a new structure to support and manage such a demanding environment where strategic and operational decision-making becomes crucial (Katz & Gartner, 1988; Ibarra et al., 2005; Bonaccorsi & Rossi, 2003; Arrow et al., 2004; Lanzara, 1983; Smith & Comer, 1994; Argote et al., 1989).

The technologies that the TTJ participants used were all commercially available products and basic applications including facsimile (see Table 17 & 18). The TTJ participants did not customize existing applications or create new information systems for the project. Most reported success cases in disaster and crisis response utilize particular technologies for collaboration or apply domain knowledge using collaborative software and common platforms that connect likeminded individuals for improvised team operations or innovated new ways of information dissemination and task management (Comfort & Kapucu, 2006; Seeger, 2006; Zook et al., 2010; Tsui, 2002). Instead, TTJ relied on Twitter, blogs, and other social media platforms. Using those commercially available technologies, the TTJ participants openly posted their messages and

published blog posts in real time, most of which were publicly available for anyone to browse at that time. This friendly attitude toward digital and face-to-face interaction made the TTJ a revelatory case in such a way that was previously inaccessible, specifically to monitor and gather real-time data of self-organization phenomenon. Having that revelatory characteristic, TTJ revealed how certain conditions of collaborative information seeking behavior and self-organization processes evolve over time. This aspect of the TTJ further characterizes it as a longitudinal case. In other words, the TTJ case represents the rarity of improvisational collaborative processes constructed by ordinary people without any customized technical resources or new technologies.

Given that the TTJ participants were novices at executing relief work, it is intriguing to investigate how they managed to do what they did as they were continually finding out things, doing things, and then needing to find out more things, both individually and collaboratively within a short period of time. Considering the speed of their progress, the volume of work, and the distance involved in this self-organized collaborative effort, one might assume that they were guided by charismatic leadership, surrounded by circumstances of affluent financial support as well as human networks and a collective of expertise. However, the data gathered from online observations, in-person interviews and offline observations, and documentation (tracing digital footprints) tell otherwise (see in this Chapter section “3. Data Collection Techniques”).

3.1.4 Summary

In summary, in the case of TTJ, collaborative information activities are the underlying process that interleaved with work, learning, and browsing activities, which led to messy but successful effort. For the TTJ participants, not knowing how to send the aid required them to seek, use, and search information at almost every step, since sending the aid requires significant amounts of information that helped them make decisions, identify work tasks, and judge the information presented to them. Figuring out what to look for (declarative knowledge) and how to locate it (procedural knowledge) were the constant activities that the TTJ dataset indicates.

3.2 Research Questions

Described under the uniqueness above, the selected case, “Tutteli to Japan” (the TTJ) represents a multifaceted world, especially from the perspective of how people interact with and act upon information. Also, the initial interaction that led to the TTJ illustrates “find a way to help processes” that trigger the spread of the concern for breastfeeding mothers in the disaster affected Japan. The processes in other words are collaborative and parallel to both information activities (i.e., information search, use, seeking, and sharing) and self-organizing. Therefore, my research examines the process of how people develop information needs in social contexts in order to understand how their information activities shape spontaneous collaboration.

In sum, my research aims to answer the three questions below:

Overarching RQ:

How do ordinary people’s information activities shape spontaneous collaboration?

RQ-1: How do ordinary people search for information in a self-organizing effort?

RQ-2: How does such kind of information behavior make collaboration work?

3.3 Data Collection Techniques

For those research questions and given the research opportunities described in the background section above, four different data collection techniques were applied. These are 1) online observations, 2) in-person interviews and 3) offline observations, and 4) documentation all of which were based on tracing digital footprints such as websites and online comments.

These multiple techniques were applied in parallel and were adjusted according to the nature of the event itself (being a large-scale natural disaster) and real-time occurrences, such as the availability of hyperlinks and interviewees.

The figure below is an image of the procedure evolving and involving the four different techniques for data collection (see Figure 3). As described earlier, this study began when the 2011 Great Tohoku Earthquake and Tsunami in Japan happened. Since it started with no pre-designed research plan, its data collection began as simple, unstructured online observations.

Thus, the procedures and applications of the additional data collection techniques were properly designed as the phenomenon began in 2011. However, the researcher is carrying on a regular “check-up” online to capture any updates on the baby formula issues in Japan as well as to follow up with the TTJ social media activities (see Table 8 for details in the following section “3.3.1. Data gathered from documentations”).

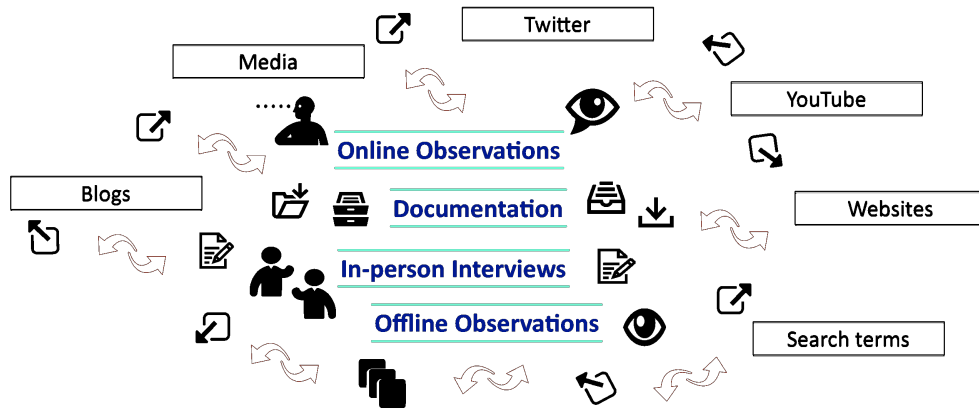


Figure 3: Overview of data collection techniques

3.3.1 Online Observations

The primary data collection technique used in this study is online observation. Online observation is very much like traditional observation technique, that is a method of data collection that enables the researcher to gather data across perspectives, time and in the phenomenon’s natural setting (Yin, 2013; Crosswell, 2012). This description of observation applies to the setting of online environment, although the only difference between these two is the role of the researcher in the study environment (i.e., “Observer roles in offline and online”). The contemporary Internet lends itself to social inquiry through qualitative observation (Yin, 2013). For example, in the context of an open source software community, Nørskov and Rask (2011) used OSS mailing list as a field for observations. In online settings, the study reveals that the trustworthiness of observational data is crucial, but it is obtainable under the right circumstances such that rich and detailed quality of data is being produced by the subject community or subject individuals.

On the other hand, the Internet as a technology in general has limitations as a communication medium. For example, a high degree of anonymity causes misinformation and disinformation, potentially jeopardizing communication. Such high risk of misunderstandings and the tendency toward self-contained interactions are both circumstantial in the digital environment, and Twitter is no exception. However, recent social media platforms, with their technical synchronization features fostering ubiquitous computer-mediated communication, loosen the boundaries of “access,” especially to a “community” or “group” or beyond “the virtual space” of specific applications (Mann & Stewart, 2000). Furthermore, online observations are beneficial especially from combining a multitude of observable activities happening in multiple platforms simultaneously, especially for a real-time observation. In other words, in the current technologically mediated environment, multiple “fields” are made available through hyperlinks and networked platforms and applications, so that online observations are able to benefit from such expandable boundaries to find additional sources to verify the data obtained in a specific space or set of interactions online. Although Nørskov and Rask’s study dates back several years ago (2011), their definition of observation becomes more applicable to the current online environment: observation as one of the ways to describe activities, behavior, actions, conversations, interpersonal interactions, organizational or community processes, or any other aspect of observable human experience.

With flexible access to potential sources of evidence, online observation needs to maintain validity of data sources as well. Links from one source provide opportunities for additional observations, but quality of relevance and degree of dependability must be assured. Therefore, the quality of online study settings must be assured through careful examination of selecting the subject “field” where it gives the individual observer some degree of flexibility in choosing appropriate roles while observing, whether it be the complete participant, participant- as-observer, observer as participant, or complete observer.

In addition, social media is bounded culturally by its technical features, or language. In particular, Twitter is restricted to 140 characters in one message (as of 2011). In addition to abilities in technological and technical access to social media space, its contents depend on the content producer’s preferences (i.e., visibility or reach of a message depends on the sender’s

setting). With or without Twitter account, as of 2011, Twitter enabled public search to crawl a certain pool of tweets.

Data gathered from online observations

The advantage of being remote, being a lurker or non-participant, and being proficiently literate in both English and Japanese languages is that I was able to follow various forms of TTJ dialogs and texts created by online users globally in real-time. Based on these digital traces of the TTJ phenomenon, I was able to compile a vast amount of data over time. The table below outlines primary data sources gathered from online observations. All the tweets gathered from @TuttelitoJapan and #AutaJapania and blogs of W1 and partial W2, W3, W4, and W5 were translated from Japanese to English (see Table 1 and Table 2). The rest of the data gathered from the online observations was partially and contextually translated.

Data source		Data source code by data producer	Data source category	Data type (Qualitative)	Data type (Quantitative)
Twitter	T1	@TuttelitoJapan	Tweet	Text, links, photos, images	Time stamps, number of entries and participants
	T2	@pullachan	Tweet		
	T3	@BlytheXCS	Tweet		
	T4	Any accounts conversed with Ts	Tweet		
	T5	#AutoJapania	Tweet		
	T6	#Tuttelitojapan	Tweet		
Weblog/Website	W1	"TERVE!!" by @pullachan	Blog	Text, links, photos, images	Time stamps, number of entries and participants
	W2	"Beyond the borders" by @BlytheXCS	Blog		
	W3	"Seiji Yashimura's diary" by the Distributor	Blog		
Search terms	S1	"Tutteli to Japan"	Online publications, e.g., Twitter, weblog, and websites	Text, links, photos, images	Time stamps, number of entries and participants
	S2	"Auta Japania"			
	S3	"フィンママ" ["FinnMama," Mothers in Finland"]			
	S4	"ミルクプロジェクト" ["Miruku Purojekuto," Milk Project]			
	S5	"ミルク支援" ["Miruku Shien," Milk support/Humanitarian aid sith baby formula]			
	S6	"フィンランドのママ" ["Finland no Mama," Japanese moms in Finland]			

Table 1: Primary data source gathered from online observations

To verify data gathered from the primary sources above, I followed links attached or referred to in those data. I also expanded my search using words and phrases mentioned in the dataset that

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	T2	@pullachan	Tweet		
	T3	@BlytheXCS	Tweet		
	T4	Any accounts conversed with Ts	Tweet		
	T5	#AutoJapania	Tweet		
	T6	#Tuttelitojapan	Tweet		
Weblog/Website	W1	"TERVE!!" by @pullachan	Blog	Text, links, photos, images	Time stamps, number of entries and participants
	W2	"Beyond the borders" by @BlytheXCS	Blog		
	W3	"Seiji Yashimura's diary" by the Distributor	Blog		
Search terms	S1	"Tutteli to Japan"	Online publications, e.g., Twitter, weblog, and websites	Text, links, photos, images	Time stamps, number of entries and participants
	S2	"Auta Japania"			
	S3	"フィンママ" ["FinnMama," Mothers in Finland"]			
	S4	"ミルクプロジェクト" ["Miruku Purojekuto," Milk Project]			
	S5	"ミルク支援" ["Miruku Shien," Milk support/Humanitarian aid sith baby formula]			
	S6	"フィンランドのママ" ["Finland no Mama," Japanese moms in Finland]			

Table 1: Primary data source gathered from online observations

To verify data gathered from the primary sources above, I followed links attached or referred to in those data. I also expanded my search using words and phrases mentioned in the dataset that

sounded relevant to the scope of contents based on the Search terms listed in the Table (e.g., S1~S6). This digital version of snowball sampling extended the variety of data sources (e.g., data size of 341 items/460 MB appx). For example, these include ones that copied and pasted electronic articles covering TTJ, which was terminated for free viewing (I did not know that Japanese newspaper companies have strict policies for free articles and remove URLs very quickly). The comments under articles or question entry contained not only personal opinions about baby formula and the TTJ itself but also reference to another “field” for observations, for example controversial debate over breastfeeding versus a “long-life milk.” I did not know the resistance over baby formula that was totally unimaginable and culturally eye-opening. I recalled that in Japan milk products expire within a few days on average as an indicator of its freshness. Most notably, the Search terms used in search engines led to the comment space where I found @TuttelitoJapan’s response to those discussions. These additional data sources provide very rich background information of the TTJ and the people behind it that were not made available or knowable to Twitter conversations or blog posts. The table below exemplifies such data gathered from extended search (see Table 2).

Data source	Data source code by data producer	Data source category	Data type (Qualitative)	Data type (Quantitative)	
Weblog/Website	W4	“3 & 1”	Blog	Descriptive in Text, links, photos, images	Time stamps, number of entries and participants
	W5	“ホルンとフィンとアレルギー” [“Horn”]	Blog		
	W6	“Japanese mothers in Finland” [“mixi”]	SNS site		
	W7	“Yahoo!知恵袋” [“Yahoo Answers”]	Discussion Board		
	W8	“最強母乳外来” [“Breastfeeding”]	Blog		
	W9	“オルタナ” [“Altana Social Innovation Magazine”]	Web magazine		
	W10	Finnair	Press Release		
Newspaper	N1	Sankei Shibun/ Fuji News Network	News article	Descriptive in Text	Time stamps
	N2	Kyodo News	News article		
	N3	Yomiuri Shinbun/ Nihon Television News 24	News article		
	N4	Radio Fukushima	News article		
YouTube	Y1	tuttelikko	Video	Descriptive in voice and text	View counts, video length, likes
	Y2	Japanese government [the Cabinet Office]	Video		
	Y3	Fuji Television Network	Video		

Table 2: Additional data sources gathered from digital snowball sampling

In addition, the table below summarizes the amount of data gathered, specifically these two TTJ core data sources from Twitter: @TuttelitoJapan and #AutaJapania (see Table 3). The hashtag “AutaJapania” (i.e., translated in English “Help Japan”) was found by tracing several accounts who appeared in a conversation with @TuttelitoJapan. A total of 225 tweets was retrieved by #AutaJapania, one of which tweets proposed to use this hashtag on March 18th. The last tweet with the hashtag dated on May 14th, 2011, resulting in total of 73 unique users who used the hashtag (i.e., 73 tweets were retrieved by unique user account). A total of 262 tweets was retrieved by the account @TuttelitoJapan (using search feature and data mining API in 2011~2014), of which 94 unique users were identified as a tweet directly sent by @TuttelitoJapan, between March 17th to August 17th, 2011. The user account @TuttelitoJapan was found through a blog post of TERVE!! on March 18th, 2011. This blog was subscribed in my RSS feed prior to the earthquake (See more detail in Appendix/Vignette). In relation to the TTJ, the TERVE!! eventually became a virtual information center for the TTJ progress. Please see tables of summary below (see Table 3, Table 4, and Table 5).

	Number of tweets retrieved	Number of users tweeted with/to	Time period
#AutaJapania	225	73	57 days (3/18 – 5/14/2011)
@TuttelitoJapan	262	94	153 days (3/17 – 8/17/2011)

Table 3: Number of tweets by TTJ participants

	Written by	Number of blog posts	Time period
TERVE!! (blog)	A Japanese mother, married to Finnish, in Tampere, Finland	36	57 days (3/18 – 5/14/2011)

Table 4: Number of blog posts by TTJ participants

All those blog posts on TERVE!! were written in Japanese and used a tag “Tutteli to Japan” (the author added this tag after the TTJ resolved around 2012). Among all the tweets retrieved (#AutaJapania and @TuttelitoJapan), the majority of tweets were written in Japanese, followed by Finnish and English (See Table 5# below). Approximately 30% of #AutaJapania tweets and 10% of @TuttelitoJapan were tweets of reposts or forwarding tweets (i.e., ReTweets).

	Tweets retrieved					
	In English	In Finnish	In Japanese	Total	ReTweets sent	Hashtag used
#AutaJapania	8	31	186	225	75	19
@TuttelitoJapan	1	4	257	262	30	4

Table 5: Types of tweets by two primary sources

In terms of tweets distribution by dates, both pools #AutaJapania and @TuttelitoJapan indicate the highest number of tweets that fall into the earlier days of the TTJ, up to March 29th of 2011 when the first shipment was confirmed as arriving in the disaster-affected communities and started distributing to the mothers there. More specifically, in case of #AutaJapania, a total of 164 tweets were generated before the first shipment was confirmed delivered to the disaster affected communities, whereas a total of 136 tweets in @TuttelitoJapan. In other words, 72% and 51% of each set of total tweets was generated during this period of time when they were working on arranging, organizing, and executing the first shipment. Also, the blog posts on TERVE!! were generated responding in concert to the TTJ social media activities, with some delay for it functioned as a virtual TTJ progress report or information center. Distribution of tweets and blog posts by dates elucidates the intensity of TTJ interactions diminishing over time (see Table 6).

Dates		Number of Tweets sent		Number of blog posts
		#AutaJapania	@TuttelitoJapan	TERVE!!
Mar 17 – Mar 25		124	106	4
Mar 25 – Mar 29	1 st shipment	40	30	5
Mar 29 – Apr 1		14	13	3
Apr 1 – Apr 5	2 nd shipment	15	13	4
Apr 5 – Apr 6		0	1	0
Apr 6 – Apr 13	3 rd & 4 th shipment	24	13	6
Apr 13 – Apr 18		3	5	3
Apr 18 – Apr 20	5 th shipment	2	6	3
Apr 20 – Apr 27		1	9	2
Apr 27 – Apr 28	6 th shipment	0	3	1
Apr 28 – Jun 13		2	18	5
Jun 13 – Jun 17	Unofficial 7th	0	9	0
Jun 17 – Aug 17		0	36	0
Total		225	262	36

Table 6: Distribution of tweets by dates

Next, I discuss in-person interviews and offline observations I was able to conduct in order to increase the verifiability of data I gathered from online observations.

3.3.2 In-person Interviews and Offline Observations

“Interviews are an essential source of case study evidence because most case studies are about human affairs or actions” (p. 113, Yin, 2013). For this case study that is no exception. The key elements are actions and processes that led to the TTJ spontaneous collaboration work (see in this Chapter, “2. Research Question”). In fact, the primary data set relies on evidence of those actions that were expressed in text. These texts represent some sort of “a report” signified by some of those people on their personal space of blogs and/or through tweeting of their personal thoughts and opinions. On the one hand, these sources of evidence are of the TTJ experiences expressed directly by the TTJ individuals in real-time of the TTJ being carried out, but on the other hand, they were technologically mediated products of textual communication. Also, these sources of evidence are real people acting on the interactions, but they are with names of anonymous or pseudonyms. Given such conditions of the primary set of evidence, adding “real voices” of actual individuals who “know” or “speak for” the TTJ, whether they are the producers of these textual data reinforces quality of the whole data set.

Data gathered from interviews in Japan

Using the primary data set, contact information of these people was found and email was used for the first round of recruitment followed by references provided by the first round of interviewees. Based on the email recruitment and snowball sampling, eventually four face-to-face interviews took place in Japan. The table below summarizes these four interviews (see Table 7).

Data source	Data source code by data producer		Data source category	Data type (Qualitative)	Data type (Quantitative)
Interviewee	I1	the Driver: Mr. Y	Informant	Audio recordings, transcription in Japanese and English, documents, links, photos, image	Time stamps
	I2a	the Distributor: Mr. Yo	Informant		
	I2b	the Assistant: Mrs. S	Informant		
	I4	the Reporter: Mrs. H	Informant		

Table 7: Data source gathered from in-person interviews

Based on the online observations and documentation, potential interviewees were identified. After rejection emails arrived from the primary data producers in Finland (i.e., @TuttelitoJapan, @pullachan, and @BlytheXCS in the previous section 3.1.1 in Table 1, one individual in Japan

whose name appeared in multiple data sources in multiple times (W3 in Table 1; I1 in Table 7) was recruited successfully for in-person interviews. Back then this informant was the only data source as an actual person who “knows” the TTJ, so that visiting the person to conduct interviews in-person rather than online was scheduled in order to maximize the opportunity for richer data to be collected as much as possible. This informant referred to another informant who worked for the TTJ (I2-a & I2-b). In the meantime, newspaper companies all of which reported the TTJ were recruited through their website and its viewers’ feedback section to send a request for interviews. One of the four media companies, Japan National Broadcasting company (“NHK”) responded, and a female reporter (I4) who televised the TTJ delivering the formula to Tohoku was interviewed in Tokyo nearby the NHK office.

On March 16th and 17th, 2015, I was able to meet the informant (I1) and spent these two days in Ishinomaki, Miyagi where the TTJ was delivered in a few locations. For these two days, I not only interviewed I1, but I also was able to follow the routes of the TTJ delivery as well as to observe the adjacent areas with remaining devastations. In the meantime, I1 made a phone call for me to set up another interview with the driver who delivered the TTJ to Ishinomaki. This driver, I2 delivered the TTJ from Narita airport to the designated locations including Ishinomaki. One week after the interview with I1, on March 23rd, I visited I2’s office and was able to interview I2-a and his assistant (I2-b). Both also worked together for the TTJ in 2011. From this interview, I learned “things” that they worked on for the TTJ such as searching how to receive import goods and figure out emergency vehicle registration. I was able to obtain copies of documents that I2-a and I2-b created for the TTJ delivery. During my stay in Japan, I was also able to get hold of a female Journalist of Japan Broadcasting Company (“NHK”) who covered TTJ in May 2011 (I4). All the interviews were recorded using a digital recorder, transcribed in documents, and translated from Japanese to English.

For those interviews, a translated version of “Interview Protocols” (see Appendix A) was used. Interview protocols consist of three main components: 1) Beginning of TTJ, 2) Information activities and technology used during the TTJ, and 3) Overall experiences of TTJ. Since these interviews were conducted three years after the TTJ happened, the protocol was kept open-ended, unstructured in order to maintain free flowing conversations (see Appendix D). This approach was carefully planned due to the time lag between 2015 when the interviews were

conducted and 2011 when the TTJ was carried out. In order to stimulate the recall process, TTJ project milestones identified from the online observations were used. These milestones were identified prior to the interviews, for consistency checking, confirmability, or factual trueness checking (Krathwohl, 1998), by creating multiple versions of the timeline of the TTJ, for example, the timeline of the first shipment based on online observations (Takazawa, 2014).

All interview sessions were recorded using a digital recorder, transcribed, and translated from Japanese to English. In transcribing the recordings, a broader range of actual and behavioral issues and perspectives were addressed, in regards to the focus of this study (“memoing”). It was so because it required additional data collection online, and that also required verification of the contents by pulling out from different sources that speak for each other. At the same time, the transcribed interview data was occasionally and fully translated to English, from time to time (e.g., Made another TTJ timeline based on the driver’s experience, I1, I2-a & I2-b). The transcribed translated interview data was referred to relevant data from other data sources.

3.3.3 Documentation

I began developing a collection of the TTJ data or digital footprints I found across the Internet when I was reading/following the blog entries and any other websites related to the case as detailed in the earlier section of this chapter. As a qualitative researcher, I especially paid attention to maintaining archived tweets, photographs, web-posts, creating PDFs of screenshots, any other publications, and the like. This is when the documentation for this case study began to control investigative processes and maintain a chain of evidence (Yin, 2013). This documentation process developed hand in hand with all the other techniques discussed above for this case study data collection.

Data gathered from documentations

The collection of data contains publicly available information dating back to 2011 as well as new data collected ever since the phenomenon. Since such information is ephemeral and not necessarily permanently accessible, I have occasionally searched for the TTJ related information (i.e. the disaster commemoration period aftermath of 2011 March 11th). I also kept saving most of them in a PDF form, downloaded original tweets in a CSV form, and recorded search terms I used for search tools both Google and ones featured in social media applications.

File Name	Format
2011 03.11_kishoucho_2011 03.11_i_map_m (Japan Meteorological Agency)	jpeg
2011 03.11_kishoucho_2011 03.11_news releases_intensity (Japan Meteorological Agency)	jpeg
2011 03.11_気象庁_03.11.2011_kaisetsu201103111600 (Japan Meteorological Agency)	pdf
2011 03.17_Twitter_@momtter_RT ttj_子育てママター編集部 on Twitter- "★【拡散希望】	pdf
2011 03.24_webDICE_フィンランドから Twitter 力で"乳児用ミルクが届く" rechecked 2016 06.13 (Web Magazine)	pdf
2011 03.24_webDICE_フィンランドから Twitter 力で"乳児用ミルクが届く" rechecked 2018 06.25 (Web Magazine)	pdf
2011 03.30_web page_Finnair_rechecked 2017 06.21 (FinnAir)	pdf
2011 03.30_JP Finnair_News_Preview of "News - Finnair" (FinnAir)	pdf
2011 03.31_09.59.00_Preview of 環境と CSR と志のビジネス情報誌"オルタナ" フィンランドから紙パックミルク入り到着 (Web Magazine)	pdf
2011 04.01_blog_日赤について_これが炎上ってやつなの? 清水国明のブログ (Blog by a TV host)	pdf
2011 04.02_blog_日赤との面会後_この子たちのためなら...清水国明オフィシャルブログ (Blog by a TV host)	pdf
2011 04.05_youtube_Tutteli to Japan-no music_image (Youtube)	pdf
2011 04.05_youtube_Tutteli to Japan-no music (Youtube)	pdf
2011 04.11_twitforyou_【完了】★調乳済みの乳児用パックミルク★_image (a PR flyer created by supporter)	pdf
2011 04.11_twitforyou_【完了】★調乳済みの乳幼児用パックミルク★ (a PR flyer created by supporter)	pdf
2011 04.16_blog_キノコネコノユトピア-北欧フィンランドでの日々-被災地へ、フィンランドのミルクを! ラジオ放送のお知らせ w 10 comments 2018 06.25 (Comments on blog)	pdf
2011 04.16_blog_キノコネコノユトピア-北欧フィンランドでの日々-被災地へ、フィンランドのミルクを! ラジオ放送のお知らせ 2018 06.25 (Comments on blog)	pdf
2011 04.18_blog_最強母乳外来_竹本さん返事 (Comment by @TuttelitoJapan)	pdf
2011 04.27_読売新聞_フィンランドから水に困る被災地へ 邦人ママ 液状ミルク支援 (Yomiuri News)	pdf
2011 05.21_日テレ_海外からも...子育てママへの支援の輪_日テレ NEWS24_記事とビデオ (2011.05.21) (NTV)	pdf
2011 05.21_日テレ_海外からも...子育てママへの支援の輪 日テレ NEWS24 (NTV)	pdf
2011 06.09_ttj_finnish media coverage_tweets 214_urled_google transl_rtv.fi-fontfontHelsinki to thousands of liters of milk disaster area in Japanfontfont	pdf
2011 06.19_読売新聞_液体ミルクで大助かり_2011 06.19_Yomidasu Rekishikan Archives (Yomiuri News)	pdf
2011 06.19_読売新聞_記事切り抜き紙面_2011_06.19_液体ミルクで大助かり (Yomiuri News)	pdf
2011 12.02_読売新聞_災害時に有効 液体ミルク市販求める声 (Yomiuri News)	pdf
2011 12.02_yomiuri_災害時に有効...液体ミルク市販求める声 (Yomiuri News)	pdf
2011 12.02_読売新聞_記事切り抜き紙面_2011_12.02_災害時に有効 液体ミルク市販求める (Yomiuri News)	pdf
2012 02.20_Finnair Cargo News_2011 CR (FinnAir Cargo)	pdf
2012 03.09_ttj_tsurunen_interview talking about ttj_by Embassy of Finland, Tokyo_Current Affairs_News	pdf
2013 01.17_mixi_Preview of "[mixi] 世界のミルクを日本へ☆USA☆ Finland での活動状況" (SNS site)	pdf
2013 01.17_mixi_profile of [mixi] 世界のミルクを日本へ☆USA☆_Preview of "[mixi] Ai_Austin さん" (SNS site)	pdf
2015 03.27_気象庁_intensity image_from 気象庁_03.11.2011_kaisetsu201103111600_cropped (Japan Meteorological Agency)	pdf
2016 03.08_共同通信_【くらし】液体ミルク赤ちゃんに国内解禁目指し、主婦が署名活動 - 共同通信 (47NEWS)	pdf
2016 03.21_Gmail - RE_アメリカから、はじめまして!(Email correspondence with pullachan)	pdf
2016 10.16_yomiuri_facebook search comments to TTJ (Yomiuri News)	pdf
2016 10.16_読売新聞_乳児用えきたいミルク 解禁へ (Yomiuri News)	pdf
2016 10.16_産経ニュース_乳児用の液体ミルク「解禁」へ...政府検討、年度内に方針 災害時に強み、男性の育児参加後押しにも - 産経ニュース (Sankei News)	pdf
2018 03.12_朝日新聞デジタル_液体ミルクの販売、今夏にも解禁へ 育児負担軽減に期待 (Asahi News)	pdf
2018 07.14_読売新聞_液体ミルク倉敷へ 記事切り抜き紙面 (Yomiuri News)	pdf
2018 08.09_朝日新聞_乳児用液体ミルク、8日解禁 市販までは1年以上 (Asahi News)	pdf
2018 08.09_読売新聞_液体ミルクきょう解禁 記事切り抜き紙面 (Yomiuri News)	pdf
2019 03.05_時事通信_グリコ、乳児用液体ミルクを発売=国内初、お湯不要で長期保存可能存可 (Jiji News)	pdf
2019 03.11_ライブドアニュース_日本初の液体ミルク、待望の全国販売 (Livedoor News)	pdf

Table 8: Additional sources of evidence gathered from online observations

In fact, additional data was collected. For example, from databases of Japanese news agencies, digital versions of newspaper articles published in 2011 and thereafter were retrieved.

The table above showcases additional online publications gathered from online observations carried out over time.

Having multiple sources of evidence collected by multiple modes of data collection techniques, this single-case study maintains overall quality of its data. Relevancy in each dataset collected by different data collection techniques is also evaluated since each data collection technique produced complementary datasets. Next, I briefly go over how I prepared the dataset for analysis and analysis techniques I chose. As mentioned in the in-person interview section, prior to doing the interview, an online search produced invaluable information to create a timeline with the TTJ milestones. During the open, semi-structured interview in person, that timeline information and the researcher's gained knowledge were used to formulate questions to verify the information gathered from the online observations and documentation and learn more about missing points of events and activities from the interviewees. These dialogs also facilitated the recalling of the interviewees' memory that was dated back to 2011. Their memory reconstruction was maintained for significant results of "revisiting" what they have done with the researcher. Also, the informants referred to new resources to look up to verify and add to the data collection. This additional data collection process signified the important role of archiving and using documentary evidence which allowed the researcher to corroborate and augment evidence gathered from multiple sources repeatedly (Yin, 2013).

Next, I illustrate the application of core approaches in qualitative data analysis using computer-assisted qualitative analysis tools and the ways in which I processed the whole dataset to generate different versions of integrated datasets to manage both quality and credibility of multiple sources of textual data.

3.4 Data Collection and Processing

Data gathered from multiple sources online necessitated both translating and transcribing processes of collected data. Data processing (to organize, format, and interpret data) was entangled by the researcher's cognitive processing involving memoing in English and reading Japanese texts of the dataset as well as the same dataset but English translated version. This

untidy process of transcribing, translating, and interpreting was thought-provoking, especially in parallel with organizing and manipulating the data for analysis.

In this section, I tease out the interconnected processes of transcribing, translating, and interpreting the TTJ social media data.

3.4.1 “The true messiness of reality with all the confusing details”

In the phenomenon of TTJ, certain kinds of translation were involved, all of which required both literal and cultural interpretations. Among the TTJ participants, active interpretation of messages was necessary on social media where ideas and thoughts are expressed in the language use specific to the platform. Moreover, in Japanese writing on Twitter, 140-character restrictions lead to creative word use, word compression (i.e., Kanji), and simplified pronouns. Additionally, the written style is mixed with both colloquial and formal variations. In the context of the TTJ, contextual inquiry among the participants triggers additional needs for clarification in various aspects, due to the fact that the effort itself is seemingly impossible for several reasons. First, the organizer of the effort was in Finland, thus outside of the country. Second, the effort that these folks were trying to accomplish involved international trading processes (under such circumstances as the national crisis). Third, all the people working on the effort were mostly laypersons or volunteering individuals. Fourth and last, the aid item itself is an unfamiliar product that did not exist in the country prior to the TTJ. For the researcher of this study, therefore, it is important to unpack the processes for both illustrating TTJ textual data processing for coding and coding processing for the study. In the following section, I go over these processes using tables and figures.

3.4.2 Translation Example in Three Versions

The coding processes of TTJ social media transcripts are fitting given the dual aims of the larger project: to study subjective experiences as a qualitative research study on the TTJ phenomenon and to manage language differences in data processing as well as data analysis. The data itself is generated in a non-English language, and the main researcher spoke the same non-English native language (Japanese) so that this study ensured rigor in its translation processes. Although the main researcher and the authors of the TTJ textual data have the same non-English

native language, this study's coding scheme and coding procedures were developed based on scholarship written in English¹. Therefore, the coding and translation processes were carried out concurrently. As a result, three versions of the translation were produced. The table below (Table 9) shows different versions of translation based on four strategies applied to TTJ tweets and other forms of data (i.e., not shown in the example table but also applied to blog posts and interview transcripts).

First, I used Google Translate for double-checking purposes. Google Translate² then produced a "direct" or "word-for-word" type of translation, so that it is comparative to the researcher's translation, especially for a tweet type of writing. Since I am a native speaker of Japanese, I was concerned about my subjective influence on translation processes. In order to assure that I minimized my influence on these processes, the original texts were primarily used so that the analytical lens is focused on the source language in which nuances and contextual subtleties were preserved in theory. In the meantime, different versions of translated transcripts were also used as secondary as the originals were coded. These back-and-forth processes were fitting for verification of the source language and targeted language because it facilitates recording of meanings in the source language, intended, contextual, and/or mixed or influenced with the researcher's interpretation. By so doing, the fluid description of meanings in original transcripts allows the interpretations to be transparent. In lieu of various kinds of translation in the target language, these procedures serve as parsing the authors' speech (i.e., the TTJ social media authors or authors of TTJ tweets) even though in my case their real voices are lacking (van Nes et al., 2010). As a result, different versions of translated transcriptions were generated. These versions of translation did not evolve in order or sequence of any kind. These transcripts were repeatedly edited during the coding and when the study was presented to audiences of English native language speakers. The following table exemplifies different versions of translation.

¹ The language choice of English for coding scheme and procedures was based on the researcher's research training and educational background in the field of Information Sciences, all of which were based in the United States research institutions.

² Google Translate is a free web-based machine translation service developed by Google. The translation tool is available for 103 languages as of 2019. According to Wikipedia, it initially used "statistical machine translation" that relied on cross-referencing billions of words of text, both monolingual text in the target language, and aligned text consisting of examples of human translations between the languages. However in November 2016, it switched to "neural machine translation" that relies on "whole sentences at a time from a broader range of linguistic sources" (Sommerlad, 2018).

ORIGINAL TRANSCRIPT (SOURCE LANGUAGE, SL)	STRATEGY for TRANSLATION⁶
まずこのミルクの説明です。このミルクは調乳済みで、開けたらすぐに飲み、未開封の状態です。常温保存でき5カ月持ちます。水も満足にいきわたらない状態で、粉ミルクを調乳するのは大変困難かと思えます。このミルクの存在をぜひ皆さん広げてください。一日も早く赤ちゃんにミルクを届けたい。	In Japanese 140-words length, restricted by 2014 Twitter TOS
GOOGLE TRANSLATE	Word-for-Word Translation:
First of all, this milk explanation. This milk has been conditioned, can be drunk as soon as it opens, it can be stored at room temperature in an unopened state for 5 months. I think that it is very difficult to prepare powdered milk in a state where water is not satisfied (various cities and large regions are suffering from blackout) /water supply is not much available. Please extend this milk existence by all means. I want to deliver this formula/ this "liquid milk" (literal translation from the original) to babies as soon as possible.	to compare the researcher's ³ subjective translation (semantic, idiomatic, communicative)
TRANSLATED FOR CODING	Semantic Translation:
First of all, let me introduce this infant formula from Finland. It is a ready-to-drink, no water needed milk. Unopened, it lasts for 5 months. Due to the severe shortages of both water & electricity in Japan, I/We believe that it would be extremely difficult for mothers with newborn babies to make a powder-based infant formula in Japan. Please disseminate this message and let people know that there exists such a great product as baby formula not powder baby formula. I want to send this baby formula to babies in Japan as soon as possible.	to obtain the original tweet sentence structure and word selection, but to be comprehensive as in English writing.
CONTEXTUALIZED TRANSCRIPT	Idiomatic & Communicative Translation:
First of all, let me introduce this infant formula from Finland. This formula is conditioned in a way that it is a handy, disposable packaged milk for babies. What it means is that it is a ready-to-drink, no- water- or more accurately no boiled water is necessary. Unopened, it lasts for 5 months at room temperature. During this blackout and shortage of water supply, I/We believe it would be extremely difficult for mothers to make Japanese infant formula (only powdered available in the country) without water and electricity. Please let people in Japan know about this product and disseminate our message so that people can know that there exists such a great product for mothers suffering from the blackout. I/We want to deliver the formula to the babies as soon as possible.	to provide cultural and contextual meaning and explanation for the original meaning and nuances.

Table 9: Different versions of translation

³ Ordudari, M. (2007). Translation procedures, strategies and methods. *Translation Journal*, 11(3). Retrieved from <https://translationjournal.net/journal/41culture.htm>

3.4.3 The Evolution of the term “Baby formula”

Japanese tweet-writing can be very creative since Twitter specific jargon and terms temporally become popular (Miyabe et al., 2012). For example, since the TTJ phenomenon emerged under national crises, these authors were under time pressures and expressed their emotional responses and eagerness to send the baby formula to Japan. In fact, the TTJ eventually created a term “a liquid milk” (direct translation of “ekitai miruku”), which I semantically translated to “a ready-to-drink” packaged baby formula for coding; in short “a ready-to-drink” milk. This term, “a liquid milk,” which appears as the 186th tweet by @TuttelitoJapan. Before the term appears, several different versions of the description were found, as in a gradual process of collaboratively clarifying the meaning of the formula in Japanese. The table below demonstrates the evolution of the term. Even for native Japanese, “a liquid milk” does not make sense at once (see Table 10). The word might only make sense for those who know the word for Japanese baby formula that is “a powdered milk” (“kona miruku”). Also, the English-inspired word, “miruku” (milk) gives a clue to a baby-related product, due to the existing term “kona miruku,” which is only for babies. Alternatively, “miruku” means the cream for coffee, but under the circumstances this alternative meaning gets to opt out easily. For general usage, “gyunyu” is the word equivalent to milk. However, in Japan there is no packaged liquid baby formula types of product available. There is only one kind of baby formula available, which is in powder form. To feed a newborn baby with milk, or to make formula for babies, you need a baby formula making kit: steamer/boiler, baby milk bottle, and cleaning kit for all the equipment. Thus, the TTJ participants generated tweets to describe the baby formula in several versions of the message over the course of action during the TTJ. The Table 10 illustrates [additional translation as supplemental information or explanation was necessarily involved with the TTJ information activities] an evolution of the Japanese word for “baby formula”.

Original Description of “baby formula” in JPN	ENG Description by Google Translate (2019)	Source location with timestamp (Number indicates temporal order)
水のいないミルク	Milk without water	3. Thu Mar 17 2011 23:58:40 by @TuttelitoJapan reply to @ [REDACTED]
「紙パック入り液体ベビーミルク」	Liquid baby milk with paper pack	17-00. Fu [REDACTED] by @[REDACTED] in response to @TuttelitoJapan
パックを開ければすぐ飲める、水の必要のないミルク	If you open the pack, you can drink immediately, milk that does not need water	58. Sun Mar 20 2011 5:39:11 by @TuttelitoJapan
調乳されてテトラパックに入っています	It is prepared in Tetra Pak preparation	113. Sat Mar 26 2011 20:18:45 by @TuttelitoJapan reply to @ [REDACTED] @[REDACTED]
調乳されたもの	Prepared preparation	114. Sat Mar 26 2011 20:21:40 by @TuttelitoJapan reply to @ [REDACTED]
調乳されたミルク	Milk prepared milk	120. Sun Mar 27 2011 8:25:24 by @TuttelitoJapan
常温保存ミルク	Cold storage milk	132. Mon Mar 28 2011 18:59:49 RT by @TuttelitoJapan
水のいないそのまま飲めるミルク	Milk that can be drunk without water	133. Tue Mar 29 2011 4:17:04 by @TuttelitoJapan
手間がかからないミルク	Milk without trouble	138. Wed Mar 30 2011 15:42:25 by @TuttelitoJapan
水不要ミルク	Waterless milk	146. Thu Mar 31 2011 18:00:53 by @TuttelitoJapan
水のいない液体ミルク	Liquid milk without water	155. Sat Apr 02 2011 5:11:46 by @TuttelitoJapan
Tutteli(水の不要な液体赤ちゃんミルク)	Tutteli (unnecessary liquid baby milk in water)	160. Tue Apr 05 2011 7:49:05 by @TuttelitoJapan
液体ミルク	Liquid milk	186. Thu Apr 21 2011 20:25:31 by @TuttelitoJapan

Table 10: The evolution of the term, “baby formula” in Japanese

3.5 Data Analysis Procedures

Having the multiple data sources that branched out throughout the internet, the data analysis took place both simultaneously with, and subsequent to, the data collection of the online observations, in-person interviews and offline observations, and the documentations. Next, I describe conceptual and technical processes of coding procedures.

3.5.1 Coding Procedures

Even after the iterative readthrough of the whole dataset, it involved trials and errors at various stages. For example, I attempted to proceed in a structured, cohesive manner using computer- assisted qualitative data analysis application such as Nvivo and Atlas.ti. However, neither Nvivo nor Atlas.ti fit the TTJ dataset. These applications offer analytical features but does not seem to afford data organization and data source management to permeate the scattered, unstructured textual data of the TTJ. Eventually, the selected dataset of the TTJ social media texts (i.e., Table 1: the primary data sources) was organized into another web-based application, Dedoose (introduced by Dr.Nancy Baym in person). Apart from the files stored in the Dedoose platform, data from transcribed interview recordings, field notes, and any other evidence gathered online and offline including documents provided by the interviewees and newspaper articles (i.e., Table 2: “additional data sources”) were stored in secured hard disks and converted to/entered into Excel, Text, Adobe, and Word for verifications and manipulations for cross-referencing and possible coding. Even on the platform of Dedoose, the TTJ data were manipulated and reorganized due to technical issues (e.g., Japanese texts were garbled). Also, different versions of data organization were created in order to fit in the structure of the platform. Eventually a) @TuttelitoJapan tweets, b) #AutaJapania tweets, and c) Interview transcripts with the Driver became the core documents for coding (see the figure below: Data Analysis Procedure on Dedoose).

In regards to codes/coding scheme, revised pre-set open codes were applied. As aforementioned, these codes are derived from the conceptual frameworks that underpin processes of information behavior with regards to my research questions, for example: information needs are not used (did not work) but “Needs” and “Information” as a separate code (Codes used will be explained in the following sections). A set of codes (i.e., Figure 7: coding scheme) also went

through revisions in accordance with coding becoming more structured. Next, I illustrate the process of coding using multiple platforms including Dedoose as well as the development of coding schemes (e.g., a set of codes). Here is an image to show an overview of the processes taking place on Dedoose.

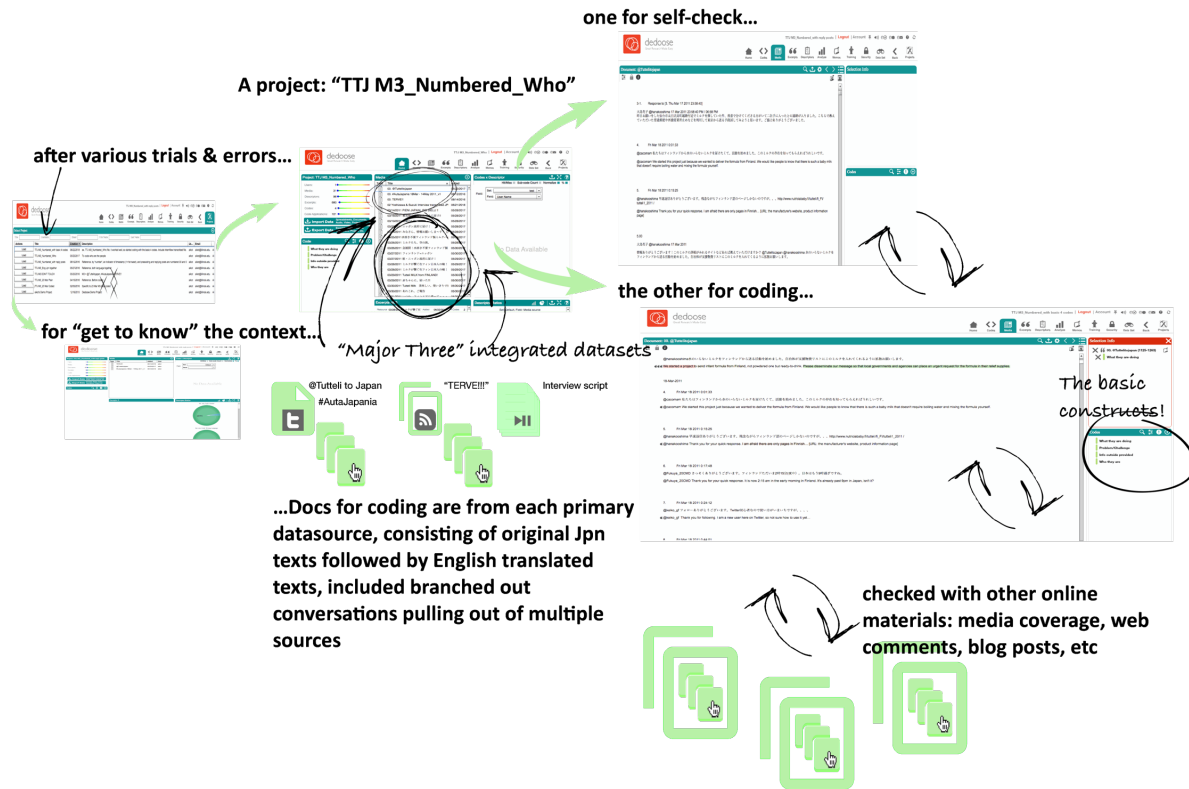


Figure 4: Overview data analysis procedures on Dedoose

First stage of coding: Initial, "open" coding

Prior to coding with any coding book, the initial coding began with an open, exploratory approach for creation of open codes. It is a plain process of reading, taking place with a "let the dataset speak for itself" approach. The open coding picks episodes that highlight a story or stories (mini) in order to create the TTJ storyline as a whole. In the meantime, the key points from the research questions were sought out, for example: spontaneity, collaboration, learning and doing, and acting on information exchanged through social media and private sources.

For this initial coding, different kinds of platforms were used for organization and manipulation of data: MS Excel and Word, printed on paper, and Dedoose. First, two of the primary data sources, a set of tweets @TuttelitoJapan and #AutaJapania were used, and each tweet was organized into a spreadsheet with categories such as types of tweet, contextual information (i.e., free translation and additional information with an intention to generate “thick description”), and user information. Also, a printed version of each dataset was used for highlighting and memoing to write down ideas and some aspects of potential codes as well as the connection of these codes/categories. In order to move on to Dedoose, a web-based qualitative research application, various “projects” were created in order to fit into the Dedoose interface.

Processed data files are labeled as “projects” or “media” to be coded on Dedoose. Since organizing and displaying of content in two languages on Dedoose involved additional cleaning processes, setting up coding processes on Dedoose required another kind of trial and error.

Issues were twofold. First, the translated datasets (both literal and free) required several iteration cycles not only for validity but also for coherence especially for coding. For example, in what order of two translated versions flows comprehensively to code: Japanese sentence first and English next (line by line) in one document or have them side by side, or Japanese and English in a separate document. Second, the integration of diversified data sources required additional data manipulation processes. The TTJ primary datasets are mostly hyperlinked or expanded through referencing other sources such as blogs and names of the organizations relevant to the content (e.g., the reference was not necessarily hyperlinked, and even so the link was no longer available but was traced by public search, which was archived in the TTJ data collection in multiple formats such as pdf and jpeg).

Using Dedoose, the coding processes were carried out multiple times. It involved line-by-line and word-by-word coding, as well as context to context coding. My intention was to find the most comprehensive flow of coding processes going through multiple sources of TTJ datasets.

These datasets were based on the arrangement of pieces of user-generated content, coding processes were literally a process of reading the integrated narratives of the TTJ story (as in the purpose of open coding). However, it was extremely difficult to construct because these are in various formats (e.g., a screenshot in jpeg, a webpage in pdf, a spreadsheet in xls). These pieces

of evidence were gathered through online observation but were made available through hyperlinks by varied individuals. To refine the integrated data arrangements, its parallel process of reading and coding required cognitive processing, most of which were happening in both languages Japanese and English. The contents itself were written in Japanese, but the researcher's mind and perceptions were built up bilingually so that input and output processing were unconsciously separated and intertwined in these two languages from time to time. In short, this open coding allowed me to freely devolve into beyond line-by-line reading.

Second stage of coding: Focused coding process

Based on the open coding, the initial set of seven codes were created for more focused coding through a word-by-word reading. The set included 1) Needs, 2) Information, 3) Doing (work), 4) DT (direct tweet), 5) Response, 6) Something important but unknown, 7) Technology/tools. Using this set of codes, the second stage of coding #AutaJapania dataset was conducted on Dedoose. Every code was not applicable across the entire dataset, especially the codes 5), 6) and 7) were the least applicable. The coding eventually went on with the first four codes for further coding (see Figure 5 below).

Needs	Information
based on imagination	known from own experiences (internal)
because of not working	learned from other sources (external)
under time pressure	URL
	announcement
Doing (work)	questioning
by concrete needs	DT (direct tweet)
by opportunity needs	individuals
by wish	celebrities
	government officials/agencies
	NGO/NPO
	TTJ mom

Figure 5: First four codes

At a fresh start, I tried “doing” as a code similar to “task,” but this “doing” code generated something that does not illustrate categories of what things or acts. Instead of representing actual

“doing” or identifiable piece of work being done, these coded excerpts seem to show implications of degree of intentions. As a result, the subcodes of Doing (work) became to categorize doing by what - such as “by concrete needs,” “opportunity needs” and “by wish.”

Also, the code “Needs” did not work either, because there weren’t many excerpts coded showing clear indication of actual “needs.” Also, “Needs” and “Doing” became indistinguishable (overlapped), especially when the coding process moved on to different sources of data. This coding process with the coding scheme did not produce marginal remarks in each coded set of excerpts, however, as its light remarks, the image of the overall interactions in the context of TTJ appears as if a small, tiny world of people who are to come together. While these individuals are participating in free-flowing discussions, in a come-and-go style of flexibility, they were not just passing by but dropping something for the people working on the TTJ (I define TTJ messages left online as the participants’ contribution). It also identified additional categories of people involved in TTJ (e.g., celebrities, politicians, and other Japanese living outside of Japan), which helps to trace the extended scale of the TTJ conversations online and offline (identified in the interview transcript).

In addition, the way these people communicate is civil, presentable in a way that does not produce any tinkering issues or bother the civility even though these people acknowledge that the TTJ is not yet for real or it is so unsure that the TTJ is coming along or not. In terms of “attitude” or “etiquette” of language use in the texts, there are no jargon terms or online slang language. There are no difficulties to read through and it flows well, as if it was just a casual conversation on a street we experience with strangers. As an approximate sketch of the TTJ phenomenon, literally the TTJ datasets indicate that a certain quality of interaction among the people appeared around the TTJ phenomenon.

Such politeness expressed in their textual communication might be an indication of stereotypical Japanese culture such as people being polite and reserved, not being direct and explicit in words. However, my instinct as a Japanese native sensed otherwise, and foremost, Japanese studies (Singh & Matsuo, 2004; Liu, et al., 2011; Ono & Piper, 2004) support this rival explanation. It is well examined that Japanese communication styles and attitude remain polite and reserved even in public address announcement for evacuation (Arai, 2013), but these

characteristics of Japanese culture become different especially in computer-mediated environments (Danet & Herring, 2007; Nishimura, et al., 2008). Specifically, when people are under high pressure and intense situations such as intergroup and closely knitted relationships (Singh & Matsuo, 2004), this Japanese style of communication and choice of words become direct and explicit. For native Japanese speakers, the in/directness in communication and im/politeness in attitude are an indicator of urgency and status levels in Japanese contexts (Fukushima, 2012).

Assemblages of coded excerpts did not illuminate much of coherent meaning or characteristics of each code: The “Needs” “Doing (work)” “Information” “Direct to whom” (e.g., direct tweet). Instead, it ended with various subcodes. With this set of codes and subcodes, the coding went on treating each text as an entry of an act. This process of textual analysis produced a few numeric descriptions of the TTJ: the number of people involved, tweets produced, hashtags produced, major secondary weblogs and posts which evolved as the TTJ emerged (other than the TTJ initiated members' weblogs; i.e., digital traces extended to relevant threads e.g., breastfeeding vs. formula; donation to Red Cross vs. others). As in content analysis, this stage of coding attempted to make 1) interpretation of attitudinal and behavioral responses to the TTJ interactions, 2) discovery with whom they worked, 3) what information, both precise and imprecise, were presented whether as a need or just for sharing. The coding illuminates some patterns of tweet writing such as a) specific text styles in Japanese tweet format or structure, (messages/data does not indicate any harmful or slang or disturbing contents), b) information credentials or quality of information via Twitter (messages/data does not contain any misleading message or puzzling comments), and c) reflection expressed (no doubt, no contempt in messages/data, while they emphasize unknown sources or unverified information).

After all, this coding needed a different approach, much more grounded to basic constructs of the TTJ. I reflect the reason for this mismatch as a prominent characteristic of (truly) naturalistically occurring phenomena such as online conversation (randomly evolved conversations that consist of different “threads” and hyperlinked, branched out conversations). With respect to the research questions, the coding with this set of codes did not enrich the explanations that reflect my research questions. Instead, tweets were categorized and decomposed tweet structure (to see “Japanese” ness as in linguistic ethnographic study, i.e., RT

types, patterns in RT to see if there are such things as “TTJ” tweets or Japanese tweets, “putting information into different arrays” (Yin, 2013)).

Third stage of coding: Final, “Theoretical” coding

Both approaches to coding, initial open and second focused, guided the third stage of coding, with a new set of codes that are related to and more directly grounded in my research questions: how did the TTJ happen, or how did these people manage to send the bulk loads of baby formula from Finland to Japan? Also, the purpose of the study is to understand the process of spontaneous collaboration from the information study perspective (as discussed earlier in this chapter, section “2. Research Questions”). To be able to answer these questions, the previous set of codes were modified based on the experiences of first and second coding. As a basic construct, the TTJ phenomenon needs the following components: 1) who they are, 2) what they are doing, 3) information presented for any reason or what kind of information they exchanged, and 4) problems or challenges they are going through. In sum, the coding scheme was created as below.

Furthermore, iterative rounds of coding with this set of codes generated subcodes to categorize further detailed granularity of each code. This coding worked throughout different periods of TTJ development as well as different datasets such as blogs, as well as integrated versions of datasets (e.g., blog posts, tweets, and webpages and transcribed interviews). The initial set of codes worked partially well at the beginning of TTJ but soon did not work as there are no words or phrases coded. The final set of codes including codes and sub-codes are displayed in the figure below.

Who they are	Info provided, shared & used	What they are doing
the Mothers	Red Cross	Info sharing & distribution
the Participants	Ministries in Japan	Spreading words
the Someones	Politicians in Fin & Jpn	Reporting
	Celebrities	Asking
Problems & Challenges	Nutricia Co.	Expressing
First time	Municipal agencies in Jpn	Explaining
No experiences	Someone's someone	Discussing
Gaps in knowledge & info		Browsing
Wants, Can & Can't Dos		Coordinating
No idea		Making decisions
Frustrated		Knowledge sharing
Powerless		Hoping
		Info gathering & search
		Remembering & recalling the past

Figure 6: Final set of codes

Summary of three stages of coding

The initial stage of coding led to an exploratory reading. This open coding ended up without any coding scheme being created. However, during the second stage of coding, acts and information aspects of the TTJ interactions were categorized under a code name information and needs. Taking a word-by-word reading, the TTJ textual data were segmented into styles and structure of writing, which highlighted the Japaneseness and the forms of interactions in the TTJ contexts. As subcodes emerged, the presence of certain words, phrases, puns and/or idioms that contain nuances of politeness and indirectness were noted.

Based on this “rough sketch,” the second and final set of codes were created and applied to different datasets. For this stage of coding, a grounded theory approach was adapted rather than application of a specialized dictionary or existing typologies even though the Japaneseness was considered as an overarching theme (e.g., Hofstede’s high or low context cultures). In addition, along with the research question, collaborative aspects of the TTJ were taken into considerations to make codes more directly relevant to them. As a result, the coding scheme was developed as the coding proceeded, creating subcodes.

This theoretical coding with the coding scheme took place iteratively until validating its applicability to the TTJ datasets as a whole and filling in codes that needed further development

and refinement stopped showing any needs to do so. The figure below outlines the coding scheme (see Figure 7).

Who they are Due to 0 matches for "leader" this code allows to find elements to characterize "who they are"	Info outside provided Obvious fact that is "information" is provided by someone from outside TTJ mothers network: Different from info gathering and seeking
What they are doing Activities that the People are doing for TTJ: info gathering, seeking, brainstorming, responding, explaining, spreading, PRing, etc. The coded must be the answer to a question, "What are they doing?"	Problem/Challenge Informational and practical. Info need, help need, past experiences, lesson learned included. "What to be known," "What is known," "What is unknown"

Figure 7: Coding scheme

3.5.2 Coding Examples of Tweets

The first table below demonstrates a coding example of tweets authored by the initial organizer of the TTJ @TuttelitoJapan (see Table 11). The first three columns in the table include: 1) an original transcript, 2) a machine-generated transcript by Google Translate of 2012-20164, 3) a semantically or colloquially translated transcript. The last two columns show simple codes as "Code Category," which were described by activities as "Sub Code") and marked as single tweets (in this example). For the verification of the translation and coding processes, original versions of the transcripts were always included in the table during the coding procedures. Throughout, original transcripts were primarily used for coding, taking into consideration Japanese as a source language. In the meantime, for verification, multiple levels of translation processes were undertaken parallel to coding. Thus, this study included Google Translate particularly for a comparison against semantic and idiomatic translations that the main researcher produced.

The coding scheme applied includes 1) Who they are, 2) What they are doing, 3) Information provided, 4) Problem/Challenges, three of which are in the table above as "Code Category."

⁴ Google Translate is a free web-based machine translation service developed by Google. The translation tool is available for 103 languages as of 2019. According to Wikipedia, it initially used "statistical machine translation" that relied on cross-referencing billions of words of text, both monolingual text in the target language, and aligned text consisting of examples of human translations between the languages. However in November 2016, it switched to "neural machine translation" that relies on "whole sentences at a time from a broader range of linguistic sources" (Sommerlad, 2018).

Each code and its definition were shown in the Figure 7 “Coding scheme” (see “5.1.4. Overview of three stages of coding”). They were developed inductively based on open coding using the grounded theory approach (e.g., Figure 6: “Final set of codes”).

	Transcript Original	Transcript Translated (Google)	Transcript Translated (Semantic)	Code Category (“Final set of codes”)	Sub Code (“Final set of codes”)
1	まずこのミルクの説明です。このミルクは調乳済みで、開けたらすぐに飲め、未開封の状態です。常温保存で5カ月持ちます。水も満足にいきわたらない状態で、粉ミルクを調乳するのは大変困難かと思えます。このミルクの存在をぜひ皆さん広げてください。一日も早く赤ちゃんにミルクを届けたい。	First of all, this milk explanation. This milk has been conditioned, can be drunk as soon as it opens, it can be stored at room temperature in an unopened state for 5 months. I think that it is very difficult to prepare powdered milk in a state where water is not satisfied (various cities and large regions are suffering from blackout) /water supply is not much available. Please extend this milk existence. I want to deliver this formula/ this “liquid milk” (literal translation from the original) to babies as soon as possible.	First of all, let me introduce this infant formula from Finland. It is a ready-to-drink, no- water-needed milk. Unopened, it lasts for 5 months. For water & electricity shortages, we believe it would be extremely difficult for mothers to make an infant formula themselves. Please disseminate our message and let people know that there exists such a great product for mothers in need. We want to deliver the formula to the babies as soon as possible.	- What they are doing - Problems & Challenges - Info provided	- Asking - Announcing - Remembering & recalling

Table 11: Coding example

3.5.3 Interpretation of the Cross-Referenced Data

As illustrated in the tables above, each tweet and blog post, as well as interview transcripts were coded and translated accordingly. Reviewing each dataset for coding, coded excerpts were clustered into key constructs such as information needs and roles. In the meantime, each coded excerpt was cross-referenced within the original transcripts as well as across other transcripts. By so doing, both literal and colloquial meanings of each coded excerpt give rise to detailed understanding of the phenomena, or in situ interpretation of the TTJ phenomenon; therefore, the TTJ processes become descriptive and comprehensive. The table below demonstrates cross-referenced TTJ social media conversations (see Table 12).

blog post on TERVE!!	Announcement tweet by @TuttelitoJapan	Further reaction by others	Response to others by @TuttelitoJapan
<p>03/14/2011</p> <p>PIENI JAPANI, ISO SIELU Small country Japan, Big spirit of Japan (From Finnish to English translation)</p> <p>Dear all the people and families of Japan's earthquakes and tsunamis, I extend my sincere condolences over the thousands of lives lost.</p> <p>I would like to say something cheerful and write something encouraging, but I am not sure what to write. I wish I could do something...</p>			
	<p>(March 17)</p> <p>1. First of all, let me introduce this infant formula from Finland. It is a ready-to-drink, no water needed milk. Unopened, it lasts for 5 months. For water & electricity shortages, we believe it would be extremely difficult for mothers to make an infant formula themselves. Please disseminate our message and let people know that there exists such a great product for mothers in need. We want to deliver the formula to the babies as soon as possible. (cont.)</p>		

Table 12: Cross-referenced social media data (cont.)

blog post on TERVE!!	Announcement tweet by @TuttelitoJapan	Further reaction by others	Response to others by @TuttelitoJapan
	<p>(March 17)</p> <p>2. Thanks to our expanding network of friends and mothers in Finland, we are able to work with Finnair who are willing to provide air cargo for free. We are now looking for someone who can be our recipient in Japan</p>	<p>3-0. [REDACTED] @ [REDACTED] Mar 2011 Thanks for the info (reply)! Would you let me know if there are any websites that I can learn more about the formula? @TuttelitoJapan @ [REDACTED] 水のいらぬミルクをフィンランドから送る活動を始めました。自治体が支援物資リストにこのミルクを入れてくるように拡散お願いします。</p>	<p>3. @ [REDACTED] We started a project to send infant formula from Finland, not powdered one but ready-to-drink. Please disseminate our message so that local governments and agencies can place an urgent request for the formula in their relief supplies.</p> <p>4. @ [REDACTED] We started this project just because we wanted to deliver the formula from Finland. We would like people to know that there is such a baby milk that doesn't require boiling water and mixing the formula yourself.</p> <p>5. @ [REDACTED] Thank you for your quick response. I am afraid there are only pages in Finnish... [URL: the manufacturer's website, product information page] http://www.nutriciababy.fi/tutteli/fi_FI/tutteli1_2011</p>

Table 12: Cross-referenced social media data

3.6 Chapter Conclusion

A single-case study based on online and offline observations; in-person interviews, and documentation

Based on real-time observations that began as I was browsing around social media conversations and web posts when the disaster unfolded back in 2011, this study developed to investigate the spontaneous collaboration work in the context of TTJ phenomenon in a single-case research design with holistic approach. It was totally usual online searching--clicking links and picking up words as a search term that looked relevant to the phenomenon. Begun as an everyday search activity, the online observations expanded to locate additional information and sources of relevant contents online. Expanded sources of evidence as operational links needing to be traced over time, the online observation produced a significant amount of data in quality. From the data, consisting of various sources online, face-to-face interviews took place in Japan. With the interviewees' referrals, eventually four interview sessions in person were conducted.

Transcribed interview data and primary data sources were fully translated from Japanese to English, as were some of the key sources from both primary and additional data sources. Based on multiple coding with different sets of codes, the data analysis used a qualitative data application Dedoose as well as manual review of printed datasets.

Iterative processes of coding and development of the final coding scheme were explained. A snapshot of the data analysis procedures and outcomes are summarized in the figure below, by "WHAT I DID." In the next chapter, I will report findings of "WHAT I DID" and discuss the analytical findings of WHAT I DID, labeled as "WHAT I FOUND.

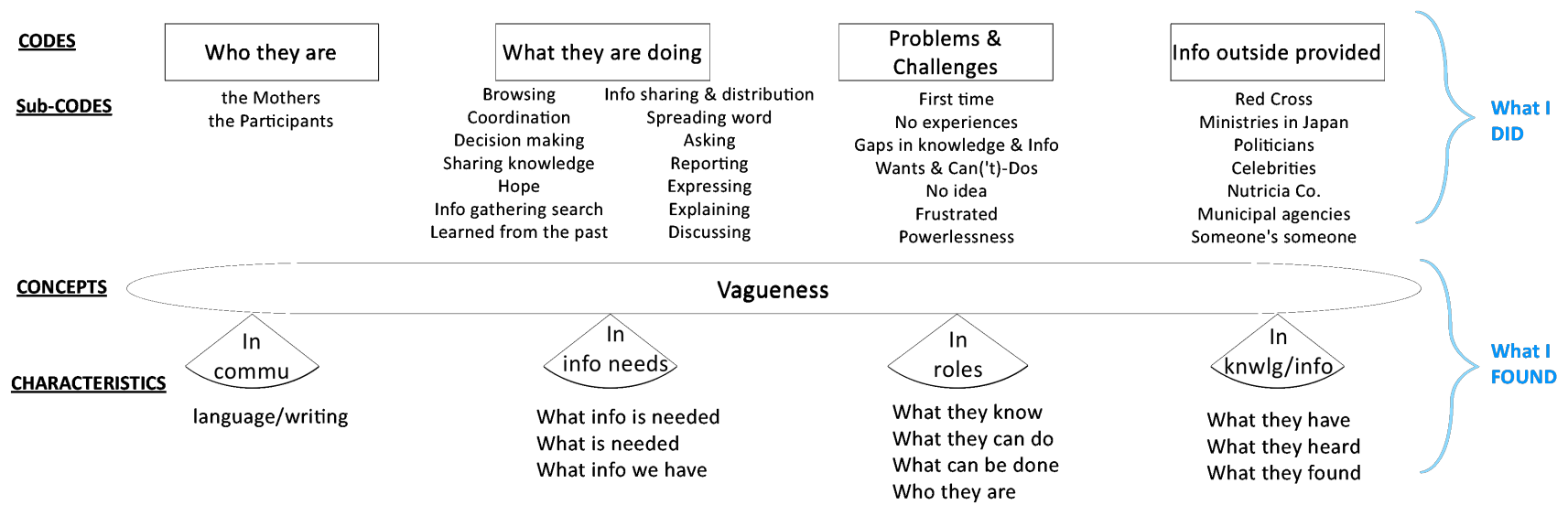


Figure 8: Snapshot of the data analysis procedures and outcomes

CHAPTER 4: ANALYTICAL FINDINGS

4.1 Introduction

This chapter presents analytical findings of “Tutteli to Japan” (TTJ), a private relief effort that emerged online and expanded to further on-the-ground coordination in response to the 2011 Great Tohoku Earthquake and Tsunami disaster in Japan (the 3.11 disaster). Using a single case study framework, this study aims to better understand the complexity of collaborative information behavior in the context of the TTJ as a process and phenomenon of spontaneous collaboration. Drawn from multiple modes of data collection techniques, this qualitative analysis focuses on how the people searching for how to send bulk shipments of baby formula from Finland directly to the people in the disaster affected regions on social media interacted within and beyond the internet and acted on that information for coordination work in Finland and Japan.

The analysis took place in order of the datasets that became available to the researcher, using multiple modes of data collection techniques including online observations and interviews. The analysis illustrates the phenomenon of TTJ happening in two “social settings”: the online “social media platforms” and on-the-ground “physical environment.” This chapter is organized by three major components: 1) overview of the TTJ phenomenon, 2) findings from the online observations and documentation, and 3) findings from the interviews. It closes with a summary and a synthesis of the key findings.

Immediately after the disaster, the general public, those who later became the TTJ initial organizers and contributors, were seeking information for themselves to learn about the event on the internet. As a typical articulation of empathy, these TTJ individuals left their conversations on social media platforms with a closing statement: “I wish I could do something.” This typical, vague aspiration expressed with an explicit acknowledgement of powerlessness further triggered a compelling, atypical sequence of events that resulted in six shipments of baby formula totaling 12,000 cartons delivered from Finland to multiple locations in the disaster areas in Japan. This study pays special attention to the processes by which social and collaborative information activities online lead to “actual doing” on the ground (i.e., coordination) in relation to those

digital interactions carried out by individuals primarily using social media for the disaster information.

Drawn from multiple modes of data collection techniques, this qualitative analysis focuses on how people searched for information to send aid items remotely without knowing various kinds of “things.” Their information needs included how-to and what-to-do in order to send baby formula in bulk from Finland directly to the people in the disaster-affected regions. These people were indeed ordinary: they were individuals who were literate in Japanese, not affected by the disaster, and happened to participate in the TTJ dialogues while using social media and the internet to locate and discuss the disaster information. These TTJ participants were also adequately skilled for social interactions especially online as like general users of social media searching for the real-time disaster information. While initiated by Japanese mothers living in Finland and immediately expanded to other Japanese mothers and women in Japan, the TTJ dialogues became diverse in topics and open conversations involving online users imparting relevant information and knowledge for the TTJ to succeed.

Before reporting the details, I present an overview of the TTJ phenomena involving two locations. On one hand, TTJ contexts are technologically mediated (TTJ online/social media), on the other hand, geographically separated (TTJ on-the ground in Finland and Japan). Temporal and techno-spatial dimensions of TTJ are important to understand not only at what scale the TTJ interactions created for its consequences, but also provide a bird’s-eye-view of emerging and evolving aspects of the TTJ phenomenon. Therefore, this chapter begins with the TTJ in chronological order, followed by the key findings from the online observations and documentation (“TTJ social media data”) and interviews with the TTJ volunteers in Japan (“TTJ interview data”). There I report on both who the participants are and what activities they are engaging in based on the open and focused coding (as I discussed in the previous chapter). The following section on synthesis of these findings introduces critical evidence based on thematic coding that leads to answers to my research questions in the next chapter.

4.2 Overview of the TTJ in Chronological Order

The chronology of TTJ consists of four parts in order from the top to the bottom: 1) selected excerpts from TTJ Twitter data, #AutaJapania and @TuttelitoJapan, and a TTJ primary blog by

TERVE!!, 2) timestamps of the TTJ six shipments, YouTube video created for mothers in Japan, Gmail account created for a direct contact of TTJ, 3) illustration of the driver and distributor's work on the ground in Japan, and 4) three Japanese media agencies which broadcast the TTJ delivery. All these sources of information on the image are selected not only to indicate the incipient narratives of the TTJ, but also for what it represents: a) ordinary characteristics of the TTJ participants and their use of social media and other technologies that are used in everyday contexts such as telephone, email, personal computer (see Table 6: ICT used), no special applications or systems mentioned, b) typical interactions, general comments of microblogs or ordinary conversations, except the ones in bold (which I will discuss later), and so as c) its unique topics were derive.

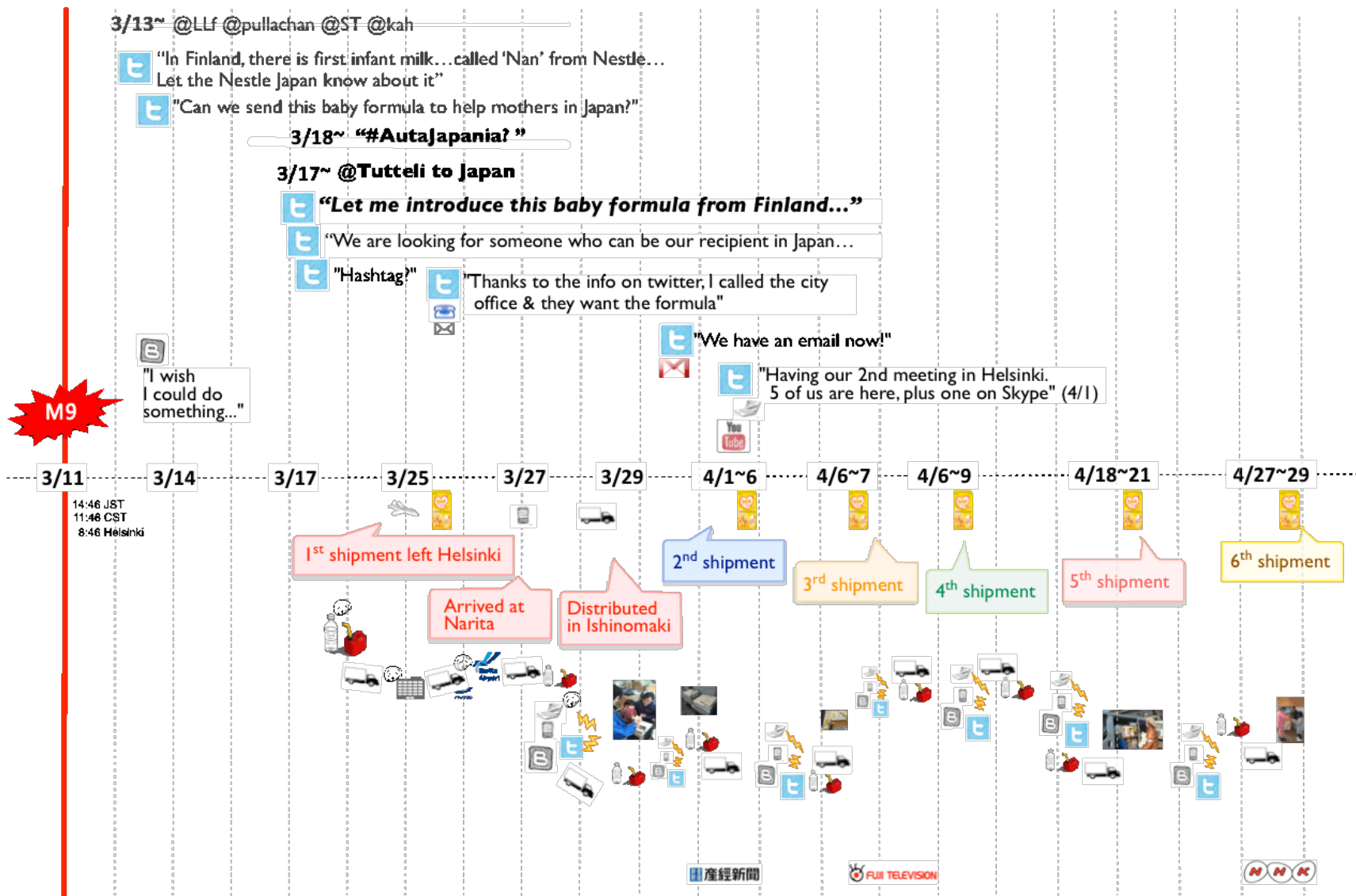


Figure 9: The chronological development of TTI

4.2.1 Selected Excerpts

As shown in the figure above, excerpts with Twitter icons are drawn from the TTJ primary data sources: tweets of #AutaJapania and @TuttelitoJapan. These excerpts highlight the initial stage of the TTJ, started as a separate thread of conversation. Especially the ones with #AutaJapania started spontaneously as a part of casual conversation, while the others by @TuttelitoJapan started with intended messages made to the public specifically in regards to the idea of sending the formula to Japan. However, sooner or later, these two corpuses that evolved independently crossed at a point where both were gaining attention from and inquired by the public about their associations/relationships. Eventually these two separate sources of Twitter conversations served to orient Twitter users toward TTJ public forum alike.

The ones on the upper left of the image (i.e., “3/13~@LLf..”) indicate few tweets exchanged by four mothers living in Finland who eventually created a hashtag “AutaJapania” on March 18th. These excerpts are part of their long conversations (not showing) sharing their emotional response to the disaster, one of them used a blog space to emphasize once again their physically distant situations and helplessness, as shown on the image: “I wish I could do something...” (March 14, TERVE!!). As a kind of breakthrough in the downhearted conversation, these mothers started to talk about a product that is familiar to their everyday life contexts, a baby formula. A product of baby formula is not special in Finland, as well as other EU countries, and United States. However, “baby formula” itself is extremely “foreign” for Japanese. They had a common knowledge about the formula when they moved to Finland, but it became accustomed to their lives as they settled in Finland and symbolic knowledge that they were able to acquire outside of Japanese society. Then, these mothers started to tweet “publicly” about the baby formula, shown as “In Finland, there is first infant milk, called Nan from Nestle. Let the Nestle Japan know about it.” These mothers chose the Nestle baby formula Nan, because the company name “Nestle” is well-known in Japan. They tweeted as if Nestle Japan and Nestle EU might be the best counterpart for a quick cooperation toward emergency aid actions using their existing products, baby formula Nan. To spread the message, as a possible example of their version of “do-something” these mothers created and started to use a hashtag, “AutaJapania” (“Help Japan,” translated in English).

The second pool of tweets labelled after “3/17~ @TuttelitoJapan,” started with the introduction of a baby formula product: “Let me introduce this baby formula from Finland, Tutteli,” followed by another tweet: “We are looking for volunteers who can be our recipient of the cargo shipment.” These first tweets by @TuttelitoJapan opened up an evolving series of “question and answer” sessions. Approximately 5.5 hours later, following taking a nap for a few hours, @TuttelitoJapan tweeted: “33 people are following me now!/I have 33 followers already!” Her first few tweets initiated an open call for the TTJ idea (i.e. open help call for ideas for how to send and deliver baby formula Tutteli to Japan). Overall TTJ’s interactions also revealed that @TuttelitoJapan is a new user of Twitter as indicated in the image, “Hashtag?” Also, those who participated in the TTJ interactions appeared irregularly but actively engaging in various ways whether they became a follower of @TuttelitoJapan or not; provided specific information or left commentary messages. One of which indicated as in the image exemplifies them being informant for the TTJ processes, “Thanks to the info on twitter, I called the city office and they want the formula.”

Regarding the rest of the icons in the image, a Gmail account for the TTJ was introduced on March 27th, after delivery of the first shipment was confirmed. Also, during the 2nd shipment delivery on April 1st, the TTJ organizers had their second meeting in Helsinki: “Five of us are here (in Helsinki), plus one (another) on Skype.” The rest of the details on who are these users or audience and actual steps that the TTJ followed will be discussed in the following sections with more detail in iv.3 Findings from the online observations and documentation.

4.2.2 Timestamps of the TTJ Milestones and Remarks

The horizontal axis in the image is used to record, from left to right, dates of the major milestones and remarks of the TTJ during the year of 2011. It starts from March 11th, “3/11” when the disaster happened. The axis ends with “4/27-29” the TTJ 6th shipment. With a yellow icon, an image of Tutteli package indicates six shipments of the delivery process: first shipment on March 25-29; second on April 1-6; third and fourth on April 6-9; fifth on April 18-21; and sixth on April 27-29. These remarks are extracted from a blog, one of the TTJ primary sources “TERVE!!” as well as @TuttelitoJapan tweets data. These intervals consist of three significant remarks of dates: when the cargo took off from Helsinki, when the cargo arrived at Narita airport

and passed customs clearance, and when the cargo arrived in the disaster affected communities and/or when the cargo was unpacked and started handing over to the mothers in the communities. These three critical junctures for TTJ delivery were found in Twitter data and blog. Another remark shown in the image includes a 1-minute video file that was uploaded on YouTube on April 7th just for a show-and-tell instruction purpose requested by one of the Twitter users.

3/11/2011	A magnitude 9 earthquake hit the northeast of Japan, unleashing tsunami waves that reached run-up heights of up to 128 feet in Miyako and 6 feet in Sendai, Miyagi prefecture
3/13 -	@LLf @pullachan @ST @kah started chatting
3/14	TERVE!! 1st blog post
3/17 -	@TuttelitoJapan 1st tweet
3/25 - 3/29	1st shipment took off Helsinki, arrived at NRT and passed customs, delivered to the area, and distributed in the disaster affected communities*
3/27	Gmail account TuttelitoJapan created
3/xx	Sankei News published an article covering TTJ
4/1 - 4/6	2nd shipment*
4/5	YouTube video uploaded
4/6 - 4/9	3rd & 4th shipment*
4/18 - 4/21	5th shipment*
4/27 - 4/29	6th shipment*

Table 13: Timestamps of TTJ remarks by dates

4.2.3 Illustration of the Selected Episodes in Japan

This part of the illustration is for demonstration purposes. It aims to show the complications the volunteers for the TTJ in Japan underwent in order to accomplish the delivery from Narita airport to the disaster-affected communities over time. The interviews with these private citizen volunteers revealed that both the driver and distributor did not use technology for information dissemination or communication (e.g., no participation in TTJ interactions online) but used it for information browsing and gathering. They also did not know about the TTJ until someone contacted them to see if they could help the TTJ delivery. These volunteers did not know each other until they arrived in the area as well as did not know about the existence of baby formula. Detailed key findings from the interviews will be discussed in the following sections in this chapter.

4.2.4 News Media Coverage

Three Japanese news agencies (Sankei, Fuji, and NHK) broadcast the TTJ. On the bottom of the image, these icons represent each media in order of dates published/aired on the internet and television. In real-time I watched one of their online videos by Fuji television but was unable to save the video. These three media agencies are the original producers who interviewed the TTJ organizers and/or sent their crew for video-shooting. Other news media, specifically newspaper companies (see Table 2: Additional data sources) circulated this original coverage as a reprint at multiple online news aggregator sites such as Yahoo!Japan News. All the journalists who covered the TTJ were female, and according to the interview with NHK, all the crew members also had children. It was not possible to verify how the TTJ was discovered (neither by the TTJ actual participants or by the third-party including media), although the online observation and documentation suggest that the news media found the TTJ-related tweets which include direct tweets to NHK. Also, specific to Sankei, for example the blog TERVE!! wrote on April 26, 2011 that “Ms. H correspondent [from Sankei News] had been following our progress ever since the first shipment.”

4.2.5 Summary

Drawn from both data sources, TTJ online/social media and TTJ on-the-ground, all the data presented in the chronology are selected not only to indicate the incipient narratives of the TTJ, but also to introduce characteristics of the TTJ phenomenon: ordinary, simple, and spontaneous. Most of the users who appeared in the TTJ public conversation threads are not power users focusing on conversational details in relevant information. Each annotation for the data denotes basic uses of everyday communication modes such as telephone, email, personal computer, face-to-face and computer-mediated (see Table 6: ICT used). No special applications or systems are used or customized for TTJ. Communication is simple in their conversational interaction that focuses on relevant topics and details. For instance, these reply tweets to @TuttelitoJapan and with #AutaJapania contain genuine text forms of reactions in writing, using standard Japanese words and neutral honorific speech forms to what was “said” in the microblog or thread conversations. And finally, the overall characteristics in the TTJ processing and interactions are

indeed spontaneous; started with a minimum arrangement beforehand, became centered around certain knowledge about the formula, and eventually evolved as on-the go, but engaging participants.

Who are these people participating in the conversation and who are those mothers who initiated the idea for TTJ? In order to answer this question of “who,” I attempted to conduct private interviews with those women and mothers (please see Chapter III “3.2. In-person interviews and...”). However, due to their inconvenience, all the primary members declined to be interviewed. On behalf of others, one of the primary members, the author of blog TERVE!! replied to me, referring to her blog posts and other blogs for all about TTJ (please see the Table 1 & 2 in “3.1.1. Data gathered from...”). Also, the mother confirmed that these women listed on her blog April 11th, 2011 as core members for TTJ were real and worked in Finland as well as together with those who helped TTJ in Japan (e.g., the driver and the distributor). The differences now from then or discrepancy in the online information include someone who is no longer in Finland but moved to Luxembourg and another who started graduate school in Finland. Other than that, all the information made available online remained as it is and written truthfully including the ones under the user name @TuttelitoJapan, #AutaJapania, and her blog TERVE!!.

That being said, I explore this question of who are the people who participated in the TTJ based on the data collection techniques, so as another question of what these people are actually doing to make the idea for TTJ work. Answers to these questions are structured as follows: next I define the TTJ online participants and characteristics of their online interactions. This section is followed by a report of the in-person interviews in Japan, including the description of the volunteers in Japan and their version of TTJ processes and interactions. Finally, this chapter closes with the synthesis of key findings that leads up to answering my research questions in the next chapter.

4.3 Findings from the Online Observations and Documentation

In the previous sections, I summarized the TTJ as a) a consequence of spontaneous courses of actions b) taken by ordinary people c) formed ad hoc to respond to the TTJ open call for information to help in self-organizing. I also described ordinary aspects of the TTJ with emphasis on its initial organizers and their online interactions, as well as basic uses of

technology and textual communications. In this section, I report further on the ordinary aspects of the TTJ people and their characteristics, specifically in the TTJ online contexts drawn from online observations and documentation (“TTJ social media data”).

4.3.1 Who are the People in the TTJ online interactions?

As the overview of TTJ highlighted, the key interactions and communications with excerpts from Twitter involved those Japanese women living in Finland who initiated the idea for sending the baby formula to Japan. These interactions were carried out mainly with a hashtag #AutaJapania (“HelpJapan” translated in English), by a user named @TuttelitoJapan, and on a Weblog titled TERVE!! These primary TTJ social media data suggests that the people in TTJ interactions are categorized as 1) the Mothers and 2) the Participants.

Mothers

The initial formation of the TTJ was a broad, ambiguous process which occurred through the social media activity of various individuals, including a couple of primary mothers (i.e., approximately 70-90 user accounts retrieved totaling 200-260 tweets generated in a period of March 17- August 17, 2011). The following excerpts (translated from Japanese) illustrate the critical role that “mothers” play in the TTJ as initial organizers of the TTJ. The following excerpts illustrate the intention of individuals coming together to become initial organizers of the TTJ.

*“Thanks to our expanding networks of friends and mothers in Finland, we are able to receive an offer from Finnair its air cargo service for free.”
- March 17 @TuttelitoJapan (dedoose #708-763)*

“@—, sorry I am behind, but I would love to join you as a mother as those in Japan and you all (^^*) #AutaJapania”
- March 18 #AutaJapania (dedoose #1683-1687)*

At first glance, specifically from the viewer/user/audience point of view, it is plausible to assume that these two tweets: one from #AutaJapania and the other from @TuttelitoJapan corpora are part of a conversation by mothers who “follow” each other on Twitter or friends

connected through social networking sites prior to the disaster. These people were in fact sharing their concerns and compassion for the disaster victims, namely “other mothers suffering from the devastation” (see the previous section “2. Overview of the TTJ...”). Regardless of their relationships, each of those conversations attracted likeminded mothers on Twitter who found either or both corpora in some way. One of the first few followers of @TuttelitoJapan (@Keiko_gf) asked @TuttelitoJapan:

“...I saw (other) Japanese living in Finland also tweeting about (baby) formula. I wonder if this (tweet) is apart from it...I will ask them. Good luck to you.”

- March 17 @ [REDACTED] (Contextualized transcript)

However, analyzing the TTJ social media data, conversations of #AutaJapania and @TuttelitoJapan were discovered as they started independently, though these tweets became active almost at the same time. By tracing back each user’s digital footprints on the Twitter platform, it reveals a split of @TuttelitoJapan and #AutaJapania corpuses at their origin. @TuttelitoJapan clarifies that she is aware of another conversation going on with the hashtag #AutaJapania. Although @TuttelitoJapan did not know the folks personally at first, she eventually got in touch with them. Both conversations were growing among several Japanese mothers in Finland who did not know each other. In addition, the author of TERVE!! was also one of the participants in/audience of the @TuttelitoJapan conversation on Twitter. In order, she shared her experience on Twitter where she found out about what @TuttelitoJapan was trying to do.

“On Twitter, Japanese mothers in Finland started to look for information about how to ship a large amount of the formula to Japan, by asking, ‘Can we send the milk to the affected area?’”

- March 18 TERVE!! (dedoose #517-536)

Her involvement in @TuttelitoJapan conversation reveals that she was retweeting @TuttelitoJapan in order to help her idea for TTJ, specifically at the moment @TuttelitoJapan was looking for someone who can pick up the formula at Narita Airport.

“As of now, Ms. @TuttlelitoJapan and her friends were able to find companies who agreed to help them, including FinnAir who offered a free freight service if the coordination in Japan were once confirmed. ...”
“...however, they are not able to find ways to deliver the milk from Narita to Tohoku (the disaster affected region).”
- March 18 TERVE!! (dedoose #1258-1262)

On the next day, TERVE!! posted another blog in which #AutaJapania was created on Twitter with her friends in order to promote disaster-related tweets and information including the idea for TTJ. This new corpus of tweets by #AutaJapania is also found as a conversation by other mothers. Apart from @TuttelitoJapan tweets, another corpus traced back by #AutaJapania reveals also that there were other Japanese mothers living in Japan trying to help coordinate possible collaboration with Nestle Japan and Europe for the Japanese mothers in Finland. Just as touched upon in the overview, the original creators of #AutaJapania were aiming towards promoting the formula to Japanese “consumers” (i.e. Twitter users/users in Japan) in order to let them know about baby formula that is well adapted in various countries outside Japan. As a part of the word-of-mouth marketing campaign, their target became Nestle corporations in both Japan and the EU through Twitter to get hold of anyone related to those companies. In fact, their tweets were found by several Japanese mothers in Japan. However, this campaign began to experience obstacles as one tweet (@LLf) reported that there was no response from the Nestle Japan Twitter account. #AutaJapania users also started tweeting directly to celebrities in Japan who are also known as mothers. By using the direct tweet feature, #AutaJapania received replies from well-known comedian and actress in Japan Natsumi Ogawa (e.g., @na_na_na_tsu), and they “reported back” that the comedian made phone calls and emails to Nestle Japan but no luck.

One reply from another user (mother) reported that she found someone whose brother works at Nestle Japan and asked him to advocate the possible import arrangement for the formula inside the company. Shortly after, the user reported the company’s response: the company will take it under consideration, but for the time being, it won’t be able to do anything because of the necessary steps and arrangements required because of the product content itself, dairy product, which involves too many complications for official approval including FDA types of checks.

Immediately after the response tweet, these women took again to Twitter and blogs to express their feelings of disappointment:

“I hope that Nestle Japan will be able to import their Finnish baby formula someday even though they can't do so this time”

- March 14 @na_na_na_tsu RT@LLf#Autajapania

(Contextualized transcript)

Furthermore, another account who started to follow @TuttelitoJapan immediately after the first tweet of the TTJ is a mother in Japan who was also talking about baby formula, but not Finnish or packaged, but the Japanese one in powder-based formula. In her case in Japan, the thread topic was about how to make baby formula without electricity and clean water. The mother (@hnksma) tweeted to @TuttelitoJapan inquiring further information of Tutteli, a different kind of baby formula from the powder-based formula available in Japan. By the tracing, her tweets inform that this mother was gathering information to help her fellow mom friend in the disaster area who was about to run out of baby formula (powder-based) and other necessities for her baby.

The main facilitators of the TTJ effort are indeed the women and mothers both in Finland and Japan, connected online. These TTJ initial organizers and supporters are all looking for information that leads to find solutions for the mothers with infants in Japan who are more likely struggling with powder-based formula, lacking access to hot and clean water that is the lifeline for their only available powder formula. The table below summarizes representing names of the major contributors in the TTJ case (see Table 14). The initial organizer of the TTJ is referred as @TuttelitoJapan or the Mother who revealed her real name, Takemoto, in her tweet. She does not have a blog and was referred to by the other Mothers as “our leader.” The TTJ participants, which I will discuss in the next section, include other Mothers and anyone who contributed to the TTJ social media dialogs (e.g., @[black] and private blog sites). There is a total of seven TTJ “staff” (volunteers) including the initial organizer (blogged on April 11th of 2011 on TERVE!!).

	Referred to as	Blog Title	Referred to by the Mothers
The initial organizer The Mother	@TuttelitoJapan Takemoto	N/A	“Our leader”
The TTJ participants The Mothers	@pullachan	“TERVE!!”	“Our staff”
	@macomotion	“3 & 1”	“Our staff”
	F chan	“Horn”	“Our staff”
	Y chan	N/A	“Our staff”
	K chan	N/A	“Our staff”
	@-----	N/A	“Our supporters”

Table 14: Summary of reference names

At least on the Twitter platform these women and mothers were individually using Twitter for their needs, searching for information to help mothers struggling in the disaster affected communities. This convergence/uniformity of likeminded individuals online is not uncommon as they confirm common goals or shared interests and experiences, whether they are women, mothers, or expatriates.

Studies on women and social media technology inform us that women in general are active on social media platforms and networking sites, in terms of presenting their identities (Perrin, 2015; Kietzmann et al, 2011). Women in health crisis (e.g., cancer) are also actively participating in social media support groups across different platforms including Twitter, Facebook, and blogs (Attai et al., 2015; Pennebaker et al., 2001). Specific to Twitter, female cancer patients are also engaging in dialogue for conversational topics and psychological support, rather than health information (Sugawara et al., 2012). As in the case of TTJ, these women are not only using the technology for their psychological stress relief or to stabilize their emotional well-being but also for self-organizing. Also, other studies specialized in the usage of Twitter report that the users found in crisis and disaster response who are centered around helping humanitarian organizations (both public and private) are primarily delivering relevant information or providing informational assistance for those organizations (Latonero & Shklovski, 2011; Palen et al, 2010; Starbird, 2012). On the other hand, these TTJ volunteers online are not just helping each other to find relevant information within but also beyond the digital space in order to deliver actual, physical “goods” to the victims. In other words, the activities these individuals are engaging in are information activities: primarily searching for information to help in order for the TTJ to successfully reach directly to the victims of the disaster and deliver the baby formula.

Most of these likeminded individuals including those mothers and women are almost all one-time contributors, except the ones who initiated the idea for TTJ. In terms of contents of their voluntary contributions, the TTJ tweets convey not only immediacy but also relevance or specifics to the TTJ dialogue. In other words, unlike general “Twitter streams” upon disasters and crises in mass scale, TTJ’s substantial promotion of tweets contain a limited number of self-promotion or unwanted messages (Hughes & Palen, 2009; Signorini et al, 2011; Miyabe et al, 2012). Many participants of the TTJ were infrequent or non-stable contributors who had an inconsistent presence over the course of actions. However, there are other kinds of individuals in the TTJ who became engaged supporters/volunteers throughout - for example the woman who became the on-the-ground coordinator for the driver and distributor, Ms. S (please see Chapter 4. “4.4.2 Interviewees”). This diversity in varied degree of individual contributions in the TTJ case is a contradicting characteristic to other cases that highlight its immediate uniformity of likeminded individuals responding to disasters. These contradictory characteristics of collaboration or self-organizing efforts to succeed require a large number of participants or scaling capabilities such as power organizations including a founding board, charismatic leadership and experts to follow (Palen, et al, 2010; Palen & Vieweg, 2008).

These TTJ linked tweets indicate the critical role that the mothers played in this particular situation of disaster response in terms of having a “connecting dots’ kind of role, with ‘dots’ being various kinds of need such as information, material, and psychological support. However, all these mothers did not come together as planned as a digital volunteer group. The criticality that the TTJ mothers and women demonstrated in facilitating the phenomenon of the TTJ is its intermediary role in expanding its scope beyond the digital space into three areas: the TTJ conversation connected between 1) voluntary supply in Finland and voiceless demand in Japan, 2) between mothers in Finland and Japan and 3) between Japanese users unaffected by the disasters in Japan and outside Japan.

Furthermore, these initial members of mothers were not formed for pre-planned objectives and goals or based on a preexisting body of organization. Instead, these initial members were also coming together as chatting casually and sincerely for the devastated (i.e., marriage of #AutaJapania and @TuttelitoJapan). This process occurred similarly to the following participants who found these individuals online and became part of the effort. In short, all these women are in

fact ordinary people who started to organize a relief effort themselves using the open conversation space on social media, mainly on Twitter. Their concerns for the Japanese baby formula situations coincided with the public concerns in Japan. More specifically like-minded mothers who share common insights and compassions for others in the disaster-affected communities came together collectively to deal with these issues. There is no charisma or power mom type of leading figure in the process.

This loosely bounded organization typifies the TTJ. It remains unclear whether @TuttelitoJapan user account is the organizer or not. The TTJ social media data does not indicate any evidence that the account is recognized as the leader or organizer. The most evident piece of information that persuades the audience that the account is the organizer is when the account uses its contact information with her last name and personal email account (e.g., xxx@yahoo.co.jp). The TTJ as a collective became clear only when the blog entry on TERVE!! introduced the core members of the TTJ on April 11th. The entry goes, “who were behind the TTJ,” including a list of seven women including one single woman. This posting was the first and only public announcement that included personal information about the TTJ organizers. It was also posted at a very later time. April 11th was when the successful delivery of the TTJ first shipment was evidenced by the photo of baby and mother having the Tutteli in Japan.

This reserved attitude or careful decision-making on publicly announcing actual names of people working for TTJ indicates typical TTJ mothers’ characteristics. In fact, these women declined in-person interviews in Finland or via Skype, which implies the basic mechanism that underlies their action is based on social conscience, rather than a desire for recognition. This resonates with and reflects the reserved attitude as well as underlines another characteristic of the mothers, specifically the “vagueness” in their communication. They did not care how ambiguous things are but moved forward with unverified information. They attempted to verify information sources by searching for verification both on and offline, but they do not get rid of information shared online even if it is uncertain. This demonstrates a core finding of the study, which is that in this crisis the importance was placed on taking action first, even in the face of vague information.

Participants

I define the term "participants" as referring to anyone who appeared in the dataset who left a tweet or comments online across different platforms, even only a single time, containing relevant contents regarding the TTJ. I treat each tweet or comment as a participatory act, indicating evidence of "participation." Such participants appeared and enacted in response to TTJ activities. In this definition, I disregard the frequency of such digital footprints as a tweet or comment. These digital footprints help paint a picture of "something" that provides insights into how the TTJ activities unfolded. Because the primary purpose of identifying participants for this study is to capture dimensions of the TTJ interaction, it is crucial to define the participants of the TTJ. The majority of participants appeared one time rather than engaging back and forth like a regular "member" in their context (see Chapter III "3.1.1. Data gathered from online observations").

All the participants in the TTJ interactions are literate in Japanese. For example, 98% of tweets by @TuttelitoJapan and 82 % of tweets with #AutaJapania were written in Japanese (see Table 3). Replies to @TuttelitoJapan were all in Japanese too. While user geolocations and identity are beyond the scope of this study, TTJ tweets (contents of message) include some information about participants' locations. For instance, a few tweets talk about time differences between Finland and Japan. Also, TTJ tweets include Japanese users identifying themselves as residents in the United States as well as others in Europe. A few of the participants in the United States and elsewhere tweeted cheerful messages to @TuttelitoJapan, stating that they share the same about the baby formula as they learned about the product's usefulness while they have lived outside of Japan. Some of the Japanese women in the United States even attempted to form a group by asking for digital signatures on a petition that asks to add baby formula to emergency item list for US companies (e.g., @Ai_Austin & @etsy-betsy). While they did not move onward, these women voluntarily created a group page in Japanese social networking site (e.g. mixi and Facebook) and used the page for reporting updates of the TTJ (e.g., posting tweets of @TuttelitoJapan and other TTJ participants).

On the other hand, the distribution of frequency in number of participants tweeted indicates that the majority of participants interacted with the TTJ only once or twice. Those who participated more than ten times totaled less than five participants. Among the frequent participants, there were only one or two duplicates in both #AutaJapania and @TuttelitoJapan.

See below for the visualizations of frequency distribution of tweets by each source: #AutaJapania and @TuttelitoJapan.

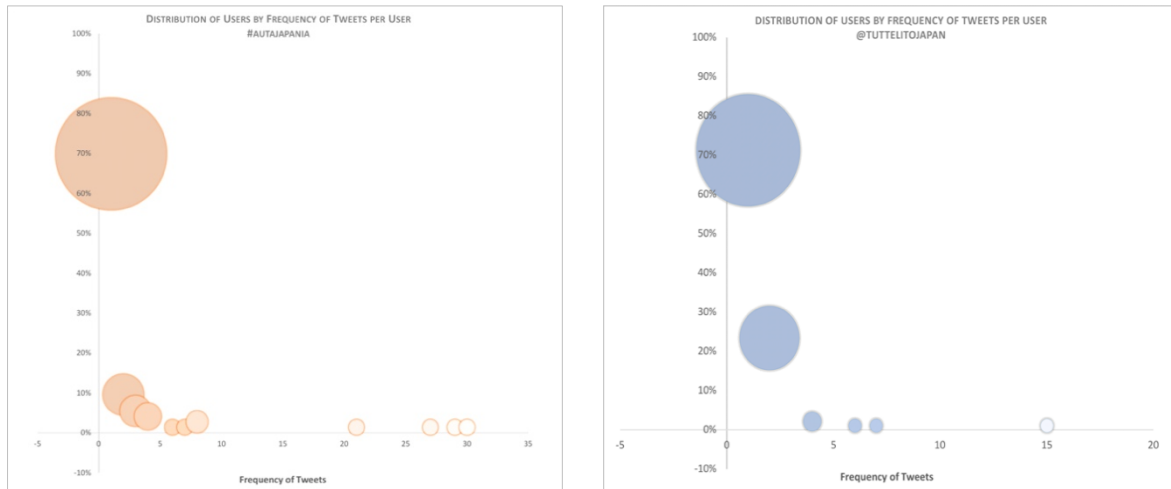


Figure 10: Frequency of TTJ tweets by #AutaJapania & @TuttelitoJapan

In terms of social relations among participants, the TTJ social media data indicate very limited information that leads to the conclusion that any social relations are not associated among themselves except the TTJ initial organizers, their “family and friends.” For example, one case in which TTJ participants interacted in person was when the TTJ organizers in Finland ran a fundraising event in Helsinki “at a biggest farmer’s market in town.” Among the organizers, some of them knew each other prior to TTJ, as described in how #AutaJapania and @TuttelitoJapan evolved on Twitter. Therefore, most of the participants were Japanese living in Finland, Japan and elsewhere (no evidence or focus of this study on participants’ citizenry or citizenship status that frame as immigrant community or transnational citizens and expatriates).

In addition, a few participants provided specific knowledge. For example, a former prosecutor and legal television commentator tweeted to @TuttelitoJapan. In the tweet, he shared the information regarding the baby formula problem in Japan gathered from the Ministry of Health (@nobuogohara, March 26 at 23:00:55). This well-known TV commentator tweeted to @TuttelitoJapan at first place. He inquired about the import restrictions because a Swiss-based

company and himself were working on possible import of baby formula like the TTJ. Also, another user, who claimed to be a health service provider, asked @TuttelitoJapan about Tutteli product safety, particularly about the product “Nutrition Facts” information (e.g., Table of ingredients). The pattern of participants suggests that TTJ participation is indeed diverse yet engaging without any types of membership attained. Therefore, the form of organization in the TTJ case remains loosely bounded -- or non-group group -- meaning it is unsuitable to categorize the population into a group by their contribution types. Thus, the TTJ is based on unidentifiable membership relationships.

4.3.2 Participant Activities

As reported in the previous chapter, iii.6.1 (see “Table 6: Distribution of tweets by dates”), the busiest time of the TTJ participants actively engaging in the effort occurred during the first two to three weeks of the TTJ phenomena. During this timeframe, the TTJ participants produced the highest number of tweets and blog posts. The bar graph above highlights the skewed distribution of the activity happening during the earlier stage of the TTJ. This pattern of interaction applies to all three primary sources of data, tweets and blog posts: #AutaJapania, @TuttelitoJapan, and “TERVE!!.” As indicated in the graph, most of the interactions appeared between “Mar 17 - Mar 25” and “① Mar 25-Mar 29” labeled on the y-axis. The number next to the dates indicates shipments.

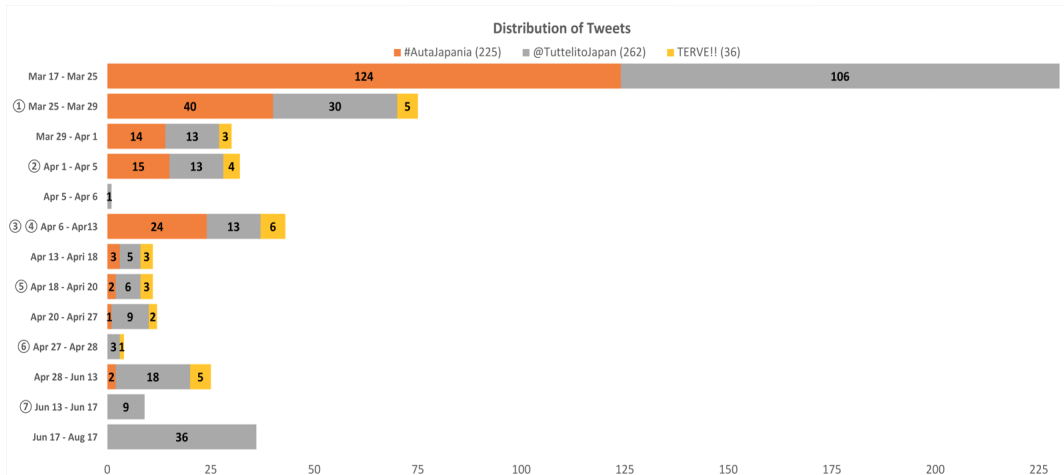
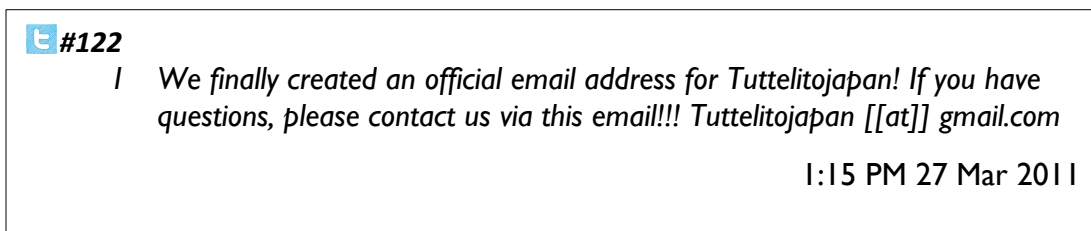


Table 15: The Distribution of tweets by dates

Once the emerging processes of finding appropriate volunteers and allocating resources for the first time yielded the desired outcomes, the participants acted in accordance with the first-time shipment as like a guide to follow. Coordination work and arrangements became less demanding than the first time as the number of tweets and blog posts became much less than the first two weeks of the TTJ work when tweet messages were lengthy. These messages became simple and formalized in a public announcement sort of way, rather than private dialogues, especially after the first shipment was successfully handed to the mothers and infants in the disaster areas. Furthermore, as the TTJ succeeded sending the formula to fellow mothers in Japan, the Mothers created a Gmail account for the TTJ, which signifies the turning point of the TTJ becoming a much-organized effort as shown below.




That being said, I use social media data produced during the busiest time of the TTJ in order to unfold the messy, intertwined processes of the TTJ phenomenon. The first few weeks of the

TTJ consisted of various activities that led like-minded volunteer individuals to join together to figure out necessary steps to undertake, thereby characteristics of the TTJ activities online draw mainly from these days when the TTJ participants were most actively taking actions for the first shipment to get delivered. In the following sections, I exemplify and discuss “actual doing” of the TTJ specifically using social media data.

Though most of the TTJ interactions, especially at the beginning, were happening online, hands-on activities were conducted outside the social media. While various kinds of information were presented in the form of tweets and blog posts by different volunteer individuals, the initial organizer, @TuttelitoJapan started the open conversation in which messages of “doing things” for the TTJ to proceed triggered an exchange of ideas and perspectives and contributions of information and knowledge. Moreover, such information interactions led to additional “doing,” in other words, acting on something reveals further objectives which results in another round of information searching and seeking. This reiteration of information searching and doing or “acting on information” as well as seeking further information and getting an answer led to additional steps that the people did not know they needed to do.

For example, the TTJ participants asked about the package size information and breakdown measures of cargo size after the initial organizer, @TuttelitoJapan (“the sender”) tweeted about her label making idea.

 #23

- 1 @ [REDACTED] *I am glad to hear that.*
- 2 *I am/We are thinking to put a label on each carton in Japanese with a table of ingredients and how to use information (well ·· it ’ll be just to say open it and drink as it is or heat it ··).*
- 3 *Considering the size of the carton, font size of the label will be quite small.*

7:43 AM 18 Mar 2011

 #26

1 @ [REDACTED] Breakdown of shipping volume is 500 cartons for newborns (0 - 6 mo.) in 200 ml & 500 ml sizes each, and another 500 cartons for infants (6 - 12 mo.) in 200 ml & 500 ml sizes each.

2 I will go and examine the exact measure & dimensions of each carton!

08:04 AM 18 Mar 2011

Both tweets above by the sender were reply messages to two different readers. One reader asked the sender about the ingredients of the formula at first and if the sender would enclose an insert or piece of paper explaining the baby formula in Japanese. The other reader asked for further information about her transportation needs, such as the measuring size of cargo in the amount of 2,000 cartons of formula that the sender tweeted as the amount she was considering shipping.

Here, the sender's action of making the label seems to trigger the reader to seek more information about the TTJ. Furthermore, the sender's reply message to the inquiry reveals that, even though the sender anticipated the font size of the label to be small for label making, she did not measure actual size of each carton (t#26 line 2). This information interaction instance illustrates how getting the information one is seeking is not the end of seeking behavior, but rather it leads to further information seeking that the TTJ participants did not know they needed to know.

In the following example of another information interaction, the TTJ participants reveal how they recognized a need, found information, validated and interpreted that information, and used the interpretation to support other kinds of necessary activities that needed to be done for the TTJ to proceed. First, the sender tweeted her dissatisfactions with the label making (t#36 line 2), and this message sounds frustrated because of her lack of Microsoft Word skills (t#36 line 3).

 #36

- 1 Now I am creating these stickers for product info, list of ingredients, and directions for use in Japanese.
- 2 But...how can we insert all these texts in this tiny sticker space...
- 3 And the whole process is a tricky task for me, since I have to use MS Word that I have not used for a while.

7:32 PM 18 Mar 2011

Interestingly some time later, when she announced the completion of the label making (t#54 line 1), her message included a thank-you note to the other TTJ participants (t#54 line 2 below). This tweet suggests that some skilled volunteer helped her complete the task. Moreover, her announcement of the label making completion was a string of further activities that needed to be done: to print the label, to decide where and when to put it on, and to put it on.

 #54

- 1 *As for the sticker assignment (task), it's all set*
- 2 *Thank you so much for those who helped me/us.*
- 3 *I/We will print out the stickers on Monday.*

9:59 PM 19 Mar 2011

Furthermore, another reader asked the sender about her label-making plan: how many labels she was making and where to put the label on, either on each carton or on each set of cartons (t#59 line 2). This reader also suggested writing a message to accompany each set to personalize the aid shipment as a gift and to lessen the foreignness of the product baby formula coming from faceless donors but from a real person: fellow Japanese mothers living in Finland (t#59 line 1).

 #59

- 1 @ [REDACTED] *Nice to meet you. Thank you. We are looking into it, so no worries. I sincerely appreciate your caring.*
- 2 *We plan to place one sticker per 10-carton package.*

1:32 PM 20 Mar 2011

Although the sender announced the completion of the label-making, she tweeted about the label again; the label was handed over to the workers of Nutricia, the company of the baby formula Tutteli production who offered additional help to put the labels on the packages at their plant on behalf of the TTJ volunteers (t#68 line 1; t#71 line 3 in the following).

 #68

- 1 *I have just sent the stickers (the table of ingredients and instructions) to the Tutteli manufacturer where the company staff offered to place the stickers on the cartons in advance.*
- 2 *It's another progress we just made.*

9:18 PM 22 Mar 2011

Thanks to their help, the TTJ volunteers including the Mothers were able to save their time and work, for example, all they needed to do at the plant was to drive to the plant, hand-write messages on to each set of cartons, load the cargo into their vehicles, and drive to the airport. After updating the progress on the label making, someone asked the sender to share the label (t#71 below).

 #71

- 1 @ [REDACTED] *Of course you can see them.*
- 2 *Please let me know your email address. I will send [that] to you directly.*
- 3 *Tutteli plant staff offered their help to put the stickers on at their factory. Oh my goodness, aren't they great?*

0:17 AM 23 Mar 2011

While there is no evidence to know the intention of the inquirer, the reply message by the sender and the exchange with the inquirer demonstrates that there was a quality assurance or third-party type of functionality in place during the TTJ information interactions. At last, the sender was asked about the TTJ spending of the donations, including the label making cost (t#126 line 1 below).

 **#126**

- 1 *Yesterday, I was asked about other expenses than the formula, such as freight fees, other transportations & logistics (gas) costs, customs charge, stickers, and etc.*
- 2 *Except the cost for the milk, there is no cost or spending allocated from the donations.*
- 3 *Thank you for your cooperation. So the money you have donated has been spent only for the baby formula, none of the penny was spent other than the milk.*
- 4 *I would like to take this opportunity to thank all of the supporters and companies who helped us [make this happened and move forward].*

4:49 AM 28 Mar 2011

This example of the label making action highlights the iterative behavior of the TTJ information interactions. Among many others, such examples include the announcement of a fundraising event in Helsinki, the provision of the product information of Tutteli, and the information needs message about transportation to name a few. Both coding and processing data were much like the process of patchwork making: organizing pieces of various episodes contributed by different TTJ participants who produced such texts as they intended to “do something for the TTJ.” These contributions included providing information, commenting on previous topics, sharing different perspectives, and so forth. While social media texts and interview transcripts provide unique inputs and outputs about the TTJ processes and activities sourced from different individual points of view, all the sources fill in gaps complementing the whole. Those who contributed to the TTJ online as well as further interactions beyond the online space were also going through iterative information interactions at their individual levels, in parallel to other kinds of information interactions at: social and collaborative, which interleaves with “actual doing” (work) and learning at the same time.

4.3.3 Various kinds of Vagueness

While the lack of precision in thought and communication in the TTJ dataset emanates from the nature of the TTJ as a spontaneous, organically grown phenomenon, its vaguely expressed tweets did not include any comments or replies that asked for clarification over what the TTJ tweets were about, for example. Rather, the TTJ participants wrote their thoughts and ideas in a way that did not contain any special vocabularies such as jargon or abbreviation. In terms of specificities for the evolving processes of the TTJ interactions, their textual dialogues imply what kinds of information were needed for the TTJ, but does not contain such clear tweets as “information needs.” The coding scheme I used during the early stage of coding included “Information needs” but the coding ended with only a few excerpts that contained elements of information needs. Instead, there were only a few texts that clearly express or indicate a “need” specific to “informational.” The coding with the information needs generated subcodes, such as explicit and implicit information needs, relevant or irrelevant, informational or material, and the like. However, these subcodes for information needs became useless due to the characteristics of the TTJ information needs that were then in fact time-sensitive, changing rapidly so that the TTJ contributors and mothers were also unable to surely express exactly what they were looking for so as what the TTJ needs to know.

The TTJ information activities represent an overarching theme of “vagueness” throughout the data. This vagueness is not surprising considering the fact that the social and environmental circumstances surrounding the TTJ participants were full of uncertainties. Due to the compound disaster affecting Japan at that time, the TTJ participants were situated in “the information convergence phenomenon that suddenly overloads major communication channels” (Oh et al., 2013, p.408). Thus, most of the participants implied that 1) they were uncertain about the reality of TTJ, so they were also uncertain about the information/ideas/knowledge they provided; 2) the TTJ plans and prospects were ambiguous; and 3) the TTJ messages are vaguely stated so that their replies tended to ask further clarification. I identified four critical areas of vagueness presented in the TTJ phenomenon.

Whether online or in-person, the TTJ interactions fall into multiple kinds of vagueness. For example, “who does what” was only vaguely addressed in a given situation. This vagueness in

roles both causes problems and reflects challenges that the TTJ participants faced. While “who does what” was described autonomously, these vaguely described roles evolved alongside difficulties that the TTJ participants encountered: not knowing what is needed, not knowing what needs to be done nor how to get it done, all of which I call vagueness in information needs. Since the TTJ phenomenon consisted of first timers engaging in humanitarian effort and remote collaboration work, these individuals were trying to constantly figure out their information needs. This vagueness in information needs is interrelated with another kind of vagueness in information and knowledge. For the TTJ participants, what information and knowledge would be useful for their information needs was also uncertain. Dealing with unknown sources of information and sharing subjective knowledge for the TTJ’s immediate needs was unavoidable. This kind of vagueness in information and knowledge is also connected to another kind of vagueness in communication. Vagueness in communication means not being explicit about what to convey and not being sure how to make sense with the information. This kind of vagueness is not only characteristic of the Japanese social style but also characteristic of the conditions under which the TTJ operated: the exigence of disaster, the platform of online social media, and the novice level of the participants.

Different kinds of vagueness	
Vagueness in Roles:	Ambiguous about “who does what”
Vagueness in Information Needs:	Unclear about “what is needed, what needs to be done, and/or how to get it done”
Vagueness in Information & Knowledge:	Uncertain about “what information and knowledge to be useful and/or to share”
Vagueness in Communication:	Unsure about “what to convey and/or how to make sense”


Table 16: Different kinds of vagueness

Vagueness in Roles

Participants’ roles are broadly defined in the TTJ context. In one way, roles mean a defined status of individual or character, so that duties connect to particular individuals. Although roles mean a position or portrayal that is assumed or assigned to individuals by a person or situation, people do not necessarily embody their identity within roles. In the case of TTJ, participants’ roles are vague and fluid in such a way that people can flow through different discussions and

make decisions over their participation of how to contribute their time and labor. Thus, roles imply tasks, jobs, functions, and actions that need to be taken or performed by someone in order for the TTJ to proceed. Such roles are voluntary so that roles range from low stakes (i.e., something easy to do: retweeting) to high stakes (i.e., high risk and high reward: making an international call, which costs more money and is proactive). Examples range from spreading the word of “baby formula” to contacting a trading company for customs clearance procedures.

Also, role descriptions are sometimes explicitly accessible through social interactions for anyone to consider (e.g., tweets and blog posts; conversations with neighbors and colleagues), but most of the time, they are embedded or implied in each context of TTJ situations (e.g., online and in-person interactions and dialogs), some of which contained specific requests for help. For example, taken from the very first TTJ tweet, what the TTJ needs is stated:

 **#1**

- 1 *Let me introduce this baby formula from Finland.*
- 2 *It is a ready-to-drink, no water needed milk.*
- 3 *Unopened, it lasts for 5 months.*
- 4 *Due to the water & electricity shortages, [we] believe it would be extremely difficult for mothers to make an infant formula.*
- 5 *Please disseminate our message and let people know that there exists such a great product for mothers in need.*
- 6 *[We] want to deliver the formula to the babies as soon as possible.*

11:31PM 17 Mar 2011

This message conveys three specific needs: 1) introduce the baby formula (line 1), 2) disseminate the message (line 5), and 3) deliver the baby formula (line 6). However, this message only makes sense when the reader was situated in the context of 2011, since the message does not mention anything about Japan, or the earthquake disaster. While the message states that information, it does not convey nuances regarding the TTJ: what is needed, who they are, and what their purposes are.

Within a few seconds, the sender posted an additional tweet.

 #2

- 1 *Thanks to our networks of friends & mothers in Finland, [we are/I am] able to receive an offer from Finnair its air cargo service for free.*
- 2 *[We] are now looking for someone who can be our recipient in Japan.*

11:32PM 17 Mar 2011

This second tweet makes slightly better sense in terms of addressing points that were not mentioned in the first message. However, the message still leaves lots of vagueness to the reader. Even with the information provided in the previous message, questions arise: who are ‘we’ in addition to Finnair and what is meant by “our recipient in Japan”? The sender’s role is still vague: is she a part of an organization or a company, an aid worker, etc.? Also, what connection is there between the sender and the baby formula? What role this sender plays in addition to these mothers in Finland and Finnair remains vague. In regards to these three points in the first message, for the reader it remains vague how the sender wants the reader to help on her action.

As evidence of this vagueness, response tweets sent to the reader indicate the fact that some twitter users found the sender’s message and asked the sender for further information. Though the original reply tweets to the sender (i.e., the reader’s tweet to the sender) were not publicly available, the sender’s response tweets to those readers suggest the inquiry.

In those reply tweets, the sender provides more specific information about her intentions of tweeting. Based on these first tweets, the following points became clear: she and friends in Finland are trying to organize a relief effort that helps disaster victims in Japan with this “baby formula” product, but the formula needs to be introduced to the community as a useful disaster supply for mothers with newborn babies. In the meantime, other tweets indicate more questions to the sender as shown below.

→ @ “Are there any corporate information or official product information?”

→ @ “Are there any information in Japanese?”

0:15AM 18 Mar 2011

→ @ “Is it safe to ship from overseas even though it is a daily product?”

→ @ “How about import regulations?”

5:13AM 18 Mar 2011

→ RT “Someone’s trying to help Japan somehow…”

→ RT “Mothers in Finland trying to ship milk for babies to Japan”

→ @ “Do you know @LLf and others? Are you the part of the mothers?”

→ @ “Does’t the formula need to heat for feeding?”

Timestamps unavailable

These reactions of the reader or audience who found the sender’s tweet on Twitter suggest that the people are indicating their curiosity, willingness to help, and confusion about the message. While asking about the baby formula itself as a product, its manufacturer, and logistics in general are fair questions, some other questions suggest that the vagueness in “who does what” (roles, role descriptions) remains unclear. It also suggests that twitter users who asked these questions are interested in understanding what the sender is trying to do on Twitter, regardless of such vaguely stated information needs messages. Evidently other audiences reacted as if someone is looking for how to help Japan with the baby formula, but that person does not know many “things”: what is needed, what needs to be done, and how to do it (i.e., unknowns, discussed in Chapter IV, section 4.4. “Many Unknowns…”). For the sender (i.e., the TTJ initial organizer) to immediately and continuously receive different questions from different audiences seems unexpected. Her reply messages below suggest that the sender is not fully prepared for those questions.

 #5

I @ [REDACTED] Thank you for your quick response. I am afraid there are only pages in Finnish ...
00:15 AM 18 Mar 2011

 #6

@ [REDACTED] Thank you for following. I am a new user here on Twitter, so not sure how to use it yet...

00:24 AM 18 Mar 2011

 #16

I While I was taking a nap, there are already 33 followers!!! Thank you. I am so happy.
5:17 AM 18 Mar 2011

 #29

- 1 @ [REDACTED] Thank you. I am not quite sure about how to read messages on Twitter.
- 2 We will be buying in bulk directly from the company of Tutteli.
- 3 Monetary donations would be great if you are in Finland.
- 4 Let me get back to you as soon as we find out when we have a bank account and so forth for receiving monetary donations for milk purchase.


2:11 PM 18 Mar 2011

Though open conversation regarding the TTJ carried on, what is needed, what needs to be done, and how to do it remain vague. This aspect of vagueness, vagueness in information needs, is better indicated with another example, “our recipient in Japan,” that the sender mentioned in her reply tweet #2.

Vagueness in Information Needs

In the #2 tweet (line 2) the sender states, “[We] are now looking for someone who can be our recipient in Japan.” This is a clear statement of intent that addresses her needs. In other words, her reply messages suggest that the sender is conscious that she needs help, whether the help is an actual person and/or a piece of information. However, it is unclear what she means by “our recipient,” which is the contextually translated version of the word. This word choice of the sender is even tricky for Japanese readers. Its original Japanese “ukeiresaki,” alternatively means “accepting place” (translated by Google Translate) and “accepting person.” The complexity in the seeker’s information need is identified as what Taylor (1968) might refer to as “certain

incompleteness in his picture of the world” (p. 180) so that the seeker tries to “fill out his picture of the world” (p. 181) as the seeker moves through one after another sources of information. Eventually, someone annotated her tweets, rephrasing what the sender wanted to say:


 Someone rephrased this @TTJ message


- 1 Japanese women living in Finland is trying to send “liquid milk with paper pack” as aid shipment, aiming for about 10K packs.*
- 2 Now that they got an offer from Finnair for free cargo shipment, they are looking for someone who can trust and take over in Japan (work on behalf for them in Japan).*
- 3 If you know someone who might be interested, please DM. Baby formula lasts five months at room temperature”*

#17-00 @ [REDACTED] 4:49PM 17 Mar 2011

In contrast to the sender’s message, this rephrased tweet provides more explicit information about who is organizing the effort and what the effort is about. The message gives more explicit instructions for how to help the TTJ. While annotating scattered information represents a helpful step for collaborative brainstorming, the message needs further contextualization of the intended action. Making contextualized critical components of the effort accessible creates open participation for a wider audience (e.g., personal interest) and thus facilitates active engagement of volunteer individuals (e.g., individual gain). Having such information vaguely accessible hinders participants’ joining decision (Olson & Olson, 2012).

In addition to this rephrase, another reader inquired the sender about the “ukeiresaki” or “accepting place and/or person.” The inquiry itself was not retrievable, but as shown below, the response tweet to the inquiry by the sender reveals more specifics about the TTJ.

 @TTJ replied as a thank-you tweet for clarification

 #24

- 1 @ [REDACTED] Exactly.*
- 2 We have been able to find groups like that.*
- 3 But at this point, our task is to find a transport between Narita and the location that all relief supplies are collected for pick-up.*

7:49 AM 18 Mar 2011





This response tweet reveals more specifics about logistics, rather than just “Japan” for the transportation. The pressing issue here is no longer how to deliver the baby formula from Finland, but ways to connect “dots” between Narita airport, the supply collection center, and disaster-affected communities. As the sender engaged in dialog with others, her message began to expound information needs. Her next message appears more structured and sounded instructive as if the sender used the other’s rephrased message as reference.

 #25

- 1 *We have found few groups that might be able to deliver the formula to Tohoku [but these groups are not able to go to Narita and go to Tohoku].*
- 2 *Our shipment of the cartons have to be picked up and delivered to these [relief] stations in Tokyo first.*
- 3 *That is the designated location for humanitarian groups to pick up rations and drive up to Tohoku. [All relief supplies from outside Tohoku are under control and designated to a central location managed by different municipalities throughout Japan]*
- 4 *Do you know anyone or any logistic company who can pick up and deliver the formula from Narita to the relief center?*

07:53 AM 18 Mar 2011

This message provides more background information than the previous. Contextualizing the TTJ information needs, the message conveys the uncertainty about with whom to work for transportation (line 1). With the vagueness in how to do what needs to be done, the sender finally asked if anyone can help her on finding a driver or a logistic company (line 4). Having her message an open question to the public, the sender started to receive responses to her call for help with the information needs (see below).

-  “Are you still looking for it? LDP is collecting rations in the Tokyo office”
-  “What size of truck does it work for the shipment? What in tons? From where to where?”
-  “What sizes are the cartons?”
-  “How about tweeting directly to Politicians?”

Timestamps unavailable

Since these selected responses above were retrieved from different sources all of which were retrieved through hyperlinks and general search results on Twitter, timestamps were unavailable. Regardless of varied timing and sources, the readers' reactions demonstrate their willingness to help address the sender's information needs. Also, their messages suggest that the sender is having difficulties in determining what to do to arrange the transportation such as how to pick a company or person, and a location for either or both drop-off and pick-up. The first tweet refers to the Liberal Democratic Party for a potential contact, as does the fourth message. Notably, the second asks size of the truck that fits with the volume of the shipment that the sender is preparing. Also, it asks specifics for pick-up and drop-off locations. The third asks size of one cargo (not individual pack of carton size, but individual cargo or box). Both the second and third indicate that such information as sizes and volumes of cargo helps the reader to imagine or estimate what size of vehicle would work for the TTJ shipment.

Furthermore, another reader took the extra step of rephrasing the information needs. The actual needs for the TTJ coordination on both sides, on-the-ground in Japan and on social media began exponentially demanding. In other words, vagueness in information sharing invites more information seeking, which influences willingness to contribute more information and knowledge even though the usefulness of that information and knowledge were uncertain.

Vagueness in Information and Knowledge

For the TTJ participants, what information and knowledge would be useful for the TTJ information needs were also uncertain. Due to the compound disaster affecting Japan at that time, the TTJ participants were situated in "the information convergence phenomenon that suddenly overloads major communication channels" (Oh et al., 2013, p.408). Dealing with unknown sources of information and sharing subjective knowledge for the TTJ's immediate needs were unavoidable.

As indicated below, the readers constantly sent reply tweets to the TTJ's information needs messages. Providing information and knowledge, these messages do not direct or manipulate the sender's intention. Rather, one reader suggested, "the Truck Driver Association might be able to refer an available logistic company or independent driver." This reader found out about the TTJ through retweets through several users, one of which also rephrased the information needs in a

simple tweet: “There is no transport available for delivering baby formula from Finland.” Another user tweeted: “I can pick up the cargo once it is arrived in Tokyo.” The other pointed to a not-for-profit organization that has its own logistics to the disaster affected region. At last, another reader asks, “It doesn’t have to be a logistic company, does it? It could be anyone who can drive a car to Tohoku, correct?” These interactions among the TTJ participants demonstrate their attempts to help clarify the sender’s information needs, which resulted in rephrasing the original tweets and annotating the TTJ situations. Eventually, their exchange of messages led to some vital knowledge that the sender’s initial attempt was not able to come up with (e.g., a volunteer driver or car owner).

Someone rephrased @TTJ message with RT labeled

@ [redacted] RT “They are looking for logistics help to deliver the Finnish baby formula”

“@ [redacted] RT@ [redacted] “**The Truck Driver Association** might be able to refer an available logistic company or driver” <http://www.jta.or.jp/association/todou.html> RT フィンランから届く赤ちゃん用の紙パックミルクのゆそうしゅだんがありません

11:43AM 18 Mar 2011

Someone rephrased @TTJ message with RT labeled

@ [redacted]

“... I am trying to get in touch with anyone who can deliver (company) it. **It doesn't have to be a logistic company, but anyone** can use a car to Tohoku, doesn't it?”

3:11AM 18 Mar 2011

@ [redacted] reported the dialog onto her blog, TERVE!!!

“I can do if someone deliver it to Tokyo. I can take it from there to Tohoku.”

“Nihon Univa,’ an NPO sounds like they have its own logistics infra to Tohoku, maybe consider?”

excerpt from 19 Mar 2011

@ [redacted]

@TuttelitoJapan I found this tweet. Maybe it could give you some advice re aid delivery? ... I am sorry for giving you such uncertain information... 朝日新聞社会部@Asahi_Shakai [to the people outside the disaster affected areas]

5:27AM 20 Mar 2011

From an information seeking behavior point of view, the sender was aware that there was something that she was looking for in order for the TTJ to proceed, but she was unable to precisely describe her information needs. Such an initial state of awareness in the sender's seeking information, in Belkin's word Anomalous State of Knowledge (1982), was clarified and expanded in parallel to the readers' responses to her messages that vaguely stated information needs. Presenting her information needs however vaguely stated, the sender was able to receive the readers' responses with information and knowledge most of which were evaluated by the readers' autonomy regardless of uncertainty about the sources and objectivity involved in their sharing. In other words, the TTJ participants were able to collaboratively explore their information space through iterative information activities.

Vagueness in information needs demonstrated by the sender's tweets is treated through this iterative and evolving chain of messaging by various participants who encountered the original information needs message partially or fully and shared the message with or without suggestion or rephrased sentences. Those participants responded to the needs with information and knowledge, even though they were unsure about its sources and objectivity of the knowledge. This kind of vagueness in information and knowledge are their contributions that garner like-minded others online and beyond. This characteristic of the TTJ information activities becomes prominent even when information needs were not fulfilled. As shown below, a reader inquired about safety issue of the baby formula.

1 @ [REDACTED] *Sorry but one more thing.*
2 *One of the nutrients in the tuttele. I checked the product info online.*
3 *"Yksisoluöljy 微生物油、Kalaöljy 魚油"*
4 *Would you please give us a bit more info about these two?*
5 *I will also ask some medical specialists about them especially if these nutrients are allergy-free for Japanese infants in particular. #Autajapania*
@ [REDACTED] 11:53 PM 19 Mar 2011

This inquiry about nutrients was resolved through someone's response (e.g., "RT@" in the following message below), and this inquiry was extended further by asking someone else who might be able to figure out the answer (e.g., "some medical specialists" in the inquiry message above).

- 1 *"Kalaöljy" is a kind of supplement that is so called "DHA" in Japan.*
- 2 *RT @ [REDACTED]: Kalaöljy seems well adapted in Finland as a popular supplement.*
- 3 *Thank you for your response, I am glad that you are trying to reach medical professionals for confirmation ! #Autajapania*

@ [REDACTED] 11:53 PM 19 Mar 2011

From this reply tweet, one of the nutrients was explained by someone living in Finland (line2). Furthermore, in line 3 it seems the inquirer is trying to verify the information by asking whoever might be knowledgeable about it even though who does what or how to solve the issue remained vague (vagueness in roles/role description). This interaction suggests that the participants were willing to take whatever roles necessary at their own capacity. Also, there were no tweets found asking whether the issue has been resolved or not. This exchange suggests that for the TTJ participants having different kinds of vagueness seems not an issue. Rather, they lived vague information being presented, shared, and left unsolved. This relationship between participants and vagueness will be further explored in the next Chapter V: Interpretation and Answers to Research Questions.

Vagueness in Communication

Vagueness in communication means not being explicit about what to convey and not being sure how to make sense with the information. This kind of vagueness is not only characteristic of the Japanese social style but also characteristic of the conditions under which the TTJ operated: the exigence of disaster, the platform of online social media, and the novice level of the participants. The following examples from the TTJ tweets illustrate different styles of communication that convey different kinds of vagueness.

 #22

- 1 *Tutteli is very much similar to one that is made of powder in Japan.*
- 2 *Its nutrients are equivalent to breast-feeding.*
- 3 *This is breast milk substitute when breast-feeding is not available.*
- 4 *It enhances immune response which is needed for all newborn babies.*
- 5 *Even if Tutteli is a foreign product and made of Finnish formula, the purpose of formula is universal: that is for a nursing and feeding newborn babies with safe and nutritious ingredients.*
- 6 *All we want to give babies is the best nutrition.*

7:06AM 18 Mar 2011

First, this tweet by the sender conveys plain information about Tutteli, but it does not provide other kinds of information that is contextually relevant to the reader. Rather than descriptive information about the formula, and its nutrients, personal experiences and feelings towards the choice of baby formula over breast-feeding could help the reader better understand the sender's intent of action. As discussed in the previous section, one reader asked the sender about the nutrition and allergy assessment between the two countries, Japan and Finland (see Chapter 4, section "4.3.3 Various kinds of Vagueness").

From the same example in the Vagueness in Information and Knowledge, one of the readers who participated in the discussion about the nutrients issue took another step forward: to write a blog post.

#24
#24-001 @ [redacted]
Referring to what happened on Twitter on her blog, TERVE!!!

B On Twitter, Japanese mothers in Finland started to look for information about how to ship a large amount of the formula to Japan, by asking, "Can we send the milk to the affected area?"
excerpt from 18 Mar 2011

Started with an introduction of the sender and her intent of action, @TuttelitoJapan on Twitter and the TTJ, this blog post reveals personal experience with the baby formula, "Nutericia Tutteli." By using a blog space, the reader provides supplemental information about the baby formula and the TTJ campaign in addition to the information that the sender had provided by then such as Japanese mothers in Finland, the baby formula, Finnair's offer, and current situations. By rephrasing or annotating the information about the TTJ on a blog, the blogger explains the motivation behind the idea to send the baby formula and why it is selected as emergency supplies, thereby assisting the sender's tweets.

B Our little princess Pomo [her daughter] was fed with this Finnish Milk, Tutteli, ever since she was born...because I was completely unable to breastfeed her at all...
excerpt from 18 Mar 2011

B

As everyone knows :) Pomo is a thriving, healthy kid without any major health problems or concerns.

So I really think and really, really want those mothers in the affected area/shelters not to worry about this milk.

This milk for them is so foreign but as like Pomo (her daughter) it is very safe and as tasty as the Japanese one ...

I want them to feed their babies with this milk without any worries!!!!

excerpt from 18 Mar 2011

This extra step of providing additional information in regards to the baby formula is not only a means of advocacy (to rephrase and explain what the sender was trying to convey via tweeting), but also a means of empathy, offering personal perspective much like mothers in Japan hearing for the first time about the baby formula on Twitter. This sharing of empathic understanding in a lengthy blog post seems imperative as if this blog became additional space for communication with/among those who were seeking information about the TTJ. While the primary organizing took place on Twitter, important information for the TTJ was not necessarily retrievable due to constantly updating feeds of tweets as well as systematically restricted space of tweets. In fact, some readers asked about blogs or webpages specific to the TTJ. While the initial organizers, the Mothers, discussed creating their own webpage, they decided not to. Instead, this blogger eventually took the role of public relations work for the TTJ.

While the TTJ conversations were expanding, response tweets introduced by the blog post and retrieved from Twitter shed light on contextual information about what was going on in Japan such as infrastructure:

B

Among my Twitter followers, someone tweeted me back saying, "If I could get enough gasoline, I would deliver it up to the area myself..."

excerpt from 18 Mar 2011

B

Even someone who is not my Twitter follower contacted me to say, "I will ask someone I know who runs logistic company..."

excerpt from 18 Mar 2011

t #78

- 1 Please help us find the information. Please let us know anyone in Miyagi (Ishinomaki, Kesennuma) and Iwate (Yamada); municipalities, local offices and groups, evacuation camps and daycare centers, and people in need located in these areas who will find the ready-to-drink milk useful.
- 2 These are the most devastated areas suffering from a severe blackout (water & electricity shortages).
- 3 They must need the baby formula. Please contact me, Takemoto via email at et1213 [at] yahoo.co.jp. We will deliver the formula directly to these areas!

05:46 AM 24 Mar 2011

Together with response tweets to the sender and other response tweets and blog posts uncovering more information about the TTJ, the reader or the audience reacts to that information both posing more questions, rephrasing and annotating to share the TTJ campaign.

4.3.4 Summary

The TTJ social media interaction started with a personal response to the devastating situation in Japan: "I wish I could do something..." This sentence implies that it is almost impossible, especially for those who live outside of the country, to do something directly for people in need within Japan. While the most common way to "help" the devastated home country is to make donations through humanitarian organizations, local or international, such as Red Cross, the most unlikely option is to ship rations directly to the point of need in the devastated communities, unless the destination is somewhere familiar or specific addresses which you know well or are related to prior to the disaster. Also, for an improvised action, it is critical to obtain schemes that allow command-and-control types of order to get executed in a timely manner, regardless of such circumstances as a national crisis. Such action further requires tangible and intangible resources in amount, including social and organizational networks, all of which have to be capable for immediate coordination in forms of teamwork. At last streamlined through these kinds of ad-hoc "pipelines" of infrastructure, logistics and manpower in both countries, domestic and

international, have to be available in both countries to cooperate. On top of that, those volunteers executing actual tasks in the process are expected to apply their expertise in managing the evolving situations individually and collaboratively towards the ultimate goals of a citizen-led humanitarian effort.

While different individuals posted messages on Twitter freely, their messages contain specific information and legitimate ideas for the TTJ to move forward. Some examples are found in a) response to a specific TTJ tweet sent previously or far back in time, b) questions to an on-going and old topic(s). While messages were presented irregularly over the different timings and topics, most of the contents were along with the TTJ organizational goal (i.e., TTJ ultimate goal): to send the bulk loads of baby formula from Finland to the people in need in the disaster-affected communities in Japan. In addition to a few “noisy data” and retweeted messages with no editing, the TTJ tweet did not contain much of “threads” type of conversation – a chain of messages in response to a specific topic. After all, coding the TTJ textual data was much like a combination of highlighting nuances in sentences and literal meanings of word that are relevant to information seeking behavior as well as other activities that led to the TTJ phenomenon. This approach produced the coding scheme for the TTJ data consisting of only four codes: definitions are based on open and focused coding.

4.4 Findings from the Interviews in Japan

In order to help understand the TTJ phenomenon holistically I reached out to the people who contributed to the TTJ phenomenon. Using publicly available data in my dataset, I was able to identify contact information of the Mothers who were tweeting about the TTJ at earlier stage and used personal blog page to write timely reports on the TTJ over the course of action. In the following, I report the overview of the interview findings. As I mentioned in Chapter IV, the section “3.1.1. the Mothers”, there were no in-person interviews conducted in Finland. Those who initiated the idea for TTJ, the primary source for TTJ as “the Mothers” in Finland, declined to be interviewed (both via video chat and in person), but one of them wrote back in her reply her TTJ experiences in general. Those who replied to a request email referred to the TTJ twitter account, @TuttelitoJapan and their blog URLs for their experiences in detail.

4.4.1 TTJ in Japan: Overview of the Interview

In order to help understand the TTJ phenomenon holistically I reached out to one of the volunteers who reported his involvement in the TTJ process on his blog. Using his contact information online, I recruited him for an interview. The Distributor, the only one who agreed to the in-person interview in Japan at his location, introduced me to the Driver by calling him while I was interviewing him in Ishinomaki, the city in the region most severely devastated by the tsunami. In addition to the TTJ volunteers in Japan, I was also able to interview one of the journalists who covered TTJ in Tokyo nearby her office. I inquired NHK through their website, and they contacted me so that I was able to set up an interview with the reporter who followed and broadcasted one of the TTJ delivery processes (in May 2011).

At each session, interviewees were asked about their experiences in regards to TTJ, their background in general and disaster and emergency response related experiences such as management and coordination work, volunteering, technical engineering work. Questions were also focused on their information behaviors and activities, uses and perceptions of social and traditional media as well as other technology including mobile and information and communication technologies in general and in the context of TTJ. Nonetheless, questions for the interview with the Reporter were adjusted to focus on her own and NHK's angle from which the broadcasting company intended to cover TTJ amongst many volunteer organizations engaged during the time of the disaster response in 2011. These sessions were intended to be semi-structured, and yet kept flexible to be open and unstructured, prompted by concerns for the four-year time lags that might burden the interviewee's memory retrieval between 2011 when the 3.11/TTJ happened and 2015 when the interview was conducted.

4.4.2 Interviewees

One interviewee was the one who drove his truck to Narita airport, picked up the shipment, and delivered to the disaster-affected communities where the mothers were in need. During the interview with this interviewee, the Driver, his office worker joined the interview as an additional volunteer who helped TTJ along with the Driver. The other interviewee was the one who sent photos to the mothers and posted those photos on his blog all along that he helped TTJ. For example, he uploaded a photo of volunteers unloading the bulk shipments of formula from

the truck and of mothers picking up the formula. This interviewee, the Distributor of TTJ, was/is a self-employed, disaster response expert who came in action within the first 72 hours of disaster response. His expertise focuses on local residents who are unable to evacuate themselves and/or those who the professional humanitarian organizations were unable to reach. He helped TTJ specifically for finding out where to distribute the baby formula so that it went to the real people in need (i.e., mothers with infants) who would find formula useful, which was the ultimate, and primary goal of the TTJ.

Even though I was unable to interview the mothers in Finland, these interviewees in Japan engaged in iterative information interactions like the Mothers' (i.e., as found based on the online observation and documentation). This provided further details about how the TTJ was managed on the ground. In other words, their experiences highlight the process of figuring out unknowns and knowns: what to do and what can be done as well as how to do what needs to be done and what can be done, etc., using available technologies and resources other than Twitter.

In total three Japanese were interviewed: one session with two individuals who delivered the milk (the Driver) and the other with a private disaster response expert who helped to distribute the milk (the Distributor). In addition to these TTJ volunteers, I was also able to interview one journalist who broadcasted the TTJ delivery (the Reporter).

The Driver & Assistant (2)

- a male, father of two children, funeral business owner and
- a female, mother, part-time employee of the Driver who joined a half of the interview

The Distributor (1)

- a male, father, a full-time humanitarian volunteer (registered agent of a nonprofit organization himself)

The Reporter (1)

- a female, mother, a full-time employee of NHK (Japan's national public broadcasting organization).

There was an additional key person mentioned by these three interviewees, the Coordinator, referred to by her last name "S san". I was not able to interview her, but I confirmed that she is one of the active participants on Twitter who also contributed on her blog that reported regularly about the TTJ in detail of the progress made in both Finland, on social media, and on the ground

in Japan. The Driver and the Distributor met her and shared drinks when they all happened to be in Tokyo long after the TTJ delivery, sometime in June or July of 2011.

The Coordinator (1)

- a female, “Ms. S,” IT related work at home, a regular blogger of “Beyond the borders,” a twitter user account name @Blythe who appeared on March 29, 2011 first time through @TuttelitoJapan (total of 6-8 tweets incl. retweeted) and on March 30 to #Autajapania. She assisted with the spin-off project in the summer.

Also, there is another person mentioned by the Driver, “Mister in Itabashi, Tokyo,” a retired business owner, who communicated with the Coordinator for some reason to help TTJ delivery.

The Onlooker (1)

- a male, a retired business owner/person, a twitter user account @florestan854 appeared on March 19, 2011 first time tweeting to @TuttelitoJapan (total of 30 tweets) and on March 20 to #Autajapania (total of 8 tweets)

What technologies they used

Interestingly all the interviewees mentioned that they do not have personal Twitter account and use it infrequently. Instead, they ask someone else to look up Twitter to find out what’s been said there. In terms of usage of ICTs, they mentioned that they used during the TTJ processes their blog, email, phone (mobile), facsimile, and Facebook in order of frequency/regularity. “Used” varies in each individual context.

Data source	ICT used by	Twitter	Blog	Email	Phone	Fax	Face book	Mail	Skype	mixi
Interview	The Driver		✓	✓	✓	✓	✓	✓		
	The Distributor		✓	✓	✓		✓			
	The Assistant	✓		✓	✓					
	The Reporter	✓	✓	✓	✓					
	The Coordinator	✓	✓	✓	✓		✓			

Table 17: ICT used by the people on the ground

Data source	ICT used by	Twitter	Blog	Email	Phone	Fax	Face book	Mail	Skype	mixi
Online observation	The Mothers (7 initial organizers)	✓	✓	✓	✓		✓		✓	✓
	The nosy (continuum tweets)		✓	✓	✓		✓			
	The Participants ("someone")	✓	✓	✓						✓

Table 18: ICT used by the people on social media

How they learned about TTJ

These two TTJ volunteers (the Driver and the Distributor) were introduced to TTJ by their acquaintances who found TTJ on Twitter. They were also introduced to each other through the TTJ mothers for local communication and coordination. Until the time of this interview, they had not talked for a while, but the Distributor immediately suggested the Driver for an additional interview. In fact, he called the Driver in front of me when I was interviewing him so that I was able to set up an additional interview. As for the reporter, she was a standby correspondent in Tokyo newsroom just because she was transitioning to a new assignment in Japan after working in New York. According to her, either one of their correspondents in EU or Japan found out about the TTJ tweets (in fact, #AutaJapania tweeted to NHK official account from its “life” section). NHK decided to cover the story, as the TTJ was successfully delivering multiple shipments. She flew to Finland to join their EU correspondent for interviewing the Mothers in Finland. After the interview in Finland, she flew back to Narita and followed the TTJ shipment to be delivered to Tohoku.

4.4.3 The Driver & the Distributor

Each interview lasted for almost two hours at their designated locations. I met the Driver in his office and the Distributor in the disaster affected city (Ishinomaki) where he continued volunteering so in the location where the TTJ baby formula was distributed. With the Driver, the 2-hour interview yielded detailed information. I was able to make digital copies of documents that they generated. With the Distributor, per his request, I stayed overnight in the city (for the city’s economic gain) and followed him visiting the local people in their temporary houses as

well as their houses that all remained under reconstruction (for the disaster affected individuals to see someone from outside their community). The experiences of the Driver and the Distributor characterize various episodes of the TTJ that would not have been known without interviewing them. The actual actions involved, procedures considered, and information behavior evolved in the processes of aid delivery; these individuals acted on request from someone they did not know and for someone suffering from the disaster that they did not know. It was phenomenal to trace back their experiences and delve into details to unpack and reconstruct pieces of memories that they could recall.

The most interesting finding -what the Driver and other TTJ contributors on the ground went through is extraordinary but how they did what they did for the TTJ (in terms of information search and seeking especially) is very ordinary: it is not much different from the process that the TTJ mothers and other contributors went through online. How they did what they did - what they went through was extraordinary and complicated, but how they overcame obstacles resembles how the mothers did so by using the internet and how others described on their blog and elsewhere on the internet. Here are the major findings which are not very different from the ones I described before (many times) about TTJ based on the social media dataset.

Key Characteristics of the People on the ground:

No expertise among the people mentioned/involved, **except** the distributor. These individuals had no prior experience in any of the relevant fields such as disaster management, aid operations, ICT business or domestic/offshore procurement, or any other technical skills and knowledge except driving cars and trucks.

No work history among the people mentioned/involved. They did not know anyone beforehand who worked for and with TTJ or any other organizations in action for the aftermath of the disaster.

No special or close ties to the people mentioned/involved/affected by the disaster. They did not know any mothers in need or individuals who needed baby formula in particular. All the people who appeared in the Driver's interview were those who were able to supply information or goods to donate within convenient reach such as his business acquaintances from the present and past, neighborhood community members, and friends. Also, no specific individuals were mentioned/suggested as ones that he meant to reach for particular needs.

No new technology used or created for the TTJ or the disaster response operations.

Next, I describe in detail what the Driver and the Distributor worked on in order to accomplish their part for TTJ as well as how they did what they did: to deliver the shipment to the disaster-affected communities and to distribute the formula to the mothers living in these communities.

4.4.4 Many Unknowns in the TTJ processes

The interview with the Driver reminded me of how things evolve and get complicated when we try to do something that we have never done before. At first glance, the TTJ's request sounds simple: to pick up the shipment at the Narita airport and either to deliver it to another volunteer group(s) or to drive all the way up to the Tohoku disaster-affected region. The goal sounded just that simple and doable as much as the minimum necessities for the job were available including a vehicle and manpower. However, once you start working towards the goal, you learn new necessities to deal with as progress discloses previously unknown steps to reach the goal. Here the interview excerpts from the Driver describe the first-timer experiencing various kinds of unknowns and verifying what needed to be done and how to be done as such:

"It (what I did) was just a delivery." (dedoose #21820-21830)

"I went for a pick-up, I received, I loaded, I delivered. That's what I remembered, very rough (I don't really remember well in detail)." (dedoose #21983-22028)

As he described his part of the job so simply, he also further described major points he undertook.

"...As a start-off, I went to Narita Airport for the TTJ cargo. As we were becoming sure about when the cargo was arriving, the Mothers in Finland were looking for a destination where was the best area or community to hand out the formula in the Tohoku region at large. Eventually, they were able to find someone (who became the Distributor) through Twitter or something, I don't know for sure, but the Mothers told me that they found someone anyway, so asked me to go there to meet up (where the Distributor is stationed in the Tohoku)" (dedoose 0:09:10:07)

These excerpts were the first few episodes from the Driver in response to "tell me about your experiences with the TTJ." Based on these early responses, I asked for further details of his

experiences. As the interview proceeded, the Driver was able to recall different pieces of memory. His memory highlights that the simple job, the “aid delivery” (the TTJ), cost him various complications where he was exposed to evolving unknowns: expected and unexpected, anticipated and unanticipated. Here is the list of additional excerpts that detailed episodes in which the Driver was situated over the course of action dealing with various kinds of unknowns.

The Driver did not know that he needed a vehicle permission for the expressway (different from the last delivery)

“The rule changed rapidly, so that I needed a different permit for the TTJ from the one I had before. [...] It was at the city hall, but it moved to the city police station and to the fire station.” (dedoose 0:39:50.04)

The Driver did not know if he needed to go to Tohoku

Initially the political party (LDP office) offered their help to transport the TTJ shipment to Tohoku where LDP local offices would help distribute. But LDP was clear that they were unable to pick up from Narita Airport. The Driver was not sure where to meet LDP after the pick-up at Narita, because the Mothers were not sure about accepting LDP’s offer up until the last minutes as the plane was about to touchdown. The Mothers were debating whether to 1) let the LDP handle as they offered, which included the distribution, which made the Mothers doubt about whether the milk would be handed to mothers in need in Tohoku or 2) if the Mothers turned down the offer they needed to find exact locations and probably a person who could help the Driver to find mothers in need and distribute the formula to them.

The Driver did not know how to handle customs clearance for picking up the TTJ shipment

He googled about it, picked up a company whose website was nicely designed (“user friendly looking”) and informative (He picked it up by his hunch), and called the company to ask for their help

“I had no clue (about the clearance), so saying something like please send me any information about it as much as possible (to the company over the phone). I called them and asked them to teach me how to do it.” (dedoose 0:17:11.0)

The Driver did not know where to deliver exactly within the disaster affected region, Tohoku

“I just delivered. I made rounds of dropping off the formula where the Mothers asked me to go to.” (dedoose 0:22:11.6)

“I did not need to find out where to deliver. The Mothers did it, so from my point of view, it must have been very painful job to do (for the Mothers).” (dedoose 0:17:03.7)

*“When the Mother contacted me, it was like they wanted to find out where to deliver, so as I were getting there the destination changed a bit”
“...but once I got there (at the local organization/person that the Mothers figured out for distribution) I found someone who sounded knew why I was there for but I was not sure rest of it, since he did not seem really understanding about the situation with the TTJ, I looked for a place to unload, wrote down “Fresh milk for Babies” on the box, and put another one like “Take immediately” on a wall as I was asking people around if they knew there were mothers with infants.” (dedoose 0:30:03.3)*

Furthermore, the above examples of the Driver’s unknowns were actually a starting point of another round of information seeking and search, in order to figure out what needed to be done as well as what could be done. For example, in order to drive to the disaster-affected region, Tohoku, the Driver needed to prepare extra gasoline for himself. To do that, the Driver needed to ask around his business acquaintances for extra gas tanks to borrow so that he could assure that he would make the drive both to and from Tohoku where drinking water and gasoline were rarely available.

Also, the Driver had to go through other bureaucratic procedures different from the ones he learned from his earlier delivery in March in order to obtain the valid permission for the Tohoku pathway. During that time, individual volunteers going to Tohoku became ‘popular’ so that the government control of transportation became stricter. The Driver was asked at first to bring “an invoice” of the rations/aid items as well as “a request form” from the destination in the Tohoku (i.e., “a recipient of the rations/aid”). At this time, he was sent around to the police and fire stations, because it was a special case that involved foreign, import goods, which made obtaining such required documents technically difficult. As he observes, “we could not receive emails or fax from the disaster-affected communities anyway (it was almost impossible).” He recalled around this time that permission became absolute so that it let any vehicle to use any

expressways for free in larger areas as the number of disaster-affected communities were growing. “The government was cautious about issuing such almighty permission to the public,” he remembers.

In addition, as the TTJ cargo was getting ready for take-off from Helsinki (i.e., the TTJ delivery was becoming real), another volunteer joined the Driver. The Driver’s assistant from his office (no means of hierarchical relationships for the TTJ) started to help the Driver figure out the how-to’s. Since the Driver did not know if he needed to go to Narita Airport or not in the first place, he suddenly needed to figure out different kinds of paperwork and preparation for the pick-up. For example, the Driver did not know where to pick up the formula at the Narita Airport as well as another location for stopover in Tokyo to transfer the cargo to other volunteers. Because again “things” were evolving, there was/were other organizations who might be able to pick up at Narita but not to the disaster areas. Also, the Driver learned that they needed to research on how to pick up the import goods. To prepare the pick-up document the Driver and the assistant used queries on Google, something like “import goods” “pick up” and “how to.” As they remembered on the way to Narita Airport that they got lost, she recalls;

“We even printed out the map to the pick-up location, we were unable to get there straight. We had to re-route and looked for someone to ask there (the airport terminal areas are mostly for logistics and businesses so that it was not easy to spot someone who you can speak to), I remember that (the pick-up location) was not at the airport, far from it.”

(dedoose 1.35.01.9)

They selected a company from the search results and called the company for help. The Drivers explained that they selected the company based on their instinct as they read the company website; “it looks kind,” they smiled. The Driver recalled that he had to exchange documents and recalled that he used facsimile to do so with the airline/shipping company, Finnair Freight Cargo and the company. Once he mentioned “facsimile” I automatically reacted to the word and asked him, “facsimile?” (see Appendix C for the map, documents, & facsimile)

“Yeah, right? Luckily, we still use one! Our small funeral business became finally useful.”

(dedoose 0:43:37.6)

Simultaneously, the assistant recalled that her concern was about the baby formula product, which was the main reason why she was interested in helping. She started working with various kinds of “doubt.” For example, to be sure that the cargo would smoothly pass the customs at the airport, the assistant began searching for information about the product and the contents of formula. This is when she started to follow the TTJ tweets and other online discussion over the baby formula, its safety and anything related. She remembered when she learned about the idea of TTJ as below:

“Is such a product really safe?! As if I were the mother in the disaster affected area, I wonder if I would try it for my baby. (Because) It does not need to be in the fridge for days... (that’s strange and weird in Japan) and it will be shipped over the hours of hours of long flight which involves lots of shaking that might affect the formula itself, perhaps.”

(dedoose 1.26:38.7)

4.4.5 One Known Item: TTJ ultimate goal

The sources of the Driver’s information and knowledge included television and other news media, as well as the internet. For example, due to the soil liquefaction, various areas inside and adjacent to the Tohoku region were reported bumpy and dangerously uneasy to drive, that made him prepare extra gasoline for the delivery. From these sources, the Driver learned that the expressways to the Tohoku area were blocked fully or partially so that knowing about local roads and regular routes to Tohoku (pre-disaster) were utmost for aid delivery. He recalled that his prior knowledge and experiences in Sendai, Miyagi prefecture were so crucial that he decided what he did at that time based on that experience. This experience was especially difficult for him to do as an individual effort, unlike being a part of an organized group or official humanitarian effort; however, his local knowledge and pre-disaster experiences in Tohoku were then extremely helpful motivationally, psychologically, and informationally.

Once he returned from his first two or three rounds of delivery which he made within the first two weeks of the disaster, he felt obligated to both “report” the situation and “reach out” to people, especially to seniors just to even say hi or ask how they are doing, not only his neighbors and family friends living nearby but also his customers who used his funeral service in the past. He used postcards and wrote about Tohoku, “I will go again, so if you have any extra items that I mentioned above please let me know I will pick them up and bring there.” He used email, blogs,

and made a handout posted on his store window. One of the replies he received asked him to be a point of reference as a potential contact for the TTJ delivery. For the Driver, the TTJ formula was just additional aid items to load into his truck.

*“Someone who knew I had already drove up there (the disaster affected areas, Tohoku region including Sendai) asked me about it (if he could make some spaces for the TTJ formula in his truck). I was asked, ‘Can I give your name?’ so I said, ‘You can. Go ahead and tell her to contact me directly’” (to refer his contact information to TTJ mothers).
(dedoose at 06:6:00)*

What the Driver was asked to do by the Mothers was to deliver the formula to the disaster affected areas, to the “real” people there; in other words, the Driver was to make sure that the aid be handed directly to the individuals, not to drop off the aid at the disaster center or evacuation camps. These directions were the only and most clearly stated information about the TTJ. Furthermore, the Mothers and the Driver did not know exact destinations up until they were approaching the area immediately adjacent to the disaster areas, because “things” were evolving. For example, the TTJ Mothers learned that the initial destination that they told the Driver to go to had received updated news that the area had both the electricity supply back up and powdered formula when the Driver was already on his way to Tohoku so that the TTJ Mothers urgently sought any information about alternative Tohoku locations and people in need of baby formula. Eventually on Twitter someone recommended other locations, and thus the TTJ Mothers called another city office and decided to deliver there as reported to the Driver via emails.

4.4.6 Summary

The story of the Driver sheds light on work that had to be done on the ground versus online. His description suggests that his “doing” was made up of unstructured activities peripherally incorporated into the conditional “being” of the TTJ as a whole. The TTJ was made up of volunteer individuals contributing their available time, effort, and resources for the TTJ. Without an actual map or plan, the participants all seemed to be working toward the same goal, creating a map as the formula moved across the globe. Between the social media and the ground, it seems there were two groups working separately, but if we look at both processes together, we see that they were working in sync. The proof that they were coordinated is that the formula actually made it to its intended destination: the local and global became indirectly synchronized. Through

ordinary ways of communication and interactions, the TTJ participants were situated to browse, recognize, and infer open unstructured activities both individually and collaboratively (e.g., Twitter conversations, in-person interactions, and information online and on-the-ground).

The Driver encountered so many unknowns as he moved the formula to its destination. His direct actions revealed unknown unknowns, meaning he had to learn what he did not know as he moved along (similar to vagueness in information needs) and figure out how to navigate those gaps in knowledge. In this way, his process was similar to that of the Mothers in that he needed to clarify what he knew, how he knew it, and how to apply that knowledge in action.

To deliver the baby formula to Tohoku was the goal, but the ultimate goal was to put the baby formula in the hands of mothers. Handing the baby formula to the mothers directly was the mission as opposed to leaving the baby formula to be distributed by others or to become untouched or to become a burden for workers at the evacuation camps. This direct distribution redefines the formula as not just “aid” item but as a meaningful/thoughtful contribution from fellow Mothers. So many aid items available in a disaster situation come from companies looking to dump their overstocked items as a tax write-off as opposed to providing what is truly needed. For example, domestic baby formula companies sent lots of powdered formula as a form of assistance overlooking the fact that many areas lacked clean water and electricity to make that formula usable. The TTJ Mothers wanted to avoid that thoughtless kind of contribution; their efforts would be meaningful and the Driver’s hand delivery was the final part of the meaningful act.

4.5 Chapter Conclusion

Due to the complex circumstances, social dynamics and individuals situating the TTJ as a whole, various kinds of needs were taken into consideration, expressed in various forms of certainty, and continued to evolve. As the TTJ interactions indicate lack of clarity and uncertainty in their doing, the TTJ contributors kept interacting with each other with information that they individually found relevant to their goal. In the meantime, other contributors were working on preparing the shipment by translating nutrition information, ensuring ingredients were acceptable for Japanese consumers (mothers), typing the information using Microsoft Word, printing the label to make stickers for packs of formula, and so forth. Although the density

of entanglement in the TTJ information interactions slightly lessens as the TTJ participants gained experience -- for example when the first shipment was confirmed successfully delivered - - their searching with unknowns continued throughout because the TTJ became popular by the media coverage so that the Mothers continuously received inquiries and questions. Up until the last delivery, the TTJ data shows the participants iteratively searching for information for the needs of the TTJ. Thus, searching for information to help is their underlying activity for the TTJ to come about as the people expressed various kinds of vagueness: in communication, meaning what they are looking for is most likely unclear; in information and knowledge, meaning that shared and mentioned information is also indicated as uncertain or unconfirmed; in information needs which are seldom indicative; and in roles (i.e., what needs to be done and/or who does what) which are ambiguous.

What was clear is that the TTJ's initial statement, "we want to help the mothers and people in the disaster-affected communities by matching needs" required searching for information to "help" and an underlying process of self-organizing. Searching for information to help continued with not only loads of unknowns but also a variety of them: gaps in interpretation, knowledge, feelings and emotions about what is happening. The process became one of learning for the participants in that they had to determine what they could do in order to achieve their initial goal. They did not change or create anything new; they just appropriated and utilized what they already had in order to reach their goal. When it seemed that things became too difficult to send the formula themselves, the Mothers began talking to politicians, the Red Cross, Nestle, etc. in order to try to get these organizations to make what they wanted to happen occur, but they were turned away by these outlets. Instead, they had to make their own way. In the following chapter, I will discuss how the TTJ participants manage such kinds of vagueness and uncertainty in searching for information to help collaboratively shape the spontaneous collaboration work.

CHAPTER 5: DISCUSSION AND ANSWERS TO RESEARCH QUESTIONS

5.1 Introduction

In this chapter, I consider collaborative information activities to be opportunities for learning and sources for creativity, especially when the participants are uncertain what to do to achieve organizational goals but are certain of the meaning of the effort. Further, different kinds of vagueness and unknowns should be acknowledged as sources for learning and creativity, especially when people are collaboratively searching for information to help others in need. Moreover, while vagueness and unknowns can intervene or cause failure in collaboration work, these uncertainties can be generative, for example; vague expression of information needs, uncertain sources of information and lack of specific knowledge, ambiguous relationships and member roles, and unclear use of language in collaborative information activities can all be considered assets.

In everyday context, collaborative information activities involve not only online interaction but also hands-on cooperation. In these processes in action, although individuals engage in information activities solely using various kinds of media or information technologies, both social and private, they encounter like-minded others leading to an opportunity for new information activities not previously intended but to make contributions for ad-hoc organizations with agreed upon goals. Nonetheless, such iterative information activities rely on the quality and variety of contributed information and knowledge. Moreover, the organizations are ad-hoc, so that there is no obligation and no established rubric for acceptance; rather the process is more flexible and continuously dependent on the autonomy of the individual. While the like-minded others come to participate in this self-organizing effort based on the shared common understanding of the purpose for the ad-hoc organization to proceed, creating a mechanism for meaningful progress in a short period of time is a key challenge for spontaneous collaboration to work.

Using a single case study framework, this study aims to better understand the complexity of collaborative information activities in the context of the “Tutteli to Japan” (i.e., the idea for sending Tutteli formula from Finland to Japan, TTJ) as a process and phenomenon of

spontaneous collaboration. The base research question of “How do ordinary people’s information activities shape spontaneous collaboration?” is subdivided into two sub-research questions:

RQ1: How do ordinary people search for information in a self-organizing effort?

RQ2: How does such kind of information behavior make collaboration work?

The TTJ played out online and on the ground: these two hubs of operation of the phenomenon included significant overlap in participation, despite the difference in site location, unfolding in parallel. Though online interactions were transnational in nature, there were no participants that worked both in Finland and in Japan. Considering the characteristics of the TTJ participants both online and on the ground, both sets of participants were leaderless, leading to similar behaviors in information seeking and search as such that they lived with various kinds of vagueness and unknowns. This mode of shared uncertainty in the leaderless formation of the TTJ reflects how ordinary people with compassion applied real options that became available to them for the self-organizing to work.

Without any specialized resources and knowledge, the TTJ survived through informational, operational and situational uncertainties, representing an everyday approach: asking around, asking to ask around, and asking to verify. With this simple approach, the TTJ participants engaged in figuring out what to do, what needs to be done, and how to do it for the TTJ to proceed; in other words, filling gaps in interpretation, knowledge, feelings and emotions about what was happening, what to do, and how to do it. This type of learning by doing was predominant up until the TTJ was about to accomplish the first delivery.

In the following sections, I briefly recap the subject research case incorporating the findings. Then, I present my answers to each research question and provide a synthesis of the analytical findings using both these concepts and the TTJ data. Based on multi methods and grounded theory approaches, the findings are interpreted and further discussed for each question.

5.2 The TTJ in Situational, Informational, and Practical Uncertainties

Tutteli to Japan” (TTJ) represents an emergent world of complexity, especially from the perspective of how people interact with information and how these people act on the information

toward common goals. Moreover, in the context of the immediate aftermath of the 3.11 disaster, TTJ represents an intuitive reaction of an emotional public as Pizziconi (2015) describes “the public was exposed to contradictions and ambiguities, and telling euphemisms, which added to the sense of confusion and uncertainty, and to the populace’s fear and anxiety.” (p. 171). Due to the subsequent Fukushima nuclear explosions, the social media discourse among Japanese public escalated, but in a form of “communities of interest to emerge independently from other forms of association (geographical, professional, etc.) which rely on more conventional channels of communication (face-to-face encounters, professional literature, etc.), give access to different actors, and can, in a bottom-up fashion, challenge the dominant narrative” (p. 178). The phenomenon of TTJ was indeed part of these online reactions. That is, it is facilitated by a small number of individuals online, and these individuals encountered the idea for the TTJ while independently searching for ways to help disaster affected communities and people as well as monitoring what is being shared and happening on the ground and beyond.

In addition, under such circumstances, eventually their online conversations expanded to reach both like-minded others online and other individuals volunteering on the ground for the disaster. Public participation in community-based, private efforts using web-based applications and social media accounts illustrates the power of ordinary people, information, and technology (i.e., the power of ordinary people acting on information processed through humane-driven technology use).

These individuals include: 1) mothers living in Finland who initiated the idea for sending the liquid infant formula, Tutteli (i.e., TTJ initial organizers or the Mothers) to Japan, 2) private citizens who independently coordinated relief work among themselves up to organizing delivery to the disaster sites (e.g., TTJ Driver), and 3) internet users (e.g., TTJ participants). These women online and the fellow TTJ contributors had limited knowledge and experiences in humanitarian efforts and used general features of information and communication technologies. The majority of the TTJ participants had no history of working together and no disaster relief work experiences prior to the disaster. For such individuals, not knowing how to send the aid from overseas required them to seek, search, and use information at almost every step. These are the conditions under which the TTJ operated: the exigency of disaster, the platform of online social media, and the novice level of the participants.

From the perspectives of project management, the TTJ is considered an action and goal-oriented project, in which project manager and team members realize the expectation of the project success by recognizing the lower amount of uncertainty (Lindkvist & Söderlund, 2002). Social psychology explains the motivational state of such project members as high so that the project lifecycle is fueled by self-management of uncertainty. This effectiveness of empowerment, however, depends on the context of the project, specifically the processes (Wall et al., 2002). Available resources (e.g., technology, funds, materials) hinge on progress in planning and action, resulting in low problem analyzability or operational uncertainty (Wall et al., 2002). Having difficulties in operation due to the lack of predictability in assignments, organizational cohesiveness becomes fragile, unless some of the operational uncertainty becomes clarified and a new direction arises.

Considering the success of TTJ as improvised operations, from the human resources point of view, the TTJ participants' motivational state was high so that the TTJ participants were able to self-manage their responsibilities, not only as reliable workers at a lower level hierarchy but also as upper-level managerial officers. This self-management style represents a practice of giving members increased decision-making authority with respect to the execution of their primary work (Wall et al., 2002). Thus, the organization's accomplishments are a result of the effective empowerment which depends on the careful and precise definition of operational goals and specification of activities, and preparation for smooth implementation by the project managers. Furthermore, what makes a difference revolves around the ability of a project manager or members who can take charge. Someone who can facilitate relationship building, develop trust, and establish organizational norms leads the group or collective to promote and engage in practices. In the case of TTJ, none of the signs or nuances that signal any kinds of hierarchical order or arrangements were found. Also, among the TTJ participants, no one claimed or was appointed as a "leader." During the TTJ operations, there was only one example of someone who claimed her expertise highlighting the ordinary character of the participants: "I have confidence that I keep asking nitty gritty questions (for the TTJ to proceed), though I don't really have experiences in risk management, but I experienced managing unexpected incident(s) when I was part of hosting an event for the royal family before" (the Coordinator, #75, #AutaJapania, 2:31 AM, 20 March 2011). As illustrated in the previous chapters, the TTJ participants did not indicate specific knowledge or claim their professions that directly related to the TTJ operational

needs. During the TTJ operations, the participants mainly engaged in two processes: 1) searching for information to help the operations to move forward and 2) self-organizing to arrange what they can do related to the TTJ needs.

5.2.1 Searching for Information to Help

Especially during the early stage of TTJ, various incidents encapsulated the iterative and evolving aspects of interaction with information. Its initial act started by sharing a wishful thinking for the fellow mothers affected by the disaster, but the idea to send baby formula became a bold campaign to develop further on and eventually formed a realistic aid effort. Underneath these individual interactions with information involve other kinds of processing such as information and cognitive processing; for example: surveying of available information (e.g., Tutteli's "Table of ingredients" and nutrient information for Japanese consumers), selection of information sources (e.g., Ministry of Health, Labor and Welfare or Consumer Affairs Agency), judgement of information quality (e.g., a secretary of politician), and interpretation and validation of the selected information (e.g., "a recipient in Japan") and information sources (e.g., a TTJ participant's brother for a point of contact working at the disaster affected prefectural government office). These dynamic processes of information interaction involve navigating different kinds of vagueness. For example, a Japanese translated word, "baby formula" was found in thirteen different variations in the TTJ data as presented in Table 10 (see Chapter 3), most of which were introduced by the Mother, @TuttelitoJapan. The TTJ participants used not only one of these variations but several or created their own version to describe the product based on these variations in their message (e.g., "milk for baby no boiled water needed" semantically translated). This vague use of language involves various kinds of information and cognitive processing.

One of the TTJ participants recalled that when she heard about the formula for the first time, she searched for it online intensively: "Is it really safe?!' I was not sure what it means by "prepared" and "can store at a room temperature" (the Driver, interview script, #1:28:03). Also, she recalled her intense searching for the information online and found that some people (not TTJ participants) were speaking up for the formula as a safe product as well as acknowledging the controversy over pro-breastfeeding advocates. This episode insinuates different kinds of

vagueness: in information needs (not knowing exactly what is involved in the helping – to help the TTJ), knowledge (her gaps in knowledge), and vagueness in communication (variations of the translated product information). This participant navigated through these vaguenesses by searching and interacting with information; reading through the TTJ ongoing tweets, searching relevant information for “baby formula,” contextualizing the chosen information according to the action that the participant was about to take, and so forth. No one questioned about the usage of the variation nor advocated for standardizing the word. Instead, the TTJ participants asked for further clarification about the formula, for example, “is it safe?” or inquired about the ingredient and its allergy risk. As the TTJ Mothers responded to those queries, these messages became real-time archives of the TTJ conversations from which the participants both returning and joining for the first time were able to refer to topics that had been discussed at different times of the TTJ interactions.

Blandford & Attfield (2005) synthesize these multidimensional aspects of information seeking and information interactions into a comprehensive framework called “information journey.” Drawn from sensemaking, information foraging, and information encountering and serendipity, the information journey explains “an evolving cycle of information interactions as if each new interaction built directly on earlier ones” (p.36). Considering the situation that surrounded the TTJ, those individuals who contributed to the TTJ online as well as further interactions beyond, were also going through their information journeys at individual levels, in parallel to other kinds of information interactions at both the social and collaborative level which interleave with work and learning processes. For instance, in a case of paperwork for international shipping of the formula as a disaster aid, the TTJ participants specified legal and procedural requirements, filed the required documents, and finalized the process with constituents including a freight carrier, customs office, and a trading company. In their seeking processes, TTJ participants demonstrated simple activities: 1) ask around (e.g., “if you know anywhere that might find the formula helpful, please let us know” to find a “recipient”), 2) ask their friends and family to ask around for help (e.g., “Let me ask my followers”), and 3) ask to verify the information presented (e.g., “I know someone who might be able to answer”). This set of collaborative information activities was the TTJ participants’ primary instinct and was identified iteratively across the online and on-the-ground interactions. With the focus of coordination work processes, this means of searching for information to help or by asking around

(AA), asking to ask around (A2A), asking to verify (A2V) echoes appropriation work. The relation to appropriation work (after Draxlar & Stevens 2011) will be examined in further detail below as problem appropriation.

5.2.2 Self-organizing

To describe the TTJ phenomenon, I borrow an approach that Bryant (2016) conceptualizes with the term Grounded Theorizing. He argues that the use of the gerund form, a noun form of gerund theory “theorizing” accounts for actual “doing” of research, a practice of research that invokes the core processes of grounded theory, such as abstracting. I use the term, self-organizing for the subject research case, as the term suggests ideas about processes. Simultaneously, self-organizing is a form of a present participle that expresses both action and a state of being. All in all, the term self-organizing stresses that the TTJ phenomenon consists of events that are indicative of ongoing or organic processes of self-organizing; the citizen-volunteers (the TTJ participants) were responsive to sources of tension (e.g., uncertainty), were able to manage such stimuli from their environment by propagating these ideas with the fellow volunteers in a purposeful manner, and gradually able to coordinate under appropriate conditions but without the help of an external agency and authority (e.g., Red Cross, Japanese government). Self-organizing adapts on-going actions that are dynamic and time-sensitive to novelty and change, all of which need to be taken into account regardless of who acts.

When reviewing the timeline of the TTJ, I noticed the emergent characteristics of dynamism and time-sensitivity. The dynamic aspect of the self-organizing is evident in the participants’ interactions, since their conversations highlight the organic aspect of their actions gradually adapting to the situational uncertainties. For instance, at the very beginning, their original intent with the baby formula was not as clear as “we do it” type of slogan. Instead, their initial intent was geared toward letting the authority know the significant value of the baby formula as aid supply. In fact, the Mothers were trying to get hold of authority’s attention by calling and tweeting: “My friend called Red Cross Japan today and asked to include Tutteli when they request Finland for disaster aid” (March 14, 2011, #AutaJapania, W7). In the meantime, they acknowledged that sending the formula to Japan was not impossible but almost not feasible for them to do: “...even if we can't finally send [the formula], it is still better than not doing

anything. As we keep thinking, ‘there are such useful milk ...’ we choose to act as much as we can” (March 17, 2011, #AutaJapania, W7). However, when the situational and informational uncertainty arose, the Mothers began to actively tweet to spread the information need messages as well as to emphasize that they want to deliver the formula as soon as possible.

In terms of the time-sensitive aspect, six TTJ shipments all happened within forty days. Within the time span, the first shipment took approximately twelve to eighteen days. In other words, the participants spent 30 ~ 45% of their time for the first shipment. The participants were aware that the timing was crucial as stated multiple times “we would like to send [the formula/aid] as soon as possible.” However, there were no clear indications that suggest that the participants were under the influence of time pressure such as “hurry” or “we are running out of time” although the ongoing topics were significantly related to time-sensitive disaster response. While the statement appeared in the very first message and even thereafter until the fifth shipment was delivered, their interactions contain emojis and other remarks that suggest relaxed intentions. The quick reaction speed of the organization indicates an effective yet casual response and adaptation to transform matters into “something” that did not stop their progress. This quick turnout mechanism demonstrates flexible relationships and social dynamics among the participants who work in unorganized fashion (e.g., to contribute unverified information) and allowed decentralized order and structure (e.g., no direct guidance, vague language use, and uncertain information needs). According to organizational ecologists, such as Zaccarelli et al. (2008), the human social ability to learn (i.e., to create new ideas and norms) and the existence of social networks create flexibility in problem-solving and balancing of power among like-minded individuals.

This flexibility of the TTJ participant behavior reflects their stable approach to the people joining in the TTJ (online conversations or others interacting with them in person). For example, as the idea for the TTJ became solid as a private effort, the Mothers began to actively engage with tweeting for help with information needs. While the Mother (the initial organizer, @TuttelitoJapan) was not able to clearly or precisely respond to questions and inquiries, other participants were answering those questions on her behalf by rephrasing what the Mother was tweeting about. Also, when the Driver needed extra gasoline tanks, he asked around to whomever he happened to talk about his needs (such as when he was at a business conference).

Later that day, his acquaintance found someone who offered available tanks for the Driver to use. Although all these individuals were geographically distanced, they were able to coordinate to transfer these gas tanks to the Driver. All in all, there were no indications of one specific Mother or individual who was the leader of the TTJ except when the media broadcasted about the TTJ as the first shipment was successfully delivered to the mothers in the disaster-affected communities.

Having said that, self-organizing is maintained in the context of such a leaderless environment where response, feedback seeking or giving is undertaken extemporaneously by voluntary, unspecified individuals. This process of self-organizing is in contrast to self-organization. Self-organization is maintained by certain individual entities that manage leadership to some degree (i.e., a charismatic figure or a person acknowledged as a leader by him- or herself or by others, or everyone taking leadership as in leaderful). In self-organizing, someone is at present taking initiative or taking the lead. In addition, participants in self-organizing are free from structured hierarchy or even care free to form a loosely coupled organizational structure to accomplish whatever they ought to do. Here, leaderless does not necessarily mean being without leadership nor against authoritarian controls, it just means that it is not rejecting one defined authority or decisive leader but having recognizable participants or active volunteers (e.g., the Mothers, the Mother, and TTJ participants). What governs attitudes of voluntary participants in self-organizing is its organizational ultimate goal. What the self-organizing is primarily aiming for manages underlying beliefs that aggregate or attract voluntary participants. As illustrated previously, those individual volunteers who gathered relevant information and resources for the TTJ demonstrated their shared understanding of the common goal to send the baby formula at the time of the disaster, even though most of the people did not know each other nor the Mothers personally. In addition, the TTJ participants share another similarity among themselves – Japan. These two factors, familiarity with the issue and cultural homophily among the TTJ participants, predict how the TTJ was able to self-assemble and self-organize the aid response without authority or enterprise endorsement, except the free air cargo service by Finnair (Yufei & Detlor, 2005; Williams & Durrance, 2008).

From community and social network perspectives, the TTJ can be characterized by the self-assembled team of the Mothers who were able to attract like-minded others, or a subcommunity

that stemmed out of the Japanese expats online; most of the members share the same nationality or Japanese culture. However, this homophily in the formation as well as the shared understanding about the potential role of baby formula contradict with the role of uncertainty in distant collaboration, specifically in the context of temporary, fast-paced, time-sensitive work environment (Wax et al., 2017; Ehls, 2014-b; Hoda et al., 2013). Since role ambiguity in the workplace requires preexisting institutional arrangements in order to maintain frequent communication for the members to produce quick outcomes, if the self-assembled organization lacks recognizable leadership, the outcome of the assembled heavily depends on individual member skill (e.g., managerial, leaderful and entrepreneurial practices). In other words, the TTJ participants were able to self-assemble such a “team” that was effectively reactive to the emerging needs, based on their curiosity (willingness to learn) and inexperience (novitiate nature) of actual practices.

Therefore, those who contribute to self-organizing share the beliefs in the objectives of the self-organizing that is aiming for useful and meaningful outcomes, thus they become “participants” of the self-organizing. Furthermore, the participants acknowledge that self-organizing is full of situations that involve various kinds of unknowns. As the TTJ participants expressed, their interactions were full of proposals and suggestions, which suggests that these participants or supporters of self-organizing interpret unknowns as challenging but doable to imagine decomposing or rephrasing them as “doable to do” things (i.e., “small tasks”) in addition to their beliefs in the means to progress toward the organizational ultimate goal (i.e., “the big task”). Since the participants have no experiences in fulfilling the goal and objectives, they need to gather information, figure out what to do and how to do what to do, and verify what can be done and what needs to be done. From the perspective of information behavior, this explains how information needs lead to information seeking, that leads to information use and actions that lead to more needs in a cycle until the big task is accomplished.

In self-organizing, acknowledgment of the meaning of the big task by the participants does not come with promises of participants who bring actual skills or expertise in accomplishing the goal. Instead, their acknowledgement attempts to bring various means and forms of “help,” including information and knowledge; explicit or implicit, unverified or verified, for example. This free-form contribution and varied participation style give rise to a come-and-go flow of

participation, which in turn triggers diversity in contribution types. In other words, it facilitates open dialog for anyone to participate regardless of their commitment levels in pursuing the goal. For those participants and contributors, the purpose of the dialog is not to itemize different types of work, nor to identify and assign appropriate individuals to specific tasks. In other words, work tasks and information search tasks (in short, information tasks) were not clearly defined nor sought, but interleaved with unknowns presented or expressed in their conversational interactions or communicative processes. Thus, sharing descriptions of roles and clarification of associated responsibility in taking roles remain complementary, thus restriction of participation or contribution types in self-organizing depends on self-regulating. Any given participants in the flow are situated to identify, take, and/or pass over roles to one another regardless of the point of time or incompleteness of role description; within this study it will be referred to as take-a-turn role-taking.

5.2.3 Summary

Self-organizing is thus collaborative in that an independent (i.e., unanticipated, unpredictable, or varied in size) but diverse set of individuals maintain loose engagement, often demonstrated through phenomena such as a perpetual come-and-go as well as dialog with various kinds of unknowns. Such a flow of participants and casual engagement shape iterative interactions among participants for clarifying what to do and how to do it based upon what can be done and what needs to be done (in this study, this will be referred to as iterative information interactions). The roles of the diverse sets of participants and the diversity in contribution types become resources such as information intermediaries or simply mediums for browsing, searching, and using information. In self-organizing, such iterative information interactions for unknowns and knowns are the sources for identifying what can be done, how to do it, and what needs to be done. Within this study this collaborative attempt of needs assessment or sensemaking in appropriating capabilities and capacities of the self-organizing as a whole will be referred to as problem appropriation. All of these subprocesses are intertwined in the underlying processes of the TTJ, as a whole searching for information to help. These problem appropriation and iterative information interactions allowed any given participants in the flow to identify, take, and/or pass over roles to one another regardless of the point of time or incompleteness of role description (take-a-turn role-taking).

5.3 RQ1: How Do Ordinary People Search for Information in a Self-Organizing Effort?

In order to answer the research question, I use specific incidents that are depicted from the findings. These incidents exemplify the ways in which the TTJ participants applied the basic approach to ask around for information both online and on the ground. Further, I discuss how these approaches were incorporated with their self-organizing activities.

5.3.1 AA, A2A, and A2V: “I ask around...”

Throughout the TTJ, the participants demonstrated their engagement with searching for information to help. Across time and space, online and on-the-ground, sources of information that contributed to the TTJ information needs were vaguely identified and reported (see “4.3.3 Various kinds of vagueness”). For example, some readers of the blog “Horn” (i.e., one of the TTJ staff, see W5 in Table 2) left URLs to organizations in Japan, most of which were dedicated to mothers and infants (e.g., private social service providers). Eventually the blog owner noticed one specific organization that multiple readers mentioned in the comment space and contacted the organization through email. Though none of the readers were directly associated with the organization and used real name (i.e., there was no personal information hyperlinked or associated with the comments), the participants collectively valued the information offered and took action. Both incidents exemplify typical information sources for the TTJ information interactions, the most commonly used source of information, “someone.”

Similarly, as I mentioned above, the Driver and his fellow volunteers relied on available “sources” when they sought information, including anyone who happened to be available for them to ask for help in person as well as any tweets and any other information publicly available online. For example, when the Driver’s assistant heard about the formula for the first time, she used both general online search and her neighbors and mother friends to learn more. The assistant searched further online and found the initial organizer’s response comment on a website by an advocate for breastfeeding in Japan who critically blogged about the foreign baby formula referring to Tutteli and the TTJ effort (see “3.3.1 Online observations”). The assistant’s information interaction indicates the evolving nature of information behavior resulting in a

memorable experience of unexpected discovery of useful and interesting information about the TTJ initial organizer:

“There she was explaining her intention (to send the formula to Japan), I could sense that she wrote it very sincerely, she wrote a very long comment, I remember. I think she wrote something like [her intention was] just purely emergency aid purposes, nothing to do with the manufacturer or no interests in political action.”

(dedoose #5988-6012)

Having access to the TTJ Mother’s response to such a sensitive issue of breastfeeding, the assistant gained better understanding of the fellow Mothers in Finland filling the void of knowledge about who they really were in addition to the product formula. This information encountering occurred during the information journey of the assistant acting on the information need of the baby formula in a context of collaborative work with the Driver (i.e., to deliver the formula). Though all the above examples were online incidents, similar information seeking and search behavior also occurred in face-to-face interactions.

For example, when the Driver needed a vehicle permission for the highway, he asked his neighbors and gas station worker⁸ if they knew anyone who had already gone to the Tohoku area and heard anything about the disaster response (see “4.4.4 Many unknowns in the TTJ processes”). He recalled at that time other drivers waiting for next pump at the gas station:

“I thought someone behind me would strangle me to death or something, since I was asking for extra gas carrying portable tanks, you know? It was that frenzied.”

(dedoose #11940-11964)

The Driver explains that this experience became a warning for him to prepare himself well for the delivery work because the people’s reaction signaled the post-disaster situation becoming more unstable and impacting the people’s mentality even in his neighborhood, Omiya, Tochigi prefecture 73 miles Northwest of Narita or 93 miles North of Tokyo, the Southern neighboring state of Fukushima. Furthermore, when he arrived at one of the destinations, he was asked to bring some of the Tutteli crates to another evacuation camp for other mothers. There he went by

⁸ Gas stations in Japan are mostly served by the station worker. Self-served gas station is not common.

himself, not accompanied by a local volunteer for the TTJ (e.g., the Distributor). At the camp, he found a space to unload the crates, but then someone told him not to leave any aid items but go somewhere else. Nevertheless, the Driver asked around if there were any mothers and babies in the facility and found a few of them. Confirming the actual voices of the local mothers in need, he “made a space for the Tutteli myself, and wrote down with a big sharpie ‘FRESH milk for babies! TAKE IT ASAP, Will GO OFF SOON.’” According to the situation, at the gas station and the evacuation camp, the Driver acted on the given information, from both online and on the ground, and sorted out what he could do toward the ultimate goal of the TTJ: to deliver the formula to the hands of mothers in the disaster-affected communities.

As illustrated in the previous chapter, unknowns did not stop him from moving forward. Instead, these challenges provided opportunities to look for other “sources,” with which new interactions began and gradually led to accomplish the ultimate goal of the TTJ. In both occasions, online and on the ground, none of the TTJ participants mentioned any experts or authorities that they sought for verification of their sources of information. Instead, their approach remains consistent – ask around (AA), ask their friends and others around them to ask around (A2A), and leave their search by asking to verify (A2V), even though sources of information were not necessarily verifiable and not always tied to their social relations.

Another example from the TTJ information interactions exemplifies the application of those strategies in the hybrid environment of online and face-to-face interactions intertwined by time and space. When the TTJ Mothers held a fundraising event in Helsinki, these mothers tweeted about the event in both Finnish and Japanese. Tweeting in Finnish makes sense to attract local people to come by, but in Japanese those tweets, started as a promotional behavior, became essentially another round of information seeking and search: people in Japan asked about “bank account”: how they could financially contribute to the TTJ. Furthermore, the blog “Horn” also reported her experience with the event as a volunteer. On her blog, each step of how to host a fundraising event as a part of the Red Cross Finland (RCF) was introduced with some photos: registration at the office, set-up a table on a street, the official red jacket of RCF, and the RCF fundraising box in red etc. (March 17, 2011, “Horn”). Started off with an ordinary tweet for announcing the event, the blog post highlighting the TTJ’s first experience in fundraising triggered another round of asking around and asking to verify.

One of the blog readers in Japan left a comment on the blog post:

“To the heartwarming support of the Finnish people, really, thank you. Regarding the import of baby formula, I mentioned the other day, it seems that the company I thought might be appropriate for the recipient of the Tutteli you were looking for was also affected by the disaster, and according to the company, importing such things as formula is regulated, so for the company it is too difficult to work on the import of the formula at this moment. I am sorry for not being able to help you.

(00:25 March 19, 2011, by S■■■■s)

This comment exemplifies the reader’s act on the information need – presented in earlier post as “a recipient” (see “4.3.3 Various kinds of Vagueness”) – unfolding further asking around at her end. Also, as indicated in a response comment to this reader, the TTJ participant shared an update on the TTJ: the TTJ was then working on figuring out whether the shipment could be arranged as emergency aid items, if so the recipient would not need to be “an importer” of the goods.

All in all, the TTJ participant’s detailed illustration of the step-by-step processes turned into another source of information afterwards, which spurred another round of information seeking especially for verification of what needed to be done, what could be done as well as who they were: someone asked if the TTJ was an effort by the Tutteli company and another asked about where the money came from (on Twitter, @TuttellitoJapan). Acting on the information needs and challenges to fulfill the needs suggests that these acts play the function of anticipating future information needs and iterative processes of AA, A2A, and A2V for new kinds of information needs.

Upon a disaster event, one immediate need is information (Palen & Anderson, 2016). In disaster response contexts, distance becomes crucial when people want to do something for disaster-affected communities. The closer the population is located, the greater their involvement and engagement in humanitarian efforts. Research has shown that social relationships, geographic locations, and temporal gaps are crucial to initiate, direct, and engage acts of helping others especially with reliable information (Stallings & Quarantelli, 1985; Murthy & Gross, 2017). However, in the TTJ case, geographic distance and temporal gaps seem not to take the typical role affecting compassionate ordinary individuals.

When there is urgent need, for example, the family, friends and supporters of the help seeker spread the word across multiple social media platforms. As seen in the “Do-it-ourselves rescue effort” during Hurricane Harvey (Sullivan & Holley, 2017), individual volunteers coordinated similar kinds of joint activity in response to an open call for help from disaster-affected communities, using social networking timelines and community pages (e.g., Facebook), hashtags on microblogging (e.g., Twitter), and entries on discussion boards (i.e. Reddit). Varied in different forms and scales of organizations and individuals engaging with the digital help calls, the online environment has become a space to ask around for help, either to a “crowd,” “friends,” “followers” or “someone” who made themselves accessible on social spaces that enable others to transcend organizational, physical and temporal boundaries that once seemed impossible to reach. This evolving practice around information sharing and search with unknown sources stresses that social media has taken an important role in providing real-time, locally sourced information for response and recovery collaboration. Though the TTJ began with a wish to “do something” to help the fellow mothers suffering from the disaster in Japan, the Mothers’ compassion at a distance led them to make an open call for help to “do something,” by using Twitter and blogs. Furthermore, as novice users of social media, the Mothers continued to use the space for various purposes – to seek, find, search, and use etc.

In terms of the usefulness of information during disaster response, unverifiable sources of information remain a key factor for the people seeking and finding information regarding on-going disastrous events, especially from social media platforms. While uses of various kinds of information sources encompass the horizon of information space, during disasters rumors have a higher information diffusion rate on social media than during ordinary times (Mendoza et al., 2010; Miura et al, 2015). Also, at times of disastrous events, information from the third parties such as online journalists, followers and followees on social media platforms (i.e., networked friends and acquaintances) gratifies the tendency of the seekers to seek more information and make closer connection with others emotionally and personally (Austin et al., 2012). On the other hand, third-party types of information sources converge negative and active emotional words on the social media space, most of which are retweeted tweets regardless of the kind of disaster (Miura et al., 2016). In fact, post-disaster study reports that Twitter and user-generated content (e.g., blogs) were the least favorite use of information sources compared to secondhand information such as that produced by news media organizations, public domain user accounts,

and family and close friends (Wilensky, 2014; Toriumi et al., 2013; Austin et al., 2012). Due to these challenges in the use of social media contents, government agencies and humanitarian organizations focus on reporting locally-sourced, accurate and real-time information to the public rather than utilizing that publicly available information for relief coordination and disaster preparation (Liu et al., 2015; Takahashi et al., 2015).

Both filtering and acting on information processes are inseparable to assessing and browsing activities, and yet these activities require both verification of sources and assessment of information quality. In the context of the TTJ, no correcting behaviors were found. Instead, the TTJ participants demonstrated Asking Around (AA), Asking to Ask Around (A2A), and Asking to Verify (A2V) behaviors regardless of their proximity to sources of information whether it is from the TTJ online interactions and/or directly from unknown and unverifiable sources including the disaster-affected communities. For example, the Driver recalled how little he used Twitter for the TTJ. In fact, the Driver was introduced to the TTJ through his acquaintance and someone who found the TTJ online. He recalled that he did not intentionally use any kind of social media for specific information needs including the TTJ. Rather he used them for reading and learning about what was going on to support his daily routines and activities. While the Driver admitted that his usage of social media for updated information fed by other users increased during the disaster response, he also recognized that his friends and any others who provided him with information used social media for interaction so did seek information from other users:

"Most of the times, someone else would check something on social media, so that I did not need to use them I think, I asked for information then someone would search for it [on Twitter or something] on my behalf."

(dedoose #15307-15411)

In this use of social media, the Driver indicates his approach to the need of information by Asking Around (AA) and Asking to Ask Around (A2A). The overall activities he described suggest his primary source of information to be “someone,” rather than specific platforms or technology. Though the Driver did not use Twitter for his information need and seeking, his assistant did and shared with him the information that she gathered from Twitter and elsewhere online (e.g., the safety concerns and issues on packaged milk compared to Japanese powder-

based formula). In this case, the assistant was engaging with AA and Ask to Verify (A2V) using her social relations and available resources. Her story indicates that social ties that increase trust to some degree related to an emotional connection and experiential learning (e.g., compassion for suffering from the disaster and mothering experience). Contrary to other work on uses of social media and information behavior during disasters (e.g., Murphy and Gross, 2017), my findings suggest that the TTJ searched for information using social media in a way that was already embedded into their everyday information seeking and search activities. Even with minimum usage of technical features such as hashtags, the TTJ participants used the space and were able to coordinate the volunteer effort and mobilize necessary resources including information by applying basic approaches as AA, A2A, and A2V iteratively.

Furthermore, considering his role of delivery in the TTJ, it is not surprising that the Driver's first mode of communication depended on face to face. For the Driver, however, it was surprising that he was able to ask around for any help for the disaster response at the beginning, and he recalled that was a special time throughout the country due to the unprecedented scale of growing damage from the disaster (e.g., Fukushima nuclear plant explosion). Taylor et al. (1970) describes this stage of "post-disaster Utopia" where people ephemerally develop wishful and yet active behaviors and norms of community. The utopian mood helps the unorganized forms of operations govern the relationship among people, which suggests a natural mechanism to support or facilitate the TTJ to apply the basic approach as asking around and so forth. Even though Taylor et al.'s work was based in the pre-internet era, one potential reason for the lack of correcting behavior in the current study might be this post-disaster Utopian effect. Considering the speed of information sharing and ubiquitous flow of information mobilized through crowdsourcing, the popularity of social media renders publicly available information and user-generated contents useful and distractive upon disastrous events. In theory and practice, Taylor's post-disaster Utopian moment exists online – where people turn to social media for immediate, updated information about disasters and crises.

However, the period of post-disaster Utopia is too ephemeral and small in scale to capture. On the one hand, those information seekers during disaster and crisis were found as "voluntweeters" (Starbird & Palen, 2011) and "emergent response groups" (Majchrzak et al, 2007) in which social relations are weak, affective trust is low, and hence little social pressure to

accept ambiguous information is the effect of “emotional proximity” (Huang et al., 2015). However, their assistance and form of contributions in rescue operations and disaster response remained “informational.” On the other hand, those digital volunteers participating in the effort come from around the globe, especially ones that share interpersonal connection with the geographic community and the people affected by disastrous events, their contributions remain digital and partial to organizational efforts by professionals (Munro, 2012; Pyle & Boatwright, 2018). While social media space leverages loose community to emerge in a short period of time for “help,” most of the research examining user behavior on Twitter during disasters and crises report voices of Twitter users experiencing misinformation and disturbed by rumors and “half-baked opinions” of others (Andrews et al., 2016; Vosoughi et al., 2017); therefore “Twitter users do not easily accept dubious reports with ambiguous sources” (Oh et al., 2013).

Beyond the Twitter space, the TTJ participants were engaging in searching for information to help the TTJ’s attempt to deliver the baby formula across the globe. How they used ambiguous sources of information and acted on vaguely expressed information needs revealed no sophisticated tactics but, rather, simple, day-to-day approaches: asking around, asking to ask around, and asking to verify. Applying these approaches throughout, the initial organizer, the fellow Mothers, and the participants both online and on the ground were collaboratively able to manage evolving uncertainties of not knowing what to do and how to do it. This way of searching contributes to their self-organizing activities by filling the gaps in interpretation, knowledge, feelings, and emotions that they carried individually. Also, these approaches serve the novice participants’ lack of knowledge and skills by iteratively engaging in the processes of information interactions, communicating across organizational and relational boundaries, and learning in response to these shifting needs. In the following section, I explain this aspect of iterative information interactions and how these interactions emerge in relation to the evolving nature of information needs.

5.3.2 Iterative Information Interactions

The TTJ information interactions were interleaved with information search and use. Unlike a case where a group of volunteer individuals decided to collaborate to achieve a common goal (e.g., open source project), the TTJ interactions were carried out by unique sets of participants

who were both regularly attentive members and one-time onlookers, all of which shared the common understanding of the purpose of the interactions. While these participants were not engaging in a solid form of collaborative information activity to meet the organizational need, different individual volunteers were continually engaging in finding out what information needs were, acting on the information that they found, and then learning to find out more needs to work on, all of which were intermingled with informational, operational, and situational uncertainties. This interleaving of information seeking and work has been noted in other disaster contexts (Hagar & Haythornthwaite, 2005; Munro, 2012). Recent studies reveal that people coping with crisis and disastrous events turn to blogs and relevant social spaces, most likely to make sense of the evolving and uncertain situations (Mark et al., 2012).

In the case of TTJ, however, there was no single information need initially. There was the rather vague aspiration to “do something.” That wish initiated ideas for what could be done. Those ideas in turn initiated a need for a plan, which evolved to substeps. Each substep of one plan created entirely different information needs such as:

“How do we get the milk to Japan?”

“When should we tell Finnair?”

“Which agency do we need to contact in Japan?”

“Are there rules about customs we need to know about?”

“How do we manage the money collected?”

“How do we get the milk from Tokyo’s Narita airport to the point of need?”

“Where exactly are we taking this milk to? What address?”

(#AutaJapania, contextualized translation)

The TTJ information interactions portray that information enables action, but action creates new information needs in a recursive manner. Especially among the #AutaJapania conversations, there are categories of questions like “What shall we do?,” “How do we do it?” as well as “Does anybody know ...?” Some questions are about looking up information that may exist somewhere. Others are more like collaborative brainstorming. Still other questions were (or could be interpreted as) a call for volunteers to either provide information or to take action. That is, the

TTJ participants were searching for someone to help the TTJ as well as searching for relevant information for the TTJ, factual and subjective. In other words, the TTJ’s information interactions were not only driven by different kinds of information needs but also for processes (how to do what needs to be done, operational needs) and technologies (the tools to use to work on those processes, situational needs).

This type of iterative information interaction is illustrated by four major subjects of information needs: 1) Tutteli, 2) Donations, 3) “Recipient”, and 4) Destination. The table below exhibits annotated versions of these information needs. I annotated each of the information needs concepts based on the TTJ social media and interview data (see Table 19).

	1. Tutteli	2. Donations	3. “Recipient”	4. Destination
Info Needs	Size of a package & crates Number of necessary packages per feeding Nutrient Ingredients Food safety regulations in Finland & Japan Direction and use Nutrition table & food safety regulations etc	5W1H information in Finland for fundraising Contact information of possible venues How to manage the donations afterwards Bank account and tax information etc	Who is available in Japan? Qualification of the recipient for pick-up and/or delivery What responsibilities are involved in the role etc	Areas and/or city names affected by the disaster Contact information of both these municipal (local) agencies, the residents and their families & friends Road conditions and other infrastructure information etc

Table 19: Annotated Information Needs

All these needs in the table were expressed in some order, for example timestamps of initial organizer’s tweets, but evolved contextually and hence interrelated. The figure below breaks down one of the needs: where to deliver the formula (“INFO Need 4: Destination”). In the following, I use 4) Destination to exemplify how the information needs evolved over time.

INFO Need 4: Destination

4-a: locational: pinpoint information for destination of the formula, where mothers with infant were in the disaster affected communities without water, electricity, and powdered-milk. This information need was announced by the TTJ initial organizer. Since the original destination got the power backed on and noticed that powdered-milk would be supplied, the TTJ had to find different destinations. (March 24, 2011) 1st shipment was on the way - Someone tweeted about the destination got the power back - (March 22nd) the Mother made phone calls directly to the municipal office and confirmed that Jpn baby formula were on their way to the city . On Twitter the need was announced, while on Blogs, detailed background was explained.

4-b: any NGOs/NPO/volunteer groups/infant child care/evacuation camps (not city-governed or approved). This information need was suggested by a participant: those facilities that were specifically located in the cities of X, Y, and Z for the distribution of the Tutteli. Subsequent to the Need 4-a, the destination information need became more specific to this level - within three cities most severely damaged, privately managed, any child care service providers, or somewhere there is no water available. This was the most needed information expressed, as the Mother provided her personal email address for direct contact.

4-c: relevant information about the disaster-affected communities. This information need was not addressed or expressed by any of the TTJ participants. This type of information were disseminated to & shared by the TTJ participants expressing their concerns the post-disaster fraud and price gouging in the affected areas.

4-d: a contact information for TTJ. This information need was asked by some participants. The initial organizer provided her personal email address only when the destination information was desperately needed (4-a & b). At other occasions, the Mother asked/used DM function, up until the 2nd shipment when the Mothers created a TTJ Gmail account as a contact information.

Figure 11: Information Need 4: Destination

As can be seen in the Figure 11, this simple task being unfolded reveals necessary steps that the TTJ participants had to go through in order to meet the information need (e.g., 4-a~d). For example, starting off with 4-a: locational: to pinpoint information for the destination within the disaster-affected area, involved iterative information interactions among the participants asking around on Twitter, making phone calls, and asking others to ask around online and on the ground back and forth between Twitter space, different blog sites, and locales in Finland and Japan. On 4-c: relevant information about the disaster-affected communities: the iterative information interaction indicates concerns about rumors and misinformation distributed on Twitter and online. In response to these information problems, the participants used the retweet feature as indicated in other cases of disasters (Starbird & Palen, 2010; Miyabe et al., 2012) and crises (Crawford & Finn, 2015; Arif et al., 2017). Then the mothers emphasized the aim of the TTJ to deliver the formula to the pinpointed locations where the mothers needed help. To verify their information, the participants applied their basic strategy: asking to verify online and on the ground. For example, the Mother asked the Driver to make sure the formula was handed to the mothers in person, and the Driver sent photos of mothers and babies with Tutteli to the Mothers

who reported the delivery once the photo was delivered to them (see also his action at the camp discussed in “4.4.5 One Known Item: TTJ ultimate goal”).

A complex project like TTJ not only has many different needs but also different kinds of information to search and use, some of which need to be tackled in parallel involving both online and on the ground. As seen in the aforementioned examples, the participants “used” both textual and visual information (e.g., the TTJ participant blogged about the fundraising experience with the Red Cross Finland). Regarding the delivery, the participants continued to use the same basic approaches in searching and working in order to respond to the new information needs. For example, working on the Tutteli delivery in progress, the Driver took and sent photos of the baby formula and babies to the Mothers in Finland. Distributing the formula in the disaster-affected communities, both the Driver and the Distributor emailed to the Mothers, and the Distributor blogged about their delivery experiences. There was no recorded evidence, such as verbal confirmation from the interview or texts exchanged between the participants whether someone requested photos from the on-the-ground operations.

However, the Drivers and other participants distributed photos of the babies, Tutteli, and/or mothers together taken in Japan. The Mothers also did not make any “clear” announcement of the completion of the delivery until the Driver sent photos of the mothers and babies having Tutteli in their hands. Their messages of “the delivery of Tutteli completed” were disseminated through the participants who tweeted and retweeted, blogged about, and hyperlinked to others that resulted in reaching out to larger audiences which included multiple news media agencies in Japan. Regardless of the surroundings of the TTJ contexts and conditions, which were filled with various kinds of vagueness and uncertainties, the uses of different forms of information among different volunteer individuals affected information behavior of unknown individuals through the dissemination of the images and messages of the completion. These images started off as a verification of delivery, but they were reused as a verification of the effort as a whole. Beyond physical distance and relational proximity of the people online, the participants engaging in the TTJ iterative information interactions led to a larger information exchange that reached out to general internet users, demonstrated by the audience’s reactions towards TTJ information interactions (e.g., comments on Yahoo! Japan Answers).

In the TTJ context, not knowing what another person knows was secondary. In other words, information seeking (an intentional effort to seek information in order to fulfill a recognized need) was also secondary to searching for information to help the TTJ. In their time-constrained situation and during the post-disaster Utopian period, the TTJ participants were naturally seeking out available others out of necessity and paying little attention to the quality of sources as well as the outcomes of the interactions. This explanation is consistent with Borgatti and Cross (2003): the lower the cost in searching for information and interacting with others for the need of information, the higher the opportunity for “learning via willingness to expose lack of knowledge and explore alternative solutions” (p. 441).

While Borgatti and Cross’s study was based on social network data on groups in two different organizations, organizational and collaborative learning emerges in a process of information interactions in a way that facilitates exchange of unknowns and knowns in light of uncertainties including what needs to be done, how to do it, and what can be done. Leveraging simple and ordinary ways of interaction such as asking around, asking to ask around, and asking to verify, the TTJ participants were able to manage their information interactions openly and flexibly toward their goals regardless of their lack in expertise, leadership, and confidence in information quality (see “4.3.3 Various kinds of Vagueness”). The figure below demonstrates the way in which such ordinary people search for information to help in a process of self-organizing their first-time experience of international aid effort (see Figure 12).

5.3.3 Closing and Answering the Research Questions

Iterative Information Interactions

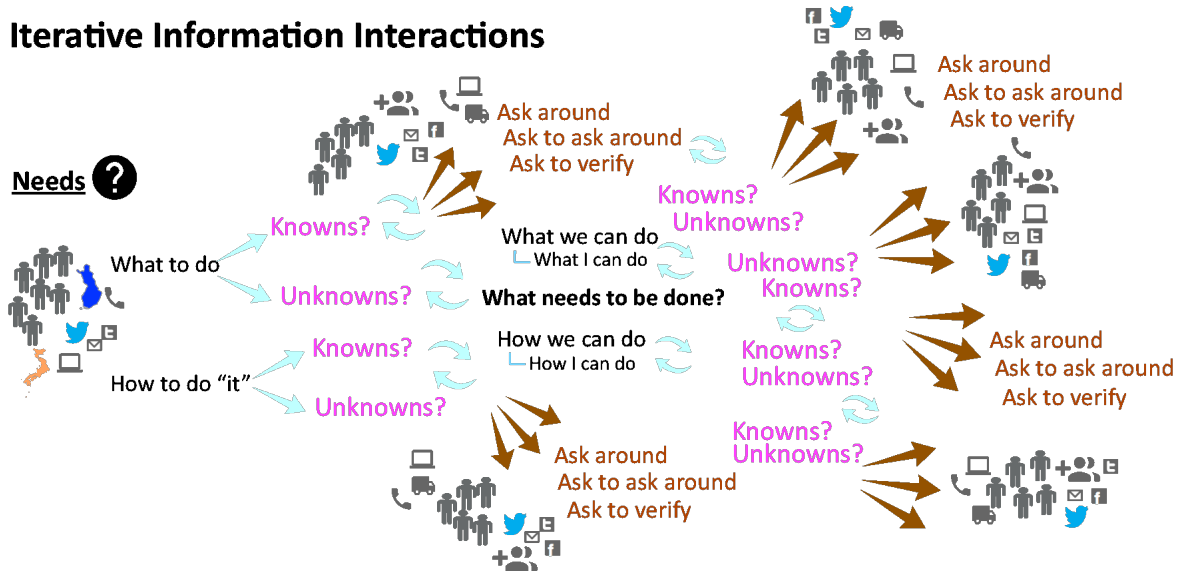


Figure 12: Iterative Information Interactions

The research question “How do ordinary people search for information in a self-organizing effort?” is answered with the above interpretations and examples. The TTJ’s overall strategies in searching for and use of information illuminates ordinary ways of asking around, asking to ask around, and asking to verify the information. These basic approaches were embedded in everyday information activities that facilitated the iterative nature of information interactions for “doing something,” resulting in the effort’s success. In the self-organizing context, such iterative information interactions contribute to shaping fractal patterns of searching for information interchangeably at both individual and collaborative levels. As a result, this fractal effect of AA-A2A-A2V iterative information interactions unfolded as illustrated above. Each description of the needs exemplifies the participants engaging in the basic approach to the information problems by AA, A2A, and A2V, as illustrated further in figures 12.

INFO Need 1: “Tutteli”

- 1-a: product information** about Tutteli, inquired by a TTJ participant. The very first response to this information need included a URL of the Tutteli manufacturer’s website, on which information was available in Finnish only.
- 1-b: nutrition information** of Tutteli, asked by a participant. The participant expressed her concern about the difference between Japanese and Finnish babies, due to the fact that baby formula has never been produced domestically which concerned them in case there were biological issues for intake. The fellow Mothers helped break this info need into the following needs.
- 1-c: ingredient information** of Tutteli. For example, one ingredient was not translatable to Japanese, rather someone needed to explain what the ingredient is relevant to a similar element or ingredient available in Japan.
- 1-d: safety measure** of Tutteli. Again, this issue was asked by a participant. This need was fulfilled by the Mothers sharing their own experiences feeding their babies in Finland as well, so as other mothers in Japan that had used similar products while they were traveling or living in other countries.
- 1-e: compliance with food safety regulations** between Finland and Japan. This issue also became a discussion among the participants (a tiny scale but it is scalable in the TTJ interaction measure). Someone also asked the Mother whether they contacted Japanese government agencies.
- 1-f: product information in Jpn.** Followed by all the above needs, a Japanese version of the nutrition facts label was needed. The Mother used Microsoft Word to create a nutrition information label in a size that fit with an individual Tutteli package in Japanese.
- 1-g: direction information** about Tutteli. This process information was inquired by a participant. Subsequently, how to open the carton and drink the milk was explained on Twitter and blogs followed by photos. Later, the Mothers created a video clip and uploaded on YouTube, on April 7 th, 2011).
- 1-h: where to put the label.** This issue was inquired by a participant. Eventually the Mother decided to place one label on each of 10-cartons package.
- 1-i: when to put the label on.** This task information was inquired by a participant suggesting to complete the task once the cartons arrived in Japan. However, the plant worker at the Tutteli offered help to take all the printed labels with them and place each label on the Tutteli cartons as the Mother planned to do. All the Mother had to do is to print out the labels and bring them to the Tutteli plant.

Figure 13: Information Need 1: “Tutteli”

INFO Need 2: Donations

- 2-a: a fundraising opportunity** or means for people in Japan to financially support TTJ as like the event in Helsinki. This information need was asked by some of participants in Japan.
- 2-b: a bank information.** This was asked by the participant regarding where to send donations for the TTJ. The Mother eventually decided to open an account for the TTJ as the number of participants increased, but only for those who are in Finland. The Mother decided to only accept donations in Finland.

Figure 14: Information Need 2: Donations

5.4 RQ2: How Does Such Kind of Information Behavior Make Collaboration Work?

In order to answer the research question: “How does such information behavior make collaboration work?” I use specific incidents from the information needs that I discussed in the previous section, in particular “INFO Need 3: “Recipient.” For “INFO Need 1: Tutteli” and “INFO Need 2: Donations” shown above see “5.3.2 Iterative Information Interactions” and/or

Table 20. These concepts of information needs highlight not only evolving aspects of the information needs that the TTJ were encountering but also the ways in which the TTJ iterative information interactions unfolded in the process of managing these information problems.

5.4.1 Take-a-turn Role-taking

In addition to the various information needs outlined above, the TTJ participants still needed to determine who would complete the various actions needed. As the participants proceeded with their “work,” they had to navigate the various kinds of vagueness and unknowns that naturally existed in self-organizing, specifically “who does what” challenges. In this section, I exemplify intertwined, unpredictable processes of figuring out work tasks in the TTJ and describe how the participants undertook these tasks as if they were taking turns on fulfilling different roles and undertaking different tasks.

Discussions on Twitter explored the various subproblems and their different information needs, showing that the solution was getting more and more complicated. Furthermore, information needs kept changing as if a single information need could evolve (see the evolving aspects of information needs in “5.3.2 Iterative Information Interactions”). For instance, the situation on the ground at the disaster area may change, or an envisaged solution may not pan out. In fact, over time as the power blackout continued, and with growing concern over water contamination due to the Fukushima nuclear plants’ explosion, the TTJ participants discovered a critical information gap between the government knowledge and the actual condition:

“From some sources of our own, this is what the Japanese government responded to the supplies of formula. ‘As for now, we have enough supplies of powder milk. Japanese baby milk companies are sending their powder formula to the affected areas for free.’”

(TERVE!! March 23, 2011)

However, there was information about water contamination in the Tokyo area, approximately 144 miles away from the epicenter at Fukushima. The TTJ participant blogged her frustration:

Even if there are enough supplies of powder milk, what if there are no WATER supplied?! What would the people have to do with the powder milk or what if the contamination is as bad as the news says!? Every mother just makes the powder milk with the contaminated water?! That's crazy. What is really going on?

(TERVE!! March 23, 2011)

This concern reinforced the desirability of safe nutritious baby formula:

All you need is just to tear it to open and you can drink it right away...

(TERVE!! March 23, 2011)

As a result, the “wild idea” of reaching out to the Japanese government became impractical, and the TTJ Mothers shifted their focus more to the local context. The task became to gather voices from the people in Japan, both affected and not affected by the disaster, including fellow mothers and celebrities (see for the follow up stories, “4.3.1 Who are the People in the TTJ online interactions?”). In the meantime, the Mothers sought information regarding how to ship baby formula to Japan as a private effort. On the blog “Horn,” the participants explained that the Mothers were trying to figure out in what ways they could arrange the aid delivery by calling different agencies in Japan (“Barriers for the formula,” March 17, 2011). Alternatively, the Mothers were looking into other options such as getting hold of Nestle Japan who might be able to take action on behalf of the Mothers. In short, the TTJ’s initial need was to reach the local, either the affected communities or companies in Japan who can request the formula as their primary need for emergency aid.

However, as illustrated in Chapter IV, section 3.3.1 Vagueness in Roles, the initial organizer of the TTJ announced her very first need of information to be someone who can be the TTJ “recipient.” Her actual need was not clearly stated; for instance, what her role was in the TTJ, why she needed to find a recipient for the TTJ, as well as who might qualify as “a driver for pick up,” and where the “voices of the affected communities” might be located. By interacting with different participants, the Mother was able to reveal different issues that were intertwined with the initial need of “recipient.” In the process, these volunteers asked for further explanations, different kinds of questions, rephrased the Mother’s messages and annotated these “conversations” on blogs and Twitter. As different individuals participated in the open dialog on Twitter and blogs, further information needs were clarified as a result of the participants

undertaking different roles. For example, the participants figured out that the driver did not need to be a corporate employee or organizational member for aid delivery, but just an ordinary volunteer who had a vehicle in the appropriate size and so forth (INFO Need 3-b, c, d, and e). This process of defining the problem space not only involved different kinds of actions such as measuring, translating, emailing, and calling etc. but also revealed work tasks undertaken by volunteer individuals for the TTJ. For example, a participant asked about the size of crates in order to estimate if his/her vehicle would fit them. Another participant asked the size of truck in tons. Other participants replied that having that information revealed was helpful because they were able to provide specific information when they asked around for help with the TTJ. Furthermore, the product Tutteli as a product of baby formula needed to be explained in the Japanese context – in contrast to Japanese powder-based baby formula and breastfeeding, ingredients used, nutrition and governmental requirements etc.

INFO Need 3: “Recipient,” the Driver, and the Crates

3-a: a “recipient” of the TTJ information need was announced by the initial organizer and further explained by fellow mothers in Finland. This information was required for filing the international emergency aid shipment. The TTJ would have been impeded if this paperwork fell through.

3-b: a driver for pick up at Narita who can deliver the formula to the center of aid dispatch station in central Tokyo at first. Since the Mothers were told that once the formula were delivered to the station, the package would be assigned to available volunteer drivers who would deliver it to Tohoku.

3-c: a size of the individual carton. This information was asked by a participant who eventually asked for the volume of each carton in milliliter to better estimate how many cartons serve for each feeding

3-d: a size of the actual crate. This information was asked by a participant who wanted to know if passenger car, such as a trunk and passenger rear seat area could fit the TTJ shipment for pick-up.

3-e: a size of a vehicle for delivery. Relevant to Need 3-c & d, this information was inquired by a participant who asked the size of truck in tons that would fit the volume of the crate so that the participant could ask around if anyone who owns or has access to the specific vehicle

Figure 15: Information Need 3: “Recipient,” the Driver, and the Crates

While the participants kept engaging in the open conversation, the TTJ participants did not express any concerns or write inquiries if any of the tasks were completed or not (would say “Did you consider...?”). Moreover, different participants exchanged their messages, and so did the initial organizer (despite how busy the Mother was). Also, there were no clear statements or evidence that suggest any paths that the TTJ participants were following an order or role assignment. Rather, the participants picked up tasks that they were able to tackle without openly announcing their initiation or completion. For example, as the first shipment was about to arrive, one of the participants used Illustrator and created a digital sticker for the TTJ.

Also, in this unorganized organizational manner, the TTJ is still unique in a way that there is no charismatic leader or someone who is pointed to by the members as their leader. Not having a recognizable leader in self-organization, task allocation and role description must be strategically managed by individual contributors (Sageman, 2008). Studies in open source community efforts as well as agile software design processes emphasize the importance of roles in self-organization to work, whether participants' roles are "implicit, informal, transient, or spontaneous" or not (Hoda et al., 2013; Crowston et al., 2007). Also, vague understanding of roles and tasks in self-organization tends to impede some degree of commitment or motivation of volunteers unless skill levels of volunteers are matured (Ehls, 2014-a). Self-organization requires a recognizable leader who oversees effective delegation or "leaderful leadership" in each member to form a collective of entrepreneurs (Avery, 2004).

The Mothers did not say "ours" to refer to their project, TTJ; instead, they referred to "this project" that is an effort of the compassionate individuals caring for the mothers in Tohoku "including us (the mothers in Finland)." When the word "our leader" was found in the dataset, it was to respond to media and news agencies that were interested in covering the TTJ effort as the first shipment began to be distributed in the disaster-affected communities. For the mothers and participants, leadership or giving credit for roles and tasks did not matter; it was only when they talked to outsiders that they needed to use the language of leaders or leadership to be understood by them.

5.4.2 Problem Appropriation

The TTJ initial organizer and fellow Mothers in Finland started to collaborate with the intent of being approved by ordinary "common" people like themselves, getting their consensus and approval as well as asking to ask around as many people as possible. In contrast, major Collaborative Information Seeking (CIS) findings suggest CIS and Collaborative Information Behavior start with the intent of eliminating as many problems as possible. In organizational settings, a group of experts who are to examine the situations, assess the damages or risks, and suggest possible solutions based on their expertise, enable to collaboratively "formulate" the problem and the appropriate approach for the problem to be solved. In the TTJ case, these

“problems” did not seem formulated as in each participant takes their own responsibility in exchange for expertise; rather they “appropriated” the resources that they had access to that were best approximated for the problems.

Draxlar and Stevens (2011) bring in the concept of appropriation work to describe the process of designing, in which individual workers create their own “space” within their given situations by tailoring the features of the system where they are inherited and by exploring the existing features of the system components including their knowledge and skills. In the case of TTJ coordination work, individual volunteers brought in “pieces” of something so as to make contributions for the TTJ. These “pieces” of something were, for example, local updates, general information about the present situation of Japan, subjective knowledge gained through personal experiences or elsewhere, or a link to websites, etc. Each contribution was placed to map out the next possible directions for the TTJ participants to move forward toward the ultimate goal. These directions were hardly detailed or crystalized. Due to the TTJ’s conditions – surrounded by situational, informational, and operational uncertainties -- the TTJ participants did not seek to wrestle with the foggy directions (i.e., identify the causes and problems causing it) to solve. Rather, they sought for ideas, and shared thoughts, and used each other’s responses. How the TTJ managed their information activities collaboratively and individually indicates “situated experimentation and explorative learning” to support each other by using or reassembling their own contributions.

5.4.3 Closing and Answering the Research Question

In order for self-organizing to emerge, participatory engagement is a precondition. Those who share common understandings of the purpose for working together facilitate local interactions where volunteer individuals must be able to freely ask questions and address shared unknowns and knowns. By sharing these uncertainties, these participants iteratively encounter new information needs and answers from which open systems emerge. Through such iterative information interactions, variations of contribution and diversity in participants grow into leaderless management, and hence autonomous assemblage of participants comes into play. Under such casual expectations, participants are able to apply their basic skills and subjective knowledge even though they are unsure about the quality or rationale of contributions, but they

are sure about the meanings of both individual contributions and organizational goals. Underlying processes of the iterative information interactions include asking around (AA), asking to ask around (A2A), and asking to verify (A2V). Moreover, these basic approaches invite like-minded others to contribute different sources and forms of information, as well as different kinds of knowledge. This assemblage of and diversity in contribution stabilizes social interactions among loosely bonded volunteer individuals, and thus leverages trial-and-error-centric initiatives when they encounter challenges and problems rather than planning-centric approaches. Therefore, while task descriptions are unclear and role assignments are rarely set due to the leaderless management, participants undertake whichever tasks and roles became clear to them. Based on their self-assessment over what needs to be done and what can be done, participants are able to make flexible contributions for the whole.

The collaborative attempt of needs assessment or sensemaking in appropriating capabilities and capacities of the self-organizing is referred to as problem appropriation. These problem appropriation and iterative information interactions allowed any given participants in the flow to identify, take, and/or pass over roles to one another regardless of the point of time or incompleteness of role description (take-a-turn role-taking). All of these subprocesses aforementioned are intertwined in the underlying processes of self-organizing, that is searching for information to help.

5.5 How do Ordinary People's Information Interactions Shape Spontaneous Collaboration?

In order to answer the question, with the annotated version of information needs discussed above, this chapter has provided the interpretation of various kinds of vagueness and unknowns, which are the themes that emerged from the analytical findings.

The first part of the chapter outlined two processes for the self-organizing effort (the TTJ): 1) searching for information and 2) self-organizing, both of which are underlying processes of spontaneous collaboration work. Drawn from the annotated information needs of the people with no professional expertise and experiences, the second part of the chapter introduced common patterns of ordinary people's approaches in searching for information to help the effort. With a focus on the evolving aspects of the information needs, the third part of the chapter provided the

interpretation of the intertwined processes of searching and self-organizing in terms of managing roles and tasks as well as approaches for evolving needs in self-organizing. In the following section, as a closing and summary of the chapter, I present a synthetic concept of shared uncertainty. Using the concept, I discuss how shared uncertainty helps to understand the phenomena and answer the overarching question of this study: “How do ordinary people’s information activities shape spontaneous collaboration?” I discuss the concept in the context of how the TTJ participants manage such kinds of vagueness and unknowns as uncertainty in searching for information to help collaboratively shape the spontaneous collaboration work.

5.5.1 Shared Uncertainty

Without comprehensive role descriptions to share nor instructions to follow, those who encounter the phenomenon of self-organizing are situated in various kinds of uncertainty. Consequently, those who make contributions for the effort are not discouraged by not knowing whether their contributions were worth making, nor are they disturbed by other contributors’ expectations or an expected quality of contributions. Rather, they echo common understandings of the ultimate goals in the effort of self-organizing to be uncertain about the projection, progress, and details. This study will refer to these actions as shared uncertainty.

This new concept shared uncertainty in the context of TTJ explains how an emerging process of spontaneous collaboration unfolds and how collaborative information activities interleave with work and learning. In what follows, I argue that collaborative information activities create opportunities for learning and sources for creativity, especially when the participants are uncertain what to do to achieve organizational goals but are certain of the meaning of the effort. Further, different kinds of vagueness and unknowns should be acknowledged as sources for learning and creativity, especially when people are collaboratively searching for information to help others in need. Moreover, while vagueness and unknowns can intervene or cause failure in collaboration work, these uncertainties can be generative; for example, vague expression of information needs, uncertain sources of information and lack of specific knowledge, ambiguous relationships and member roles, and unclear use of language in collaborative information activities can all be considered assets.

5.5.2 What is Uncertainty?

Uncertainty is the feeling that people have when they experience information needs and how their information needs are met. Such information needs are the gaps (Dervin, 1983) and anomalies in the state of knowledge (Belkin, 1982-a & 1982-b) or understandings that might be represented by questions or topics. Those questions and topics represented as information needs are most likely not well defined, but rather can be described as ill-defined or vague (Taylor, 1962). Thus, ill-defined or vague questions exacerbate the collaborative relationship (Baker et al., 2011). On the other hand, uncertainty triggers information seeking and search (Kuhlthau, 1991 & 1993). Therefore, uncertainty is experienced differently in organizational settings. For example, group members perceive and act on an individual basis to manage uncertainty due to its psychological impact on group members (Hyldegård, 2006 & 2009). In a context of informal and ad hoc instances of collaborative work settings, not only information needs, but also areas of expertise, spaces or locations of interaction, and timing of availability of the members must be iteratively adjusted for adequate configurations in a way that each member's output contributes to organizational outcomes, otherwise collaboration incurs risks of failure (Hertzum & Reddy, 2015).

From social and organizational psychology points of view, uncertainty is equivalent to threat and causes anxiety (Gudykunst, 1998). In a practical sense, not knowing about the future disrupts one's ability to manage emotional reactions or to mitigate the impact of future adversity and thus results in fear and anxiety (e.g., haunted house experience). Furthermore, in a social setting, levels of uncertainty and anxiety become high when individuals interact with new members of the group or community, so that disclosure of personal information or identification of similarities among such strangers helps build rapport and thus facilitates collaborative behaviors (e.g., international student's first interaction with other students on campus). From information study perspectives, temporal spaces emerge as information grounds where people come together to accomplish a given task, gradually sharing and exchanging information with others in social settings such as barber shops (Pettigrew, 1999), online communities (Lin et al., 2010), or coffee shops in a polarized society (Rohman & Pang, 2015). The role of information grounds where co-presence of other people nourishes social interaction is to create opportunities for serendipitous seeking and sharing of information (Savolainen, 2009).

To produce meaningful outcomes with serendipitous seeking and sharing of information, certain degrees of openness of the contexts determine whether the interaction yields mutual gains or collaborative efforts, otherwise the interaction leaves uncertainties between the interactants (McDonnell, 2012). Alternatively, a certain degree of structure and order contributes to meaningful interactions, such as leadership. Lichtenstein and his colleagues explain the positive aspect of uncertainty in emergence of leadership (Lichtenstein et al, 2006; Lichtenstein & Plowman, 2009). In their view, leadership means to embrace uncertainty and to allow controversy in organizations rather than to dictate solutions. In emergence of this kind of leadership, uncertainty increases and creates some discomfort among members; however, members are able to honestly assess the problems, openly explore possible choices, and ambitiously identify uncertain outcomes, and consequently the organization can generate novel opportunities and solutions. Kvalnes (2016) addresses the role of uncertainty as “an integral part of the working conditions” in human life and “a prerequisite for understanding reality, rather than rejecting it as an obstacle to it” (p. 104). In a project setting, “uncertainty is a deficiency and problem, something one should attempt to reduce or eliminate” (p.104). Resistance to surprising events due to the possible delay of uncertainty is also considered a challenge to project implementation. While encountering uncertainty in the project life cycle can create energy and engagement and leap up for personal and collective growth, it is practically a real challenge “to distinguish welcome and unwelcome uncertainty,” because uncertainty is subjective in that “different individuals may experience different doubts in identical situations” (p. 150, Lipshitz & Strauss, 1997). In short, from an organizational and managerial point of view, what uncertainty does to us and our ability to act includes hesitancy, indecisiveness, and procrastination, and what uncertainty is includes risk, ambiguity, turbulence, or equivocality and so forth.

5.5.3 Sharing, Exploring, & Learning: Outcomes of Iterative Information Interactions

Considering both the conditions under which the TTJ operated and the outcomes from which the TTJ interactions were able to produce as a self-organizing effort, it is plausible to say that the TTJ participants experienced positive and negative forms of uncertainties. In other words, they were able to tolerate turbulence, equivocality, and ambiguity, which are governing behaviors for resilience (Baran & Scott, 2010; Coppola, 2015). While all of these negative forms of

uncertainty contribute to hesitancy, indecisiveness, and procrastination that are instrumental to people's judgements of actions and competence of future events, and in fact the TTJ participants expressed these impacts of uncertainty over the course of action, they were able to make decisions between alternative paths and options that took place in and toward the then-uncertain future. McMullen and Shephard (2006) explain the actual driving factor that helps people overcome doubt and act as if these individuals are entrepreneurs. People are able to explore possible outcomes not only through their knowledge and motivation to exploit the uncertainty, but also through their willingness to try something new or different from what once was familiar to them. Moreover, this willingness to learn grows further through the encouragement of others, and hence contributes to the people's evaluation of whether the act is worth trying or not.

One of the prominent examples in the TTJ iterative information interactions underlines this effect of learning and peer support. The TTJ did begin with just an aspiration of "I wish I could do something [for Japan] ...". However, when the Mothers tweeted about the idea for the TTJ to the public, their desire to figure out "what we can do for Japan" started to evolve through the encouragement of supporting family and friends and boosted by online strangers. As blogged by one participant, "my followers and non-followers even tweeted me back and said 'Do it!' 'Be bold!' [to directly tweet to the Prime Minister of Finland and other authorities such as politicians and celebrities], and I said to the fellow mothers in Finland, 'Be wild!' [to take action]." Eventually, the news about the nuclear plant explosion broke online so that the TTJ participants' beliefs on the meaning to send baby formula to Japan elevated, resulted in calling and talking directly to Japanese municipalities, Red Cross Japan, and Japanese manufacturers of powdered formula. As those authorities declined to take over the idea of the TTJ, the Mothers developed the desire and perhaps responsibility to figure out how to make the TTJ happen for real by themselves (see the previous Chapter 4 for more details).

Behavioral scientists consider the willingness to try something new (e.g., e-cigarette in Pepper et al., 2013) or anything that will make a difference as risk-taking behavior (Popielarz, 1967). Also, entrepreneurship scholars McMullen and Shephard (2006) argue that risk-taking is equivalent to the means of bearing uncertainty. In their definition, uncertainty acts as a sense of doubt that prevents entrepreneurs from pursuing a possible opportunity; therefore, the willingness to bear uncertainty is the outcome of entrepreneurial action. Specialized in taking

judgmental decisions about the coordination of scarce resources, prospective entrepreneurs choose to pursue risks and to decide to act on them. In the process of decision-making, how much a prospective entrepreneur knows what to do and how much they are willing to take the risk determine whether to pursue a possible opportunity or not. In this essence, the TTJ participants happened to gain adequate knowledge and motivation as well as to nourish beliefs and desire necessary enough to overcome doubt, and thus to take entrepreneurial actions. Here, not only prior knowledge but also an individual's strategy for gathering the relevant information and using the information appropriately distinguish the outcome being entrepreneurial or nonentrepreneurial: exploring various options or not. In this seeking and searching action, individual attentiveness to the surroundings and sensitivity to the environment encompass an individual's pursuit of possible opportunities. As depicted in the evolving relationships between seeking and searching and responding resources that are made available in response to the seeker's needs, the dynamic interaction is explained by information behavior models, such as berrypicking model (Bates, 1989) and information foraging theory (Savolainen, 2018). Kuhlthau's Information Search Process model examines how thoughts (cognitive) and feelings (affective) are intertwined at the diverse stages of the process, especially at the earlier stages when the seekers are filled with feelings of anxiety and uncertainty (Kuhlthau, 1991).

As discussed in the earlier parts of this chapter, in the self-organizing context, such iterative information interactions contribute to shaping fractal patterns of searching for information interchangeably at both individual and collaborative levels. In theory, over the course of action during the TTJ, the participants engaged in iterative information interactions (see "5.3.2 Iterative Information Interactions"). Starting with a vaguely expressed statement of information needs, together with other kinds of vagueness and unknowns, the TTJ interactions gradually disentangled intertwined processes of searching for information to help the ordinary people in self-organizing an international humanitarian effort. Primarily by asking around online and on the ground, the TTJ participants were able to seek, gather, use, and share various kinds of information from divergent sources in their pursuit of the TTJ mission. The issues were so multifaceted that the way complications were clarified through the iterative information interactions exemplified 1) evolving aspects of information needs and 2) intertwining processes of searching and self-organizing activities. This multi-level processing of communication and information entails various kinds of vagueness in the TTJ information activities which involves a

third level of engagement: 3) configuring dis/ambiguity of information processing (Ingwersen & Järvelin, 2005; King & Frost, 2002). Drawn from the analytical findings, I simplified the TTJ information activities into four major subjects of information needs (see detailed exemplars in “5.3.2 Iterative Information Interactions”). These four major needs served the novice participants of the TTJ to configure both their beliefs of meaning in working on what needs to be done and their desires to figure out how to do it. The table below showcases the evolving nature of information needs as iterative information interactions (see Table 21).

	1. Tutтели	2. Donations	3. “Recipient”	4. Destination
Info Needs	Size of a package & crates Number of necessary packages per feeding Nutrient Ingredients Food safety regulations in Finland & Japan Direction and use Nutrition table & food safety regulations, etc.	5W1H information in Finland for fundraising Contact information of possible venues How to manage the donations afterwards Bank account and tax information, etc.	Who is available in Japan? Qualification of the recipient for pick-up and/or delivery What responsibilities are involved in the role, etc.	Areas and/or city names affected by the disaster Contact info of both these municipal (local) agencies, the residents and their families & friends Road conditions and other infrastructure information, etc.
What to do?	Measure the package & crates Investigate average or number of packs used Contact Food/Agriculture agency in Japan Investigate & disseminate the information of nutrient, ingredients, direction and use, nutrition table from the pack, etc.	Talk to Red Cross, schools (PTA), & friends Decide how to raise \$ (e.g., bake sale) Pick a date, time, & location Make the announcement Gather information about tax for donations, etc.	Contact government trade agencies in Finland & Japan Contact Finnair & other experts in international trade Contact Red Cross Japan Find other Japanese NPOs/NGOs in operation Find legal issues & regulations for transport & international aid Find out size of vehicle Find location for pick-up at Narita, etc.	Gather news articles and locally produced updates about the impact Gather any other updates on response efforts and other states’ situations Gather information about both international and domestic response efforts (Finland & EU), etc.

Table 20: The Showcase for four major subjects of Information Needs (cont.)

	5. Tutteli	6. Donations	7. “Recipient”	8. Destination
How to do it?	Get the package and bulk of products Estimate the dimension of the crates or contact the corp. Translate the product information to Japanese Compare the information with breastfeeding and Japanese product of formula Create a label for Tutteli information & put it on each pack, etc.	Get hold of the stakeholders via phone, email, f2f, social media, and etc. Discuss options for fundraising Plan the management of funds Estimate the desired amount of donations Study about fundraising, etc.	Get hold of the stakeholders via phone, email, f2f, social media and etc. Use social media for information and help seeking Measure dimension of crates Gather truck/car information Decide the amount of formula for one shipment, etc.	Use social media, search engine, the internet in Finnish, Japanese, and English Monitor Japanese government agency’s announcement Contact family and friends in Japan and another Japanese outside Japan, etc.

Table 20: The Showcase for four major subjects of Information Needs

The TTJ iterative information interactions served to lay a foundation for a fruitful course of action through their basic approaches of Ask around (AA)-Ask to Ask around (A2A)-Ask to Verify (A2V), which, in part, resulted in gaining traction on social media where the TTJ messages were disseminated, and relevant information for the TTJ was shared extensively in scale. Furthermore, among many others, the Tutteli product information need exemplifies how ambiguity in information needs enhanced the interpretative capability of the TTJ participants and thus facilitated constructive ambiguation (Ingwersen & Järvelin, 2015; King & Frost, 2002). As an illustration of the evolution of information needs, let us consider the instance of the information need “1. Tutteli,” people asking questions about the formula led to realizing the TTJ participants needed to create labels for the Tutteli product information. This label-making task stemmed out of another information need by the TTJ participants requesting the product information about Tutteli in Twitter conversations.

As discussed in the previous chapter in “Various kinds of vagueness” (see 4.3.3), how the Mother (i.e., the TTJ initial organizer) wrote a message asking for help in her tweet facilitated subsequent interactions with fellow mothers and others for clarification. This one-to-many dialogue opened continual conversations for the TTJ involving various individuals asking about the formula, its contents, ingredients and nutrients, requirements that the manufacturers demonstrate for infant formula production, etc. (see the figure INFO Need 1 in 5.3.3). One of the discussion threads touched upon the safety issues regarding the Japanese translation of the ingredients and nutrient information. Not only focused on translation tasks, this thread

transformed into the task of label-making. The Mother revealed her novice skills with Microsoft Word when she was working on the task, especially adjusting the font size to fit into the tiny proportion of the label that also had to fit into two different sizes of the Tutteli packages. In this process, the TTJ participants searched for information by applying rounds of AA-A2A-A2V activities, for the baby formula regulatory information including nutrients in both Japanese powdered and Finnish liquid formula, in order to compare with the regulations that the Japanese manufacturers must follow in the production of powder-based formula under the Japanese ministry of Health, Labor, and Welfare (equivalent to US FDA). Also, one of the participants reached out to one of her acquaintances who was familiar with supplements and pharmaceutical chemistry to verify the nutrient information. The evolution of information needs situates the TTJ participants in the intertwining processes of searching and self-organizing activities. This multi-level processing of communication and information entailed various kinds of vagueness and unknowns. From learning perspectives, the iterative information interactions situate these individuals in cognitive processes for identifying information needs: “what they ought to (or should) have for one’s work,” (cited in Agarwal, 2015 as “Information needs” defined by Line, 1974), as well as “problem solving” (Keene et al., 2010).

Since the meaning of formula requires cultural and contextual enculturation from Japanese people living both in Japan and abroad, as well as both mother and non-mother lived experiences, forming the perception of the “Tutteli” information needs requires not only linguistic surface levels of information processing but also a cognitive level (Ingwersen & Järvelin, 2015). Though all information needs were expressed in one language and were carried out by Japanese participants, these complications still existed. For example, the sender of the information needs message, the initial organizer of the TTJ, wrote in her first message on Twitter with two major intentions: 1) introduce the formula and 2) request others to spread the word to fellow Japanese people to learn about the formula (i.e., ask for sharing the information). For the recipients of the message, it was unclear why the Finnish formula was appropriate for aid or whether it was worth sending the formula as an aid item all the way to Japan. Also, it was ambiguous for the recipients to perceive both the seriousness of the idea and the reality of that arrangement due to these complications. As the open conversations on Twitter expanded, both ambiguous and unambiguous information needs were presented, shared, and disseminated, and responding messages to those information needs were also posted, rephrased, and annotated by

the TTJ participants. In other words, the TTJ participants' interpretative capability facilitated collaborative effort in configuring dis/ambiguity in information needs through iterative information activities (Ingwersen & Järvelin, 2015).

Moreover, from the cognitive point of view, information is defined as a situational and contextual construct when the sender and recipient are trying to communicate through information or the content of messages because these individuals "are influenced by their past and present experiences and its social, organizational, and cultural environment" (Ingwersen & Järvelin, 2015, p. 25). At the individual level, when information is processed during the communication of information, how the individual interprets the information is constructed by both a) the recipient and the sender's worldview in context (i.e., their thinking and interpretation) and/or b) a perceived message in context. Therefore, "[T]he less context that is available to the actor [each TTJ participant, sender and recipient], the more freedom exists for interpretation" (Ingwersen & Järvelin, 2015, p. 26). This phenomenon of semantic openness was observed in the TTJ. For example, in Japan, the use of packaged formula for infant feeding is uncommon even in a family's daily practice except for medical purposes. As expressed by several participants in the TTJ case, the practice and the existence of such a product are foreign concepts. Even for native Japanese, unless s/he has experienced mothering directly or indirectly, what it means to feed newborn babies with the packaged formula differs greatly.

Another issue concerns the powdered formula in Japan which is the only formula available in the country. Therefore, perception of the message asking for information to help the TTJ to send the formula to Japan (TTJ information needs) was understandable/obvious only if one knew about the powdered formula in Japan or the packaged formula in Finland or elsewhere outside of Japan. For those who understand the motivation behind the sender's message, what to do with the formula is instantly obvious, but that is eventually ambiguous for other Japanese who did not know about the liquid baby formula before the TTJ. Obviously, this phenomenon of semantic openness entailed different forms of uncertainty in the TTJ as to the meaning of the information needs messages but also influenced value of the messages to the fellow participants. As discussed within and beyond this chapter, the TTJ participants underwent iterative information interactions not only to clarify the information needs but also to clarify other kinds of vagueness such as "being ambiguous about who does what" (roles) and "being unsure about what to convey

and/or how to make sense” (communication). Consequently, the TTJ information interactions involve configuring dis/ambiguity of information needs in collaborative information processing: the participants were individually engaging in figuring out what is needed, what needs to be done, and how to do it as well as collaboratively constructing the meaning of information needs through messaging among the participants. Nonetheless, this study is limited to the data collected and, therefore, I am not able to conclude whether the participants completely disambiguated the messages.

To summarize, people asking about the formula led to not only realizing the TTJ participants needed to give extra instructions for the people, but also recognizing the participants strongly desired to thoroughly prepare the aid for the people in Japan. The TTJ information interactions continuously evolved around these fundamental needs in self-organizing: “what to do” and “how to do it.” The TTJ participants’ engagement in the interactions expanded to like-minded strangers online and on the ground, who were able to participate in the sharing that helped the distant others at varied degrees make contributions for the effort. Moreover, the specificity in the subject matter—the baby formula as a possible aid item—pulls interesting attention from various kinds of individuals who are both geographically and experientially distanced from each other. Limited to this precise aid item, the formula, for those participants, asking questions both individually and collaboratively worked to balance disambiguation and ambiguity in the construction of meaning (King & Frost, 2002). Since the primary “agenda” in their open conversations centered around what to do and how to do it, the TTJ participants’ collaborative effort encouraged more low-stakes interactions which led to a sense of shared responsibility and a collective workload, thus encouraging people to take action both online and off-line (e.g., to ask around, ask to ask around, and ask to verify online and on the ground) since any one person would only have to take on a small, self-defined job.

Why does one engage in a particular action? Theories of entrepreneurs explain that it is because the individual is motivated enough to act, given the uncertainty he or she expects to encounter in pursuit of an opportunity for both someone in the society and for him/herself (McMullen & Shephard, 2006). According to the definition, what the TTJ participants accomplished and how they did it resonate with what entrepreneurs do. Furthermore, the TTJ’s basic approaches in searching for information to help (e.g., AA-A2A-A2V) correspond to

Milliken's explanation for how the entrepreneurs handle uncertainty. If the individual is an entrepreneur, the individual must be able to know that uncertainty (e.g. opportunity) exists in the external environment (state), so that s/he must be able to assess what its effect on existing and future organizations will be (effect), and thus must be able to perceive what the outcome of any potential action will be (response). Based on Milliken's category of uncertainty, McMullen and Shephard (2006) argue that a prospective entrepreneur should be able to ask and answer three questions about his/her relationship to the environment (as simplified in p. 135):

- 1) What is happening out there?
- 2) How will it impact me?
- 3) What am I going to do about it?

In the case of TTJ, uncertainty is perceived through and embedded in the iterative information interactions, rather than ones that are perceived by the participants. McMullen and Shephard's simplified questions become useful in addressing perceived uncertainties conceptually within the context of the TTJ. For example, the first question addresses the attempt to identify uncertainty that surrounded the TTJ participants and their situations, such as when the TTJ participants engaged in figuring out where to send the formula by seeking local information about the disaster affected communities. The second question relates to perceived impact of uncertainty. For instance, the way that the TTJ participants were committed to deliver the formula to the point of need indicates some sort of determining behavior, whether the TTJ as an aid effort would be valuable for the disaster affected people, rather than to drop off the bulk of formula at evacuation camps. The attitude of the participants engaging in iteratively asking for information about cities or whereabouts of the mothers needing the formula indicates their eagerness to send the right aid to the right people at the right times. The TTJ's engagement with the iterative information interactions demonstrates their way of managing perceived uncertainties by sharing and exploring various kinds of information and resources including ideas, experiences, and knowledge in a leaderless environment.

Moreover, considering their relaxed intentions and styles of communication without a chain of command but with informational, operational, and situational uncertainties at stake, the TTJ

participants' engagement with imperfect information and ambiguous problems suggests a precondition for the emerging values to promote cooperation and learning (Anderson, 2010). This collaborative learning reflects a dynamism of dialogue with others (Bruce, 2008), which underlies recursive, reflective, and constructive activities that lead to collage, connect, and combine pieces of information through interwoven activities of individuals engaging in information seeking and search, as well as self-organizing (Anderson & Li, 2014; Takazawa & Twidale, 2013). This mode of collaborative information activities is conceptualized as shared uncertainty. This concept, shared uncertainty in the context of TTJ explains how an emerging process of spontaneous collaboration unfolds and how collaborative information activities interleave with work and learning. Collaborative information activities create opportunities for learning and sources for creativity, especially when the participants are uncertain what to do to achieve organizational goals but are certain of the meaning of the effort. Further, different kinds of vagueness and unknowns should be acknowledged as sources for learning and creativity, especially when people are collaboratively searching for information to help others in need.

5.6 Limitations

This study has some limitations due to the research design and the specific methods employed (e.g., limited number of study participants). This study covers one single case of many other examples of humanitarian aid efforts and a selected case from one specific disaster event, the 2011 Great Tohoku earthquake and tsunami. This study also depends on a small corpus of data, which mainly consists of approximately 480 tweets, six weblogs, two social networking sites, one web magazine, one corporate website, and in-person interviews with three participants of the case and one journalist who broadcast the case. Moreover, none of the major contributors for the case accepted the interview request, except one of them who provided via email a brief description of her experience and involvement with the case as well as confirmation of the synthesized description of the case written by the researcher. Therefore, the results do not reflect all of the stakeholder's experiences, which might have provided further information about the case. One of the major goals of this study was to explore the depth, richness, and complexity inherent in the subject phenomenon. Thus, throughout the multiple processes of the investigation, data collection and analysis, I was concerned with "rigor," which is commonly

viewed as a potential threat to the internal validity of a qualitative study, especially naturalistic inquiry (Cypress, 2017).

This study relied on publicly available data, most of which involved translation processes, and thus could be of limited accuracy and/or comprehensiveness. Translated Twitter messages were a primary source for additional data collection as well as for the analysis, so that is a potential threat to the rigor of this study's findings, due to the limited verification process which excludes the original data producer's identifying information (i.e., only a user name and an account name). Additionally, some of these producers closed their account and/or set up their messages as private at some point during or after the phenomenon, so that the message threads might have missed some points of discussion. Although this potential threat could not be completely eliminated, an attempt was made to cross-check the data and interpretations within and across different data sources.

Researcher bias is another potential threat to the study's findings. The preconceived notions of the researcher about the importance of people engaging in the immediate aftermath of disasters, especially the subject disaster location being the researcher's home country, could have been unconsciously communicated to their production of tweets and blog posts, and then influenced the researchers' interpretations (Miles & Huberman, 1994). The researcher's knowledge in citizens response to disasters, their uses of ICTs in the context, as well as her assumptions of the subject matter are a possible influence on the studied situation and people. In an attempt to prevent this type of bias, the researcher strove to find any discrepancy in the data. Whenever an emerging explanation of the subject phenomenon did not seem applicable, I tried to carry out a new line of analysis aimed at understanding the source of this discrepancy by collecting additional data from hyperlinks and repetitive searches for relevant information to the subject case.

Although not a limitation of technicality in qualitative inquiry or the methodology, questions remain with regards to the validity of the TTJ emergence before its social media appearance since I am only working with the textual productions of the phenomenon. In addition, the small scale of qualitative study resulted in a lack of both generalizability and its effect size. The findings from this study may not prove generalizable beyond the particular case of people who

participated in the phenomenon due to the small number of the participants in this study and the non-random selection of documents that were used. Lack of generalizability is inherent in nearly any qualitative inquiry and research design; however, alternative measures of validity, reliability and objectivity for qualitative studies have been proposed, such as credibility and confirmability (Yin, 2010 & 2013). In fact, this study lacks the voices of the core individuals who initiated and organized the phenomenon and without those voices, there is a lost opportunity for member-checking. Member-checking involves the contact of the study participants throughout or sometime during the period of data collection and analysis who provide their feedback on the ongoing investigation, and thus the verification of certain interpretations and themes that emerged from the analysis (Yin, 2013).

Though this study lacked member-checking opportunities, especially directly by the major participants of the phenomena, fortunately the subject study was able to verify the phenomenon, the voice of the organizer and fellow contributors both during the inquiry and post-hoc evaluation. The quality of this subject study was continuously judged by the impact of the phenomenon not only during the data collection and analysis but also after these phases of the study as a post-hoc evaluation over the last couple of years. For example, the TTJ was referenced by several online publications periodically over the past several years. Whenever the news on the progress of domestic production of baby formula in Japan was broadcast, I was able to indirectly observe the public reaction to that news, such as when the government committee for formula production was formed (Yomiuri, 2016), the Metropolitan Tokyo governor Koike made an announcement on purchasing baby formula from overseas for emergency supplies (editors room, 2017), the amendment on the ministry ordinance on milk and milk products was announced (Food industry newspaper, 2018), and the wholesale announcement of the first Japanese baby formula domestic production was released by the industry (Fukuchi, 2018). In each document, I was able to confirm, although there are no exact names or reference to the TTJ, that there is explicit reference or keywords that only link to the TTJ: “the efforts during the 2011 disaster,” “the Japanese mothers in Finland during the Tohoku disaster,” “the Embassy of Finland,” and references to Koike, a female politician, offering the TTJ her help with delivery during the 2011 disaster.

Also, the transferability and interpretation of the findings, particularly the concept of shared uncertainty, is inevitably the true value, as well as the applicability of the findings and consistency in the different contexts discussed. Although this study was not limited to the process explanation of the TTJ self-organizing phenomenon in 2011, my indirect observation since that time has allowed for the collection of additional evidence that addresses and illustrates the impact of the phenomenon at a large scale. The post-facto movement of the phenomena contributes to the rigor of the study findings so as to increase the potential transferability of the findings and applicability of shared uncertainty in different contexts.

For example, back in 2016 when another prefecture of Japan was devastated by a magnitude-7 earthquake, the TTJ initial organizer, @TuttelitoJapan replied to a tweet of someone inquiring about the formula. In her tweet, the Mother reflected on her experience of the TTJ: “I have experienced it from Finland. I might be able to help you a bit” (April 19, 2016). At the same time, Koike, the politician back in 2011 who offered to assist the TTJ with the delivery, tweeted: “Liquid milk to the disaster affected communities. We secured Finnish baby formula to be delivered to the affected area of Kumamoto” (9:33 AM - 21 April 2016 @ [REDACTED]). “We” in her message meant the Japanese-Finnish Friendship Parliamentarians’ Union, of which she then served as the president. According to the Secretary-General of the union (Fukuda, April 23, 2016), four corporations collaborated for a speedy delivery of baby formula (which was scheduled to be delivered in Kumamoto on the same day as he tweeted): a Finnish dairy manufacturer company, Valio, provided 5,000 cartons of formula; a Finnish logistic company, Niemi, provided domestic transportation; Finnair, for international freight; and Japan Air provided domestic freight from Narita to Kumamoto. The Secretary-General also mentioned, “the import procedure was arranged as disaster aid supply goods, and with the cooperation of the Ministry of Health, Labor and Welfare we were promptly able to arrange the international aid” (contextually translated). The overall speed of the relief coordination of the political group and their partner corporations testifies that the TTJ proved the adage that “the first time is always the hardest.” With the public support and its increasing awareness of the usefulness of baby formula, as the post-hoc evaluation of the TTJ in society, these politicians were able to imitate the trail that the TTJ originally blazed, though what these politicians were able to do is reminiscent of what the TTJ initially wished to happen under the management of authorities, especially humanitarian organizations.

In response to these politicians' actions, the public reacted online. First, among reply tweets to Koike's message, one user echoed the TTJ's original concern that the aid supply delivery must be directly to the hands of the affected people, not to "the affected communities." Also, one newspaper published an opinion article addressing the sociocultural issues regarding the dominant cultural beliefs in breast-feeding and emphasizing that the lack of domestic production of liquid formula was inexcusable in light of continued disaster response efforts (Nishinippon, 2016). Together with this piece, another online magazine published an article featuring a mother activist and advocate for domestic baby formula production who launched a digital petition campaign in 2014. According to the activist in the article, the campaign reached 40,000 signatures by the end of 2016, which apparently indicates the significant influence of the Kumamoto earthquake, which had happened in April of the same year, on public opinion (Ogawa, 2016). While both of these articles and the activist did not mention anything about the TTJ, one of the news agencies that covered the TTJ back in 2011 briefly referenced the TTJ. For example, Nihon Television News 24 reported, "It was the Great East Japan Earthquake that triggered the attention of liquid milk for infants who could drink immediately after opening the seal. Liquid milk was delivered as relief supplies from Finland to Ishinomaki City, Miyagi Prefecture" (2016).

In another more recent example, during the 2019 commemoration of the 2011 Tohoku disaster on March 11th, one of the participants, the blog owner "Horn," tweeted the following message with a link to a news article covering the announcement of the first domestically produced liquid baby formula in Japan which became available for sale on March 5th, 2019, and sold out that first day of the sale.

*"My friends and I sent liquid formula from Finland to the disaster affected communities as aid supplies, which has been already eight years ago. I am glad that finally the formula is now sold in Japan! Thanks to all the people in Japan who developed and made it happen to be available for the Japanese people
/[Headline:] "Long-awaited baby formula finally launched in Japan nationwide."*

(Contextualized Translation: 12:48 AM – 11 Mar 2019 @fumi_lotus3)

Regardless of the social and political reactions in Japan, the TTJ participants see themselves in these announcements time after time. Although none of the official announcements and media coverage regarding baby formula and “Japanese liquid baby milk” mention the TTJ and the Mothers, those digital messages describe “something” about the TTJ phenomenon of 2011 that influenced policy and public agenda on and beyond the baby formula product such as breast- and bottled-feeding, co-parenting, and gender issues in Japan. These study findings stemmed out of one single grassroots civic action which transcends the limits of generalizability and indicates the study’s potential applicability and transferability to future development of public policy and civic engagement as if the whole phenomenon indicates the power of shared uncertainty.

In the next chapter, following a delineation of the implications and contributions of this study, I present some ideas for future research including the possible application of the shared uncertainty concept.

CHAPTER 6: CONCLUSION

This study aims to better understand how ordinary people's information interactions lead to a meaningful act of collaboration, in particular by examining a phenomenon that emerged in response to the 2011 Great Tohoku Earthquake and Tsunami in Japan. This research was not a study of the Great Tohoku Earthquake and Tsunami in Japan, nor of the Japanese social media users' information behavior in response to the disaster. Instead, this study examined how people with no professional expertise self-organized to achieve its organizational goals by providing international humanitarian aid.

Relevant research and theory inform that 1) disaster and crisis information that are sourced by the public requires sophisticated levels of filtering mechanisms that assess the information to be useful for immediate coordination in aid operations; 2) for self-organizing efforts to occur, a collective of experts or a managerial base that absorbs leadership at different levels and assigns specific roles and clear tasks to fellow contributors is required; and 3) mechanisms that help facilitate engagement of volunteer individuals require actionable goals and rewarding foresight for both individual and organizational contributions to succeed. In contrast to existing research specialized in lab experiments, simulations and modeling, or deductive approaches, this investigation applies an inductive, microcosmic qualitative study of a phenomenon in a real-life context which defies each one of these findings. Given this scrutiny, the study of "Tutteli to Japan" demonstrates that disaster information that is sourced by the public does not always call for technical and institutional competences to produce actionable information that does not demand additional cognitive processing. Also, participants' voluntary-based, multiple-role behaviors can be productive even when responding to ambiguous demands and unknown sources of information, because their response actions reflect their desires to reach the agreed-upon goals and their beliefs that the action is an appropriate means to achieve the goal. However, the existing knowledge leaves a critical question unanswered: "How do ordinary people's information activities shape spontaneous collaboration work?"

In answer to this research question, the study first examined two sub-questions: 1) how do ordinary people search for information in a self-organizing effort? and 2) how does such kind of information behavior make collaboration work? The analytical findings highlight how ordinary

ways of seeking, searching and use of information did not evolve in a set order nor sequence of any kind but instead were facilitated by 1) like-minded others who share the understanding of the meaning of the effort, 2) then-available resources including information and communication technologies, and 3) their basic approach to everyday uncertainties with information and information needs. Drawn from the qualitative analysis using a single case study framework, this study concludes with introducing a concept called “shared uncertainty” that reflects how ordinary people with compassion applied real options that became available to them for the self-organizing to work.

Even without any to-do list and no charismatic leader in the organization, the TTJ participants were able to leverage their desires to “do something” for Japan, resulting in working through various kinds of vagueness and unknowns. Furthermore, by sharing uncertainty with the people on the web, these mothers were able to let the people contribute as they wanted to and iteratively work to find information needs and solutions collaboratively. As a result, within the next forty days, these volunteer individuals were able to ship six deliveries, totaling 12,000 cartons of baby formula from Finland to 12 different locations in the disaster-affected areas in Japan.

In the following, I first discuss implications for future research. Second, I present methodological contributions, and third and last, I close the chapter with a discussion of potential directions for future research.

6.1 Implications for Future Research

The findings from this study illuminate not only that information sharing and collaboratively searching for information to help are of crucial importance in self-organizing, but also that there are specific ways in which these processes can be leveraged. To facilitate such collaborative information interactions, especially among people with no professional expertise, uncertainties cannot be a burden or intervention for participants’ cognitive, affective, and behavioral processes; instead, uncertainties can be a balance indicator for dis/ambiguation of what to do and belief-desire configuration for why their actions matter for organizational outcomes. A voluntary act is an extra contribution; in other words, a spontaneous act means to make an extra step forward out of everyday activities, and hence spontaneous collaboration is a product of a

volunteer individual's contributions stemming out of her/his everyday worlds. As illustrated in Iterative Information Interactions, AA-A2A-A2V, the TTJ's interactive, reflective processes confirm that collaborative "learning by doing" involves evolving, intertwined, complex sub-processes that facilitate norms supportive of creativity and innovative action, although these processes have to rely on individuals' voluntary acts.

Ideally, every information search and seeking act can generate meaningful spontaneous collaboration and opportunities for learning by doing through collaborative information seeking and search in self-organizing as illustrated in the TTJ. However, the reality also needs further investigation. First of all, to better support people working together, other scholars investigate the role of collaboration tools and communication technologies in various work contexts. With technology, co-working environments are diversified by time and space, such as co-workers collaborating at the same time in different places and time zones. These studies locate the causes of mismatched personalities, roles, expertise, etc. in lack of sociotechnical considerations for uncertainty control. Studies that examine the technical side of collaboration suggest solution strategies such as operationalization of uncertainty in multiple levels within organizations. For organizations to be adaptive, the emergence of proper elements that give structure and order in a cohesive manner is preconditioned, but these elements rely on individual leaders that shape the constructive flow of knowledge transfer, information flow, as well as recursive processes of interaction, including decision-making (Nonaka, 1994; Arrow et al., 2000; Reuter & Kaufhold, 2018). By operationalizing uncertainty in multiple levels, these studies argue that organizations are able to create both naturally and unnaturally motivated activities that form adaptive organizations within. However, the question remains in regards to emerging behaviors that support collaborative and innovative acts in real contexts such as self-organizing activities.

For commercial work settings, one prominent example is in the context of agile software development. As a self-organizing team that "should not be leaderless" but its leadership "should be light touch and adaptive," Hoda et al. (2010) report the effect of high individual autonomy among agile software developers who adapted different kinds of roles for both team and project management strategies. Here, the opportunity for application of shared uncertainty arises. It would be interesting to investigate what kinds of vagueness and unknowns those role players were "adapted," especially in their processes of information searching and use, as well as

“learning by doing” self-organizing activities. Similarly, but more dynamically, interactive environments can be a great candidate for application of shared uncertainty in microcosmic reality, such as technology use for education and pedagogical practices (e.g., serious games and simulation training sessions).

For more mixed work settings, between professional work for profit and not for profit, nuanced leadership with collegial group membership is well adapted in a community-based working space, such as the development and distribution of free and open source software (FOSS) projects (Marsden, 2012; Lichtenstein & Plowman, 2009). While the FOSS type of working environment depends on individual (voluntary) engagement and motivations, unlike commercial services such as the above example of agile development, a lack of explicit synergetic benefits of in-group work such as learning and sense of belonging can lead to motivational problems and process losses (Hackman, 2002; Singh et al., 2006). Even with clear goals, relevant studies suggest that certain components are functionally necessary for loosely coupled distributed systems such as these FOSS projects in which individual developers voluntarily help each other, challenge their knowledge and skills, share an idea or start a new project, recruit some additional help, or refer to relevant projects (Dempsey et al., 2002). Even with advanced technologies, these studies affirm that distance matters in not only geographic measure but also in knowledge and cultural gaps. The TTJ case will give some insights to these studies by examining the role of uncertainties embedded in their organizational and individual processes in self-organizing activities, particularly their information activities, which are necessary processes that enable the traversal of geographic, temporal, and technical boundaries among the TTJ members (i.e. the distance between Finland and Japan; their varied technical skills and knowledge; their diverse uses of different technologies).

The TTJ participants also brought their “expertise,” which is not necessarily profession-based knowledge or professionally-trained experiences. However, with the foci on their “not knowing” aspects of their activities, the study was able to elucidate participants’ beliefs of what to do and desires of why to do it, resulting in the emergence of shared uncertainty where volunteer individuals with no domain knowledge and no prior experiences in working together are still able to collaboratively contribute their available resources for shared understanding of the organizational goals. In more intense collaborative work environments, such as crisis and

disaster response, it would be interesting to investigate a specific group of professionals with diverse expertise enabling the self-organizing to work, especially with the focus on their vagueness and unknowns in their iterative information interactions that lead to their self-organizing activities. For example, when there is large-scale devastation, rescue operatives and relief workers are challenged by different kinds of environmental conditions each time they arrive at the devastated communities. In this context with these trained professionals, both collaborative work across different organizations as well as intraorganizational cooperative work is observed as a common practice. To better understand how they efficiently coordinate knowledge, people, resources, tasks, and technology, scholars in disaster and crisis response and management address the cognitive model of knowledge sharing (Weick, 1993; Majchrzak et al., 2007).

For such professionals, working in newly formed groups and communicating with new group members is anticipated. While these studies affirm that individual decision-making plays a pivotal role in orchestration processes, they do not depict the underlying information activities – for instance, information use, search, seeking, sharing and provision – that are central to both individual and organizational decision-making. Drawing on collaborative information activities with the holistic approach to the evolving nature of collaboration, my study findings will be able to bring new insights to this research area. The concept of shared uncertainty can be used to better understand the responders’ ad-hoc activities by examining their microcosmic reality in action to explain how their belief-desire configuration works (i.e. their willingness to bear uncertainty).

Additionally, with the focus on its processes, the TTJ involves humanitarian logistics operations, and its managerial aspect links to agile management development. With the focus on the user-point of view, the TTJ’s disambiguation process of information needs might inform social uses of semantics and taxonomies that emerged during disaster and crisis. Beyond the cultural context being “Japanese,” the TTJ iterative information interactions - that started off on the nebulous ground of individual information use, seeking and searching and yet ended up with cooperation through social interactions - can be observed in humanitarian efforts in scales. Also, how people in different parts of the world come into being as a group to help others is not unique to a specific ethnicity, political resistance or the 21st century’s social media collective actions

(i.e. Arab Spring of 2010; Occupy movement of 2011). For example, back in the 19th century, the delegation of British nurses led by Florence Nightingale used mailing systems and social networks to come together as a group, grown out of their compassion for suffering soldiers during the Crimean War. In 2011, Haitian immigrants in New York and elsewhere were able to create an instant communication channel using text messages and community radio to reestablish flow of information for their fellow citizens in Haiti when the devastating earthquake hit the country (Munro, 2013). Not only do environmental conditions and cultural practices trigger help offering, or the event that pulls people together, but also interdependent roles, diversity in membership, and social interactions that need to emerge among individuals. As a result, self-organizing, emergent behavior shapes a process of collaborative efforts (Madden et al., 2012; Özerdem & Jacoby, 2006; Marsden, 2013).

With the focus on human-centric perspectives, on the other hand, the role of women in disaster and crisis response and beyond might provide insight for feminist theory and cultural studies of transnational communities, including Japanese or East Asian cultural studies. Obviously, the TTJ consists of Japanese people, so much so that there must be certain amounts of monocultural nuance and levels of cultural characteristics at various aspects of the TTJ. In particular, this study relies on its social media data, representing a set of open conversations, social dialogs, and personal traits, most of which were left available to the public, written in Japanese, and by Japanese participants. Having said that, while this subject case is representative of a Japanese group, it may also represent an ephemeral online community, providing cultural elements to better understand civic engagement that might be a great source for longitudinal post-disaster community building (Fullilove, 2004; Takazawa & Williams, 2011).

From perspectives of linguistic, rhetorical, and/or dialogical communication analyses, this case study serves as an appropriate source for Japanese cultural studies including “women’s language” (Inoue, 2002; Ide, 1982), “reserved culture” (Maynard, 1997), “high context culture” (Gunawardena et al., 2003), and “the less the better culture” in social context (Miura et al., 2007). Moreover, the fact that the TTJ main members declined to participate in private interviews for this study, provides unique evidence for transnational behavior of Japanese and/or organizational behavior in which blaming or giving credit to its outcomes are to its leader, rather than in embracing collective efforts (Zemba & Young, 2011; Smith, 1994). These examples

affirm that in different times and locales, individual response to human needs transforms a means of empowering other individuals to collaborate as well as to leverage available technology and resources in order to cope with large-scale disruptions. In the meantime, even in daily, ordinary life situations, people search for information to self-organize, not necessarily for large-scale events but also those that are not explicitly visible or in a microcosm.

Another implication of the study for future research raises opportunities for methodological contributions. In the next section, I discuss the methodological contributions of this study.

6.2 Methodological Contributions

Library and Information Science (LIS) research inquiries are interdisciplinary in nature, some of which intersect with and/or combine different disciplines, while some others explore intersecting inquiries that are previously unseen or undiscussed. LIS inquiries examine the relationships between information, people, and technology as in this research study. Due to both the nature of LIS research inquiry and the complexity of the agenda, LIS approaches to conducting research have a long tradition of exploring in terms of application of data collection methods and techniques, mixed and/or tailored, ranging from traditional lab-based experiments and modeling, to surveys, interviews and observations, and ethnography, online and in-person (Chu, 2015). Moreover, these study subjects and participants are guided in general by the research design and recruited by institutionally approved instructions (e.g., Institutional Review Board, mixed and/or semi-structured selection methods), all of which are determined by each research inquiry but are in a specific environment or organization. For example, in qualitative inquiry for information behavior of cancer patients, most of the study participants are recruited as a representative group in a particular context such as an online community of cancer patients who are identified by a local hospital where the researcher has access to an in-person support group of the patients. The data collected are directed through the IRB approved instruments; in other words, the collected raw data is structured accordingly to the instruments. In contrast, this case study, naturalistic research that was observed in naturally occurring settings, heavily relies on publicly available data including user-generated content and publications, and hence the collected raw data consists of neither illogical nor dialogical but interweaved pieces of individual users' output and input in various forms. Drawn from the data collection procedures and data

processing, this study makes further contributions on methodological grounds. In the following section, I discuss several methodological contributions including: 1) approaches to social media data, 2) iterative translation methods, and 3) microcosmic qualitative approach.

6.2.1 Approaches to Social Media Data

First, my experiences with social media data underscore the need for better tools to assist researchers' longitudinal digital footsteps, considering a wide array of digital publications including texts and images, metadata (hyperlinks; local and destination), and linked information (e.g., information that shows relationships between individual data or networking organizations).

These types of data are generated: 1) by general internet users accessing from various platforms and applications, 2) as a result of these users' responses online to an event or phenomenon, and 3) traceable by keywords of the event or phenomenon. The key characteristic of these data differs from the mainstream data collection techniques, such as big data sample or crowdsourcing that collects individual user's output/data through open data platforms. Crowdsourcing and open data platforms allow the creation of a large amount of user-generated data or "big data" of specific users that becomes identifiable by particular preexisting keywords in the big data or created by these users. Therefore, these techniques provide a semi-real world of subjects who represent the world of users that the research inquiry intends to examine. Both my study participants and these semi-real-world participants are consciously and unconsciously providing information or data that is either directly or indirectly made available for interpretation. However, the slight and yet significant difference lies in the scope of the original data source.

In my study, the subject participants or data of the TTJ phenomenon were not found by a particular or pre-organized hashtag, not by specific user profiles or power user, nor by algorithm-based or instrument-based data gathering. Rather, I was guided to the phenomenon through a blog post that introduced a lively conversation on Twitter, in which a variety of users were joining to brainstorm how to find a way to send Finnish baby formula to Japanese mothers suffering from the 2011 Tohoku disaster. When I examined the "big data" of the TTJ afterwards, there were only one or two identifiable hashtags used, but there were no featured keywords that made it to a topical reference (e.g. "Trend for you" on Twitter). The collection of the data was

made available mostly by hand after the API data mining was applied, as I traced manually each of the selected participants' tweet messages and any other digital footprints (see 3.6). Manual procedures were necessary because the data transfer through the API data mining caused unintended encoding of Japanese characters. By so doing, I was able to clean and gather pieces of data for mapping various websites scattered all around the internet. However, to contextualize and to judge the contents of each message/comment and its veracity, I must "be able to read the world -- the data's world -- to understand it" (p. 222, Marshall, 2012). These pieces of data require human-based cross-platform data processing and data transformation processes. For example, unique participants left messages on different topics across time. Thus, involved with different forms of data such as textual and visual data, cross-referencing the data is crucial; making different combinations and integrating multiple sets of combinations shed light on understanding the world of the subject case, not only for organizing and managing data, but also for interpretation (see "3.5.3 Interpretation of the cross-referenced data").

This research method, very small data based qualitative analysis, proved time-consuming and labor intensive but revealing of the details of the phenomenon. As in the discussion over the very large-data based analytics and database development (VLDB), a recent study reports that archiving automatic cross-platform data processing is challenging (Kaoudi & Quiane Ruiz, 2018). For small data based qualitative analysis, as demonstrated in my study, assistive tools for data integration of social media data have potential to advance qualitative methods in a way that is more comprehensive and applicable to different kinds of research inquiry that does not always need to address solvable problems and report solutions for social goods.

6.2.2 Iterative Translation Methods

In my study, both interpretation and contextualization of data required translation. As illustrated in Chapter III Research Design and Method, the data processing involved three versions of translation: 1) Word-for-word, 2) Semantic, and 3) Idiomatic and communicative. These different levels of translation elucidated the participants' responses and reactions to progress in the TTJ. Having the variation of translation allows the researcher to give careful guidance to capture and integrate narrative and theoretical elements in individual messages including nuances and subtleties that the participants might have expressed. Furthermore, it leads

to compare and contrast each different version of translation iteratively. Additionally, these iterative translation methods give a semi-structured flow and work conjointly with coding.

Although I am using publicly available data, I am cognizant of ethical issues around privacy and personal information of the producers. The TTJ publicly available data contains username, profile information, and geocodes (not every single user provides every item), which concerns those users' awareness of their data exposures for research. Although the TTJ initial organizers (e.g., @TuttelitoJapan user account, blog owners of "TERVE!!" and "Horn") keep their digital contents open for review and interpretation, I am concerned with the visibility of their personal information so that I maintain minimum exposure of the study participants' identity. I pay extra attention to this matter, especially because these organizers declined my invitation for private interviews for the study. In the meantime, I value their dedicated contributions and the significance of their effort, which resulted in legislation change for the domestic production of baby formula in Japan. Furthermore, from the data-centric perspectives, iterative translation methods highlight the significance of original data producer's input/output as valuable sources for better understanding sociocultural context of everyday information interactions in real life.

6.2.3 Microcosmic Qualitative Approach

The context of the TTJ informs us that everyday practices in an open organization can be leveraged by a prompt, ephemeral, yet supportive environment. While this study does not prove that the TTJ phenomenon started from one specific event or individual, this report does contextualize the emergence and expansion of TTJ. This study examines how TTJ performs collaboration in an ad-hoc manner through volunteer individuals who communicated online and resided in either Japan or Finland, thus demonstrating the emergence of structure and order as a small-scale social system. To illustrate the TTJ as such a social system, I employ the metaphor "microcosmic" to describe how a small-scale examination can unfold emerging properties that the TTJ constructed during the processes in which the participants engaged.

The various processes emerging through the TTJ activities, in which people's interactions online and on-the-ground are analogous, are much like the social process of "the world" coming into being. For successful organizational performance, the following components must be established: goals, needs, situations, people, processes and actions (Shibutani, 1986). This study

will refer to these properties of self-organizing as the microcosmic qualitative approach (MQA). MQA is an approach that explicates the entangled elements that organically emerge during a self-organizing phenomenon, specifically cases that occur in real-world contexts such as the subject case TTJ. MQA as a term refers to a methodological approach that describes how I came to understand the microcosmic system through the interrelated pieces of TTJ textual data that I gathered from various sources (including social media, personal interviews, observations, and media coverage). As I looked for ways in which I could capture emerging properties that describe the complexity or interrelated elements of the phenomenon, I came across perspectives of complex adaptive systems which led me to conclude that the proposed term—microcosmic—was fitting (Axelrod & Cohen, 2001; Ford, 2008). Thus, the microcosmic qualitative approach extends partially from a grounded theory approach, unstructured conversation analysis, and descriptive case study in general. Using existing frameworks to tailor emerging elements that shaped the spontaneous collaboration to work, I created ways in which I can give a holistic view on the emergence in the MQA as illustrated in the figure below (Figure 16).

Microcosmic Qualitative Approach in TTJ case

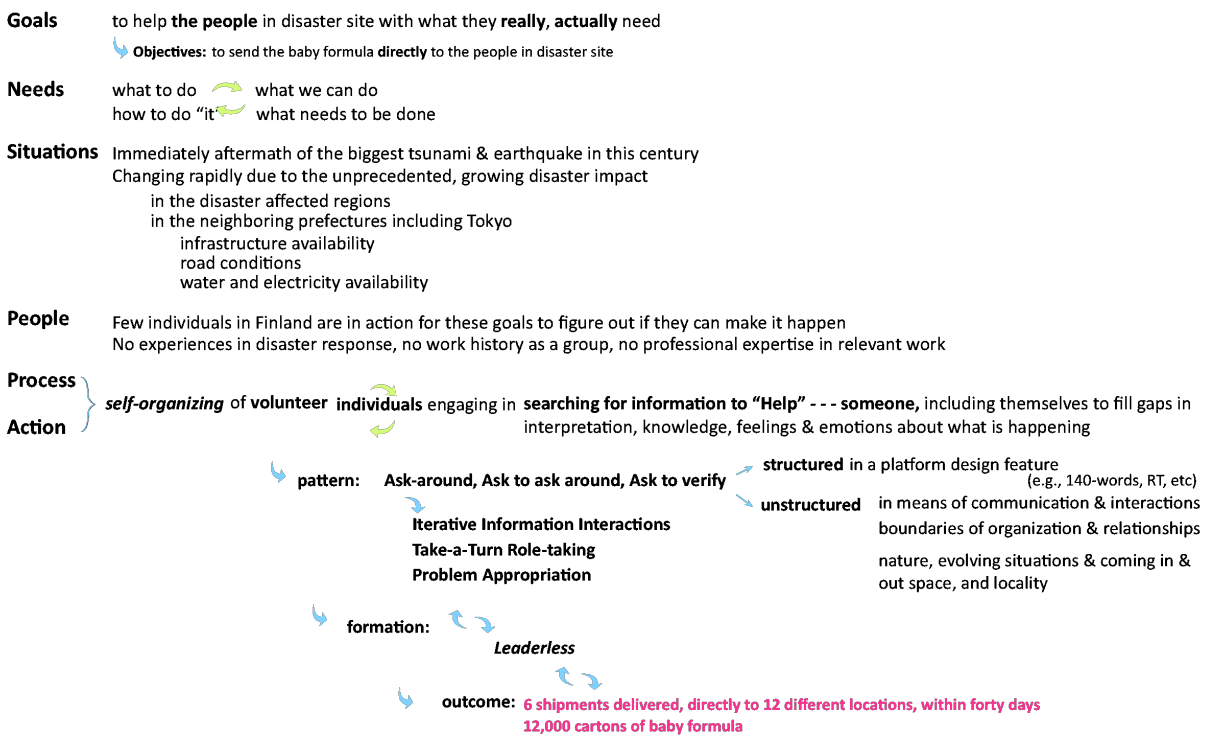


Figure 16: Microcosmic Qualitative Approach

6.3 Potential Directions for Future Research

This study specifically investigated how collaborative information activities in the context of TTJ self-organizing shaped spontaneous collaboration. Whether the interactions were computer-mediated or human-centered, most of the participants expressed various kinds of vagueness as they were dealing with different kinds of unknowns. These unknowns included informational, experiential, technological, technical (discursive), and contextual unknowns among their computer-mediated and human-centered environments. Considering the characteristics of the TTJ participants both online and on the ground, both sets of the participants were leaderless, leading to similar behaviors in information seeking and search: they lived with various kinds of vagueness and unknowns. This mode of shared uncertainty in the leaderless formation of the TTJ reflects how ordinary people with compassion applied real options that became available to them for the self-organizing to work. Drawn from microcosmic qualitative analysis using a single case study design, this research addresses gaps in knowledge in the fields of information behavior (IB), computer-supported cooperative work (CSCW), and organization and management, by presenting an alternative understanding of how ordinary people's information interactions shape spontaneous collaboration both within disaster response scenarios and in everyday interactions.

How the TTJ participants interacted with information, particularly ones that were sourced by unknown and unfamiliar sources online, mirrored branching out patterns: ask around, ask to ask around, and ask to verify, as if they are analogous to fractals (See "5.3.2 Iterative information interactions"). These patterned TTJ information interactions are indicative of critical enablers for improvisation and ad-hoc collaboration to perform among volunteer contributors.

Within disaster response scenarios, these patterned TTJ information interactions call into question whether the self-regulatory behavior or mechanisms for information verification need to be deterministic and rigid but rather collaborative and fuzzy. This relates to the recent studies in CSCW to expand our understanding of technologically-mediated care as cultural practices of empowerment that require nuanced and "personalized" approaches, involving particular knowledge of the place and practices of the people (Wong-Villacres et al., 2017). For example, Zade et al. (2018) report that what "actionable" information shared on social media means can vary among humanitarian and emergency responders who "saw value in different kinds of

information and that this value varied across other dimensions such as time, location, and scale of the event [than actual roles of individual responders]” (p. 195:15). Similarly, the TTJ participants reconciled various kinds of vagueness and unknowns about information and information needs through their creative ways. Like these professional responders or aid workers, TTJ volunteer individuals prioritized information around 1) specific locales in the disaster affected communities where mothers with infant(s) resided, 2) timeliness of the information about the locale (e.g., the ongoing condition of restoration progress and damaged infrastructure within and beyond the affected areas), and 3) other organizations and groups acting on the aid supply operations and delivery work.

My finding highlights the “personalized” approaches to the information made available for the TTJ that distinguish from the responders examined in Zade et al.’s study (2018) and others (Kovács & Spens, 2007; Pettit and Beresford, 2009). For instance, the role of individual volunteer participants was ambiguous but the purpose of the TTJ iterative information interactions as a part of the citizen-led effort involving unknown and unfamiliar sources of information online and on-the-ground was clear: not to disturb ongoing local efforts in action, not to exacerbate the convergence of extra people and material into the affected areas, and not to involve local people in order to complete the TTJ delivery. This collaborative and fuzzy mode of interaction highlights the overlap in learning by doing activities as a product of cooperation among people producing something complex, something not possible by individuals working alone (Weick, 1990), a collaborative emergence and creativity as in jazz sessions (Sawyer, 1999), and collaborative learning during help seeking and giving interactions via online forums (Singh et al., 2006). My study contributes to situating ordinary interactions online and on-the-ground even in crisis and disaster contexts as open and interactive so that ordinary people with compassion for others can find a way to help in their original fashion.

On the other hand, the voluntary-based assemblage of individual contribution requires a timely feedback loop and constructive conversation among the participating contributors that enables spontaneous collaboration to work. In the case of the TTJ, the majority of contributors were voluntary, but their interactions remained inclusive (i.e., no hostile language used nor the appearance of disturbing lurkers) and simply descriptive considering their primary interaction spaces included Twitter and other similar social media platforms. While prior work in crisis

informatics and information behavior in crisis and disaster response report otherwise, my analysis suggests that the TTJ technologically-mediated environment situated cognitive processes of the voluntary participants in recognizing the opportunistic and flexible ways that other participants engaged in real-time activity and established rapport. Thus, a divergent, not-goal oriented participatory culture materialized even though these participants were not certain about: 1) whether the project would ultimately succeed, 2) whether TTJ participants were trustworthy, and 3) whether their individual contributions were worth providing. By so doing, public or open social media platforms could mediate cultural value and ethics of care.

One of the central threads running through this study is the importance of shared uncertainties and unknowns among ordinary people who contribute and act on information that they believe is relevant but are unsure about the veracity. Although the success of the TTJ attempts and my success at capturing the phenomenon stemmed from simply having access to the right people and the right information, it was in fact accumulative contributions of like-minded individuals. In the meantime, a mystery remains unsolved: why didn't the TTJ dataset have much noise or nonsense tweets? These kinds of useless data appeared much later in the life of the TTJ; they became apparent by the third or fourth shipments being accomplished. For example, the interactions on Twitter became a simple question and answer session:

"@----- We buy the formula by ourselves, and then arrange the shipment in a way that we can send it directly to the disaster-affected communities. I know that there are groups and organizations in the United States also trying to send their formula to Japan. So you may want to talk to them. Good luck."

@TuttelitoJapan, t#173, April 13, 2011 17:33:42, 60259-60563)

Also, the Twitter space became an announcement board as such:

"Our fifth shipment took off on time. Once again thanks to so many of you people supporting us, we could successfully complete our preparation. Thank you. For this time, the fifth is designated to Miyagi area, and from there our cartons of milk will be serving mothers and babies in the area."

@TutelitoJapan t#181, April 18, 2011 9:32:32, 62896-63188)

These excerpts suggest that the less need for information, the more likely garbage entered into the scope of discussion. This aspect of social media information or information provided by the general public during crisis and disaster incidents leads to future research in interface design

(Tapia et al., 2013; Zeda et al., 2018). For example, participatory design calls into question if we can design some ways in which people browsing crisis and disaster information can correspond to evolving phases of both information needs of the affected people and response and recovery processes. This would allow distanced individuals who are willing to help those affected but who are not sure how to triangulate unknown public sources of information and thus transform the information to “do something” actionable for them to provide actual help for the affected communities as in the TTJ. Similarly, another question arises: how can companies or organizations offer systems and services to support ordinary people who try to help others in need in technologically-mediated environments other than one-click donations or one-stop online services that provide exhaustive lists of “how to help” and “where to donate” information? My finding suggests that ordinary people were navigating themselves with unknowns and uncertainties. Without any disaster-oriented or ordinary-user specific systems or web services, these individuals were able to achieve the international humanitarian effort that even led to legislation changes and creation of a new market for liquid formula in Japan. Then, can existing systems or services do something to support such kinds of effort, rather than releasing new applications and/or offering new services for each community or event? Future research on these questions with an interdisciplinary approach is high-priority.

Moreover, future research on the topic of spontaneous collaboration in everyday contexts would be valuable, such as in-class and virtual collaborative learning. Alternatively, studies might further elaborate the concept of shared uncertainty in lab-settings, such as serious games and simulations for training and learning, especially in a highly interactive context, which involves unique kinds of vagueness and unknowns, and/or expert-driven collaborative work (e.g., first responders, community emergency response team, and youth disaster preparedness). These studies might comprise, for instance, analysis of vagueness and unknowns among participants in everyday contexts who are engaging in parallel both individual information activities and collaborative information interactions as seen in the recent efforts in IB and LIS (Ocepek, 2018; Ghosh et al., 2018; Reynolds et al., 2019). Another important domain for future research extending from this study relates to compassion and distance in a leaderless environment as well as the potential understandings of emergent leadership in relation to technology and information use among women. In regards to technical and technological areas of research, future research in applying the concept of shared uncertainty to user-interface design

might address pitfalls of excessive information and access issues as the current tendency in technology companies is to offer too many applications and communication channels for disaster and crisis information, especially for commercial use.

Future research as outlined in this section can foster independent public participation and collaboration and offers an interdisciplinary bridge between research in information behavior, computer-supported cooperative work, crisis informatics and disaster studies.

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APPENDIX A: Informed Consent Form

調査参加に関する同意書

“Tutteli to Japan” Study: How ordinary people search for information collaboratively

Investigators:

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この度は、貴重なお時間をいただきまして大変ありがとうございます。“Tutteli to Japan”に携わった方から、当時の思い、様々なご経験を記憶とともに振り返っていただきたいと思います。この研究の目的は、TTJを例として、ソーシャルネットワーク他いろいろなテクノロジーを用いながらコラボレーションを可能にしたプロセスを解明することにあります。どのようにして、必要な情報を探し当てて、且つ行動に結びつけていったのかということに重点を置きます。

また、将来的には、この研究を基に、一般市民が自律した形で自由にコラボレーションを形成し、意義ある結果を求めて行動を起こし、またそうした活動が可能であるということを実証し今後の災害援助やコラボレーションの仕組み研究に役立てていく事を目的にしています。

インタビューの流れと構成

このセッションは、約60分を予定しています。インタビューといいましても、カフェで思い出話をするような、フリートークのようなイメージです。一個人としてのお考え、TTJの経験を通して感じたこと、思い出すことなど、ざっくばらんにお話頂きたく思っています。また、この同意書にサインをしていただいた後でも、貴方の本調査への参加は、任意ですので、いつでも、どんなタイミングでも、調査参加中止または回答の破棄を申し出ただけです。この調査に参加することによって付随するリスクは、日常のそれ以外は全くありません。

聞き間違い等をさけるため、インタビューは音声レコーダーに記録させていただきたく存じます。また調査員はインタビュー中ノートにメモを取り、またパソコンに入力することがあります。もしよろしければ、インタビュー前後には、お写真を取らせていただく事をお願い申し上げます。といいますのは、貴方がどのように作業をしていたのか、またお使いになった機材やその他TTJに関連するものを見せていただく機会があった際には、それらの写真を取らせていただき、後日参考にさせていただきたく存じます。そうした写真には、貴方ご本人やご本人と分かるような情報は一切削除し、記録に残らぬよう保存いたします。どうしても必要な場合は、貴方のお名前などは別称に差し替え、貴方と情報が照合されることのないように加工いたします。こちら撮影拒否や中止をいつでも申し出ただけで構いません。

ご提供いただく内容の守秘義務と調査終了

貴方のお名前やその他貴方とわかる情報が、この研究の出版物や調査発表において、掲載される事はありません。ご提供していただく全ての情報は、米国連邦政府、州政府、また市の法律のもと、われわれに守秘義務があります。ですが、この調査研究を監視している、イリノイ州、又はイリノ

イ大学（州立） Institutional Review Board 関係者(日本では治験審査委員会が似た組織です)が、データ閲覧を行うかもしれません。ですが、守秘義務のもと、全てのデータから、貴方の個人情報は削除され、もしくはコード名を使用し、ご本人様との照合が不可能になるように保管されます。この同意書は、そうしたインタビューデータやアンケート回答とは別途保管されます。

また、我々は、ご本人様の個人情報を守るため、コード名の使用を行います。貴方の本名とは別に、我々の一存で別名でデータ保存させていただきます。このように、個人と特定されるような情報はすべて取り除かれ、それらが調査データとして、パスワードで管理されたサーバーに保存されます。このサーバーへは、本調査員だけに与えられるアクセス権のもと3年間保管されます。この同意書のコピーは、貴方も印刷して保存していただくこともできます。

繰り返しますが、本調査への参加は、任意です。いつでも我々に停止を求める事ができること、また参加拒否、撮影拒否、メモを取る事を制止することができますことご留意くださいませ。

この同意書に関して、またその他わからない事等ありましたら、イリノイ大学 Institutional Review Board (治験審査委員会)まで、ご一報ください。

連絡先:

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また、本研究に関して、ご質問等ある場合は、我々研究員までご連絡ください。

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音声記録への同意、上記された守秘義務の下でのインタビュー参加への同意します。

インタビュー終了後、必要に応じて、連絡をいただくことを許可します。

以下について、同意いたします。

TTJに関するものや場所の写真撮影を許可します。

TTJに関して、作成した書類や情報のコピーを作成することを許可します。その中に個人を特定できるような情報が破棄され守秘義務が守られることに同意します。

お名前 _____ 連絡先 _____
サイン _____ 日付 _____

APPENDIX B: Interview Protocols

TTJのはじまり

- どのようにして TTJ を知りましたか？
 - はじめて TTJ のアイデアを聞いたとき、どう思いましたか？
 - TTJ に関わるきっかけ、どんな感じで関わりはじめたのですか？
 - 具体的にどんなことをしましたか？
 - そのような経験をして、また TTJ 全体を振り返って、もう少し聞かせてください。
 - どんなお気持ちでしたか？
-
- How did you learn about TTJ?
 - What did you think when you first heard about TTJ's ideas?
 - How did you get involved with TTJ?
 - What did you do specifically?
 - Have such experience and look back on the entire TTJ and tell us a little more.
 - What was your feeling?

TTJ に携わっている間の情報集めやテクノロジーの使用に関して

- ミルクを送る、という TTJ のアイデアを具現化していくなかで、どんなことが必要か、どんな情報が必要か、どのようにして見つけていきましたか？
 - 何か具体例はありませんか？
 - そのお話の流れを聞かせてください
 - どなたと一緒に見つけ出しましたか？誰とコンタクトをお取りになりましたか？
-
- As you embody the TTJ's idea of sending milk, did you find out what you need, what information you need, and how?
 - Are there any specific examples?
 - Please tell me the flow of the story
 - Who did you find out with you? Who did you contact with?
-
- どんなテクノロジーを使いましたか？
 - 壁にぶつかったと感じたときはどんな時でしたか？どんな難題がありましたか？
 - ここに、ブログのコピーを持ってきました[日付]。この記載[トピック]、覚えてらっしゃいますか？どんなことを思い出しますか？

- どんなお気持ちだったか思い出せますか？
- What kind of technology did you use?
- When did you feel that you hit the wall? What were the challenges?
- Here is a copy of the blog [Date]. Do you remember this topic [topic]?
- What do you remember? Can you remember what you felt?

- TTJ のツイッターでは多くの方が会話に入ってきていましたね。どう思われましたか？
- ここにコピーを持ってきました。何か覚えてらっしゃることありませんか？

- At TTJ's Twitter, many people were in conversation. What did you think?
- I brought a copy here. Do you remember anything?

- ツイッターでも色々と情報をお願いしていましたね。どんなお気持ちでしたか？
- 色々な方が返答なさっています。その中からどうやってこの情報で行こうと決断されましたか？正しい情報とどう判断されましたか？

- In Twitter people also asked for information. What was your feeling?
- Various people are responding. How was it decided to go with this information from among them?
- How was it judged to be the correct information?

- TTJ を遂行するにあたって、ツイッターとブログを多用していたと思います。この経験を振り返って、どう感じていましたか？

- I think that you/others used Twitter and blog extensively to carry out TTJ. How did you feel about this experience?

TTJ 全体を振り返って

- 3年経った今、TTJ 全体を振り返ってみて、どう感じますか？
- TTJ の経験から何を学びましたか？
- どんなことが難しかったですか？どのようにして解決して、先に進むことができたのでしょうか？

- TTJ の後、この 4 年間にボランティアのようなこと、または TTJ に似たような活動は何かされましたか？

- Three years have passed, how do you feel when looking back on the entire TTJ?
- What did you learn from your TTJ experience? What was difficult?
- How did you solve it and move on?
- After TTJ, have you been doing something like volunteering or something similar to TTJ in the last 4 years?

APPENDIX C: Photocopies provided by the Driver

A photocopy of a cargo shipment form from Finnair. The form is titled "Finnair" and contains various fields for shipping details, including origin, destination, weight, and volume. The form is filled out with handwritten and printed text.

Figure 17: Photocopy of Cargo shipment form sent from Finnair

Date & Time: 17:41, March 25th, 2011

Heavy Cargo-Shipper: @TuttelitoJapan "Estuko Takemoto"

Consignee: Liberal Democratic Party "(LDP) Yuriko Koike"

A photocopy of a fax message from AC system Corporation. The message is in Japanese and contains information about a trading company, including contact details and a subject line. The text is somewhat blurry but legible.

Figure 18: Photocopy of Fax sent from a trading company

Date & Time: 11:38, March 25, 2011

From: AC system Corporation, a trading company in Japan who assisted customs clearance

To: Mr. Y, the Driver

Subject: Emergency aid from Finland, Milk delivery



Figure 19: Photocopy of Map in Narita Airport District

Date & Time: 16:45, March 25th, 2011

Title: "AC system Corporation, Narita Airport office"

To: Mr. Y

品名	数量
Tutteli 1 500ml	500pc
Tutteli 2 500ml	500pc

Figure 20: Photocopy of Declaration Form for Relief Supply

Date & Time: March 26th, 2011 (H23)

Title: "Declaration form for Relief supply, Import"

Recipient: Koike, Yuriko (LDP)

Item: Tutteli 1 & 2 (200ml 500 pc; 500ml 500 pc)

APPENDIX D: Vignette

1. Entry vignette

The idea for this dissertation stems back to 2011, when a magnitude 9 scale of earthquake stroke off the northeast Japan, involving four prefectures with seismic intensity over 6 and generated tsunami waves climbing as high as 130 feet. This vignette begins with my personal experience responding to the devastating news in Illinois and getting to know about these mothers online. As time went on, I carried on observing these mothers and the people who started to help these women. Therefore, this vignette introduces the beginning of how I get to know about these mothers and the process evolved as these women sought help online for they sent baby formula from Finland to Japan.

A group of Japanese mothers living in Finland self-organized a collaborative aid project for the 2011 Japan earthquake and tsunami disasters. Immediately after the breaking news from Japan on March 11, 2011, people across the globe started to follow the news of the Earthquake and Tsunami, and compassionate individuals and groups tried to find ways to help the people in the disaster affected region in Japan. Most notably, through social media platforms and web technologies, some people aggregated critical information for the evacuees and made relevant information actionable; for example, locating the people in danger and coordinating available helicopters to rescue them. These Japanese mothers in Finland did also help people at the disaster sites with more than just information; even though they were geographically far away, they coordinated and executed aid delivery remotely. As a result of their actions, within approximately 46 days, a total of 12,000 cartons of baby formula was shipped to 12 different locations within the disaster affected area, through six separate shipments. The people involved in this successful aid project include ordinary people without relief experience both in Japan and Finland, most of them who found the project via Twitter and blogs of the original organizers but did not know each other prior to the project as well as did help only one or two times through the project conversations online.

2. 3/11-14: How did I get to know “Tutteli to Japan”?

Around midnight on March 10th, a text from my friend woke me up: “is japan ok?” I replied at once, “japan?” and my friend replied, “dunno. check news”.

I jumped up to my desk and went online. I checked Facebook, twitter, and all major news companies’ websites. I tried to understand what was going on. I began to panic as I was unable to reach any of my family members. I sought company with whom to share my feelings of frustration and anxiety and wanted to relate to someone like my situation: living outside of Japan but having families and friends in Japan. As I looked through my RSS feeds, I remembered a bog of Japanese woman living in Finland. Although there were no posts immediately after the disaster, three days later I found her first blog post expressing her mixed and complicated feelings. She wrote, “I wish I could do something...” That’s what I had in mind, but I had never expressed it aloud since the earthquake. I felt at ease knowing that there was someone else who shared the same feelings. However, after this post she became silent. Four days later, her new post came in. I was anticipating what she would share. I also wanted to know how she had been

dealing with the developing news over the past couple of days. However, her second post astonished me. Her post began with her concerns over babies in the disaster area and she wrote, “Let me introduce you a baby product, ‘baby formula’”

Her blog post continued with a product information about baby formula but transitioned to an idea that someone in Finland had about shipping this baby formula to Japan to save lives. I was perplexed. This is how I started digging into this “idea” of sending Tutteli (Finnish baby formula) To Japan (TTJ). I started to follow all the information that this blogger, @pullachan, talked about on her blog. As I followed the information, I started to follow the original organizer, @TuttelitoJapan on Twitter and her followers. I also learned about #AutaJapania, a hashtag created by the people who had the same idea about shipping the baby formula to Japan separate from @TuttelitoJapan and @pullachan. I kept observing and collecting their digital footprints as much as possible. Eventually, I was able to interview few people in Japan: Mr. Mr. Y, who volunteered to pick up the shipment at Narita and drove to the Tohoku area, Mr. Mr. Yo, who helped to find and distribute to the right people (the mothers and family in need) in the disaster affected communities, and the journalist who covered the TTJ at their last stage.

This is how I got to know about the TTJ, and I found it interesting and different from other aid projects that were organized for the 2011 earthquake and tsunami. From the perspectives of information behavior and collaborative work, I also found it very meaningful to investigate and understand how ordinary people use information and act on information in order to help others in need of information, regardless of underlying conditions; time-sensitive, geographically distanced, and full of unknowns and uncertainties.

In the next section, I will provide a story of how the TTJ came about, based on my observation and traces of the original organizer of the TTJ and the blogger from whom I learned about the TTJ. The story is organized by milestones in its progress as well as in chronological order.

3. 3/17-3/19: The beginning on how “they” are coming together

On March 17, a week after the quake hit Japan, @TuttelitoJapan, the account of a Japanese mother who lives in Finland, tweeted her first open call for help as her very first tweet experience (as she stated in her tweet sometime later). Followed by a chain of several tweets, she asked the people in Japan to spread the word: there is a product called Tutteli, a baby formula in Finland. She explained how helpful and useful the baby formula is for the mothers suffering in Japan due to the shortage of water and power, which are the lifeline for Japanese baby milk, which is only available in powder form. In the last line of her first tweet, she says, “I want to deliver this milk product as soon as possible.”

Almost half a day after @TuttelitoJapan’s first tweet appeared, a few Japanese mothers living in Finland started a conversation using a hashtag “#AutaJapania” (i.e., “Help Japan” translated in English). These mothers are also talking about the availability of baby food and baby formula in Finland compared to Japan. As like @TuttelitoJapan, but no presence of @TuttelitoJapan in the conversation, these mothers tweeted, or more accurately, they announced that “there are mothers of Japanese in Finland in action trying to coordinate the delivery of Finnish baby formula to Japan”. In their style of writing format, it is unknown that they are referring to themselves as the organizers who were introduced in the tweet. It was then still unclear who are the “Japanese in Finland” (in fact, someone asked if “they” meant themselves to clarify who “they” are). Furthermore, these mothers on the #AutaJapania thread mentioned that

they are looking for “any support” for the activities. In their “announcement” tweet (a series of three tweets with a page number “1/3” and “2/3” indicated but there is no “3/3” tweeted), they mentioned a tentative plan that they have, as in “...we are thinking to share with you a list of things that you might be able to help us, sometime earlier next week or so.” *This list has never uploaded or found.

In the following conversation (after these announcement tweets with no time lag), this group of mothers kept tweeting about “how to do *so*”, such as where and how to share such a list, as well as what had already been done, the aim of #AutaJapania, and real-time updates on what they are doing. Also, they were tweeting about how to reach people with power in Finland, saying that if these people understood the baby product situation in Japan they might be able to make immediate decisions and take action to get in touch with the Japanese government, much quicker than the ordinary citizens like themselves. Also, these mothers were talking about how to reach potential supporters in Finland (as a matter of fact, their hashtag is in Finnish at that time).

While this part of #AutaJapania tweet conversation going on (#AutaJapania 1st tweet at 11:04 am), @TuttelitoJapan came in (at 2:41 pm). Her first tweet with the hashtag AutaJapania was a retweet of a message sent by the mothers tweeting to the Prime Minister of Finland. Later on, @TuttelitoJapan tweeted to these mothers (who started the hashtag, #AutaJapania), “That sounds really good. Please count me in.”

4. 3/17-3/19: The beginning on @TuttelitoJapan’s open call for help

As Tweet conversations initiated by @TuttelitoJapan on March 17, six days after the earthquake, @TuttelitoJapan started to receive responses from Japanese users. @TuttelitoJapan sent a thank you tweet to each user. There were three kinds of users who corresponded to @TuttelitoJapan: 1) those who asked her for further information, 2) those who had become a follower of hers, and/or 3) those who retweeted her message (as she requested “spread the word”). Between March 17 and 19, @TuttelitoJapan eventually gained a number of followers, up to approximately 30 people, including the four mothers who started the hashtag #AutaJapania as well as nine other followers who were listed as @TuttelitoJapan account became active (original followers). In her tweet dated March 18 05:18:50, she notes, “wow! 33 followers now!”

In parallel to the growth of her followers, @TuttelitoJapan started receiving questions. Having her first two tweets sounding sudden and coming out of the blue, the subsequent tweets of @TuttelitoJapan consist of a lot of information that helps readers to fill the gap between what she wrote in her original message and what she was trying to do. Her first message to another user, @h[REDACTED]a, describes the baby formula as no-water-needed baby milk (which makes more sense to Japanese who has never heard or seen baby formula in their lives). Also, in the same tweet, @TuttelitoJapan reveals a specific goal: “please disseminate our message so that local governments and aid agencies can place an urgent request for the formula in their relief supplies.” Similar to this reply tweet to @h[REDACTED]a, @TuttelitoJapan has another tweet to @c[REDACTED]m, “We started this project just because we wanted to deliver the formula to the disaster affected mothers in Japan. We would like people to know ‘the existence of baby formula’ first, so that there is such a baby milk exist in the world outside of Japan, and this kind of milk doesn't require boiling water and mixing the formula yourself.”

After these reply tweets by @TuttelitoJapan, another questioning session began, especially with the first follower, @h[REDACTED]a who asked about export and import regulations for food

and liquid, necessary approval from Ministries, and safety concerns in general that people have for import goods. @h[REDACTED]a writes,

“Is this ‘baby formula’ under jurisdiction of Ministry of Health and Welfare in Japan? Would it be concerned about issues like safety? Japanese mothers may want to have something that are familiar to them? Would it be a problem for them to figure out how to heat or to find a way to heat?” (#10.00 a reply to 10. Fri 18 Mar 2011 0:56:07)

In her reply tweets to these questions, @TuttelitoJapan revealed that there is no information about the baby formula in Japanese (i.e., the product information of Tutteli) as she refers to the company’s website and apologizes that she does not have Japanese version for it, all of which is only available in Finnish. She also reveals that:

“[She] made a phone call to the Japanese Ministry of Health and Welfare, learned about special measures for import goods of aid purposes and she can file her shipment under this measure in effect”. @TuttelitoJapan also expressed her strong mindset that along with @h[REDACTED]a, referring to the past incident in Japan, “Thai rice” rejection back in the early 90’s. Their conversation highlights the shared past experiences and knowledge referring to a lesson learned from Japanese history of crisis and disaster response, in this case, the ‘Rice riot of 1993.’”

As a cultural reference point, this riot was caused by the Japanese government’s response to severe rice shortage stemming from the record-low temperatures during the summer of 1993 in Japan. As a response to the national crisis back then, the Japanese government chose to import Thai rice for substitute with the domestic rice. It became nationally controversial because Thai rice or even Thai cuisine in general were very special kind as such there were only few Thai restaurant opened in Japan. Such unfamiliar culture and food for most of the Japanese citizens, the government’s decision was not well accepted especially without any explanation for it did not choose other kinds of rice, such as Korean and Chinese, or California rice all of which were already familiar to Japanese home cooking. Eventually the bulks of Thai rice imported for the emergency aid were left untouched at the major seaport in Japan, resulting from the national-scale controversy.

For the TTJ context, raising an issue of mismatched aid supply signals the importance of understandings for the people in need: what exactly these people are looking for instead of what we think what they need. As a cultural reference point, Thai rice has come to signal the idea that aid needs to be thought-out and suitable for the recipients, or it will go unused.

***The incident of “Thai Rice” or “Rice riot of 1993”:** it became a historic example of the misunderstanding between the government’s choice of Thai rice as an emergency food supply and the citizen’s need of rice. for not only home-use but also for all the national food programs including school lunch programs (generally speaking rice is a serious matter in Japan). The problem was the fact that the government chose Thai rice over other kinds of rice such as California Japanese rice and Chinese rice which are much more available in market and very similar to Japanese rice, in contrast to Thai rice which is very rare to find in Japan and very unfamiliar to the public. This incident is featured in Japanese history books, with a photo of container filled with Thai rice sitting by the freight ship at a port (I personally remember this “Thai rice” crisis. In fact, the article about the riot is available Wikipedia Japan with no English version available).

Also, @h[REDACTED]a mentions about a blog that talks about Tutteli without any information about the source of blog: “I could find some of the information on someone’s blog (Japanese) living in Finland.”

Another user, @k█_gf started following @TuttelitoJapan, as @TuttelitoJapan sends a first tweet to her saying, “Thank you for following. Sorry but I am a new user of Twitter, so that I am not so sure how to use it yet...” Immediately after, @k█_gf replies back, “Thank you for re-following.” In this tweet, she inquires @TuttelitoJapan who she is, saying that she saw tweets similar to @TuttelitoJapan’s message, talking about the baby formula from Finland but with different user accounts, referring to @k█su and @LLf who were these mothers tweeting with the hashtag #AutaJapania. Next, @k█_gf posts a similar tweet mentioning @k█su and @LLf and adding @TuttelitoJapan in order to bring her work to the attention of the original organizer. Later on, @TuttelitoJapan tweeted to these two mothers of #AutaJapania as a greeting using #AutaJapania. Another mother who were in the conversation with #AutaJapania, @W█na sent a direct message to @TuttelitoJapan (e.g., @W█na tweeted her ‘I will DM you’ as a response to @TuttelitoJapan who started to follow her). This is the moment when all of these mothers started to follow each other, and therein started to tweet the same message content to the people in power in Finland using #AutaJapania, and exchange greetings to each other via tweets.

Also, apart from @TuttelitoJapan and #AutaJapania conversations, these mothers who created #AutaJapania (@W█na, @k█su, and @LLf) were actually contacting to another milk company for the same intension as @TuttelitoJapan. To do so, they were also reaching out to the people with power in Japan, including big names like the Softbank CEO, Masayoshi Son, but none of them replied. For example, these mothers tweeted about their feelings over no-response from any big names, saying that “after all these CEOs are men, so that for them, baby milk and formula are not obvious as emergency supply?”

Eventually, they started contacting female TV hosts and actresses who are famous for being maternal figures. One of these female figures started to help the mothers, and tweeted back, “I called Nestle Japan. But they said that it would take several months to get approval for importing Nestle product from overseas.” The mothers’ intention was to reach someone in Japan who had a connection to Nestle Japan or its employees, and these individuals might be able to take action inside the company to send their baby formula sold in Finland or elsewhere to Japan as a relief effort. In the end, with no signs of Nestle’s response, these mothers gave up on the idea. This explains how @k█_gf ended up reaching @TuttelitoJapan and inquiring about “the other” group of mothers who were active on the idea for shipping baby formula to the disaster areas.

5. 3/19-25: The issues emerged and evolved, so as the conversation]

Several users started to give suggestions. @Fukuya_20CMD suggested @TuttelitoJapan prepares a dedicated email address for direct communications. She also sent her another tweet with information about Bureau of Social Welfare and Public Health which manages and receives aid items at a port in Haneda (another airport in Tokyo, about 49 miles west of Narita), ending her messages saying, “I keep looking for ones in Narita. But if you can find it on your own please move forward, no need to wait, but do not hesitate to take other option.” @h█o referred to an organization like not for profit or non-partisan (NPO) as a possible delivery partner, “It seems like they have their own pathway to get to/get around the disaster areas (from Tokyo). Good luck!” Similar suggestions include a URL to Montbell, a Japanese gear company (@yu█) and URL to a newspaper article covering a list of volunteer groups in action (@cho█). Furthermore, @to█ also introduced himself as the one in charge of a private group delivering rations themselves so that “I will manage finding recipients and

agencies in Tokyo for you. I can deliver!” Other suggestions include, “How about Together, which allows you to bundle all the tweets regarding the milk under any given topic you want” (@█████go), “I found a tweet, they might advise you how to send rations?” (@cho█████), “Nice to meet you. I run my own business in Kyoto. Please let me help you. I’ll catch up with your tweets and logs (message), but let me know your current status and problems you may be having” (@█████df). “What does the milk ingredients say? I can translate that for you” (@florestan854).

In response to all these tweets with relevant information and suggestions from the people, @TuttelitoJapan started to provide more specifics on what she knew, what she had been working on, and what her thoughts and ideas were. She writes,

“What kind of milk formula I am thinking of sending is two different sizes of cartons, 200 ml (milliliter) and 500 ml. You can open these cartons without scissors. One for newborn babies (0 years old – six months) and the other for infant (6 months years old – 12 months).”

“My initial thought was to ship 10,000 cartons. However, I am not sure how well the mothers in Japan would accept the formula as a substitute to their kind of baby milk. Thus, I will send 2,000 cartons as a first shipment like a trial. I have used both Japanese and Finnish (Japanese powder milk and Finnish baby formula), and I do think that both tasted the same.”

Again, as @TuttelitoJapan shared the information regarding the milk carton, she received more questions, such as specs of the carton measurement, the ingredients of the formula, the “shipment” itself, and “the size” of the cargo. For example, @florestan854 asks several questions at earlier point of conversation (with #AutaJapania on March 19 as her first appearance). She writes,

“I saw ‘fish oil’ and ‘microbial oil’ in the ingredient list (of the formula). Do you know about them? I’ll look for medical advice then. I’ll ask if they are safe as allergy free sources as an ingredient for newborn babies, and no effect on Japanese babies”

“How do you use the ingredient label? Do you plan to put the label on every single carton? Any thoughts?”

“How about distribution part? The point is that the NPO or whoever deliver the milk needs to know how many cartons per mother or baby or even how many cartons are the right amount for feeding routines, and how many or how much formula is enough for how old, etc.”

“I would keep eye on the local situations. It must have been really hard for you to do so. But you must have the real-time information from the ground as much as possible. I can tell you that this time the damage has been geographically enormous, and the shakes keep coming back, so that even though one places as an evacuation camp are once confirmed safe it does not mean that these places stay safe for evacuees to settle in. After all, their situations seem to force the evacuees move around quite frequently.”

@█████MD asks,

“Would you tell me how big the shipment is, like how many boxes are in one shipment? I would like to know the size of packing stowage to see how much spaces are needed. If one shipment contains 2,000 cartons of 200 ml size formula, a mid-/full-size car or any cars up to 3,500 litter car size might fit...perhaps?”

@pullachan wrote the details about the people's responses on her blog (i.e., reply messages to the open call for help tweeted by @TuttelitoJapan, which @pullachan retweeted). These responses include,

"I'll ask someone I know of!" "Let me ask someone I know of/ I am acquainted with!"

"How about contacting this company?" "Please contact to this person!" "What size of truck do you need for? What tons? From where to where do I need to deliver?"

***Car Size in Japan:** a mobile/vehicle with minimum 2,000 liter or maximum 3,500 liter or less than 10 passenger seats are regulated under a 'regular car' size in Japan, the size of cars that a standard driving license holder is allowed to drive – in Japan liter size is a common use for car sizes/ranks.

While the conversation carried out, @TuttelitoJapan became lively and sounded factual much more than wishful. @TuttelitoJapan started to reveal what is missing in her development and what is needed on her end.

"I am thinking to make a sticker to label on a package, showing the list of ingredients and directions for each carton of formula in Japanese. And ...regarding the actual size (measure) of each carton...I will check it out now!" "I/we have found few groups that are potential drivers to take our aid shipment of the formula to the disaster areas, but these groups are stand-by at the central location in Tokyo for any aid items to be delivered to the disaster areas. Do you know anyone or groups or logistic companies that can deliver it to these folks in Tokyo? In other words, don't you know someone who can go to Narita airport and pick up our rations and go to the central location?"

"Our current challenge/issue is to find out who are able to deliver it and how to make the way to the drivers' location from the airport (most of the volunteer groups are located in central Tokyo, far from Narita airport, which is 50-60 km or 31-37 miles apart, \$200-300 by taxi)."

"I am sorry, but I am new to Twitter, so I am not sure how to read it. I buy the formula directly from the company, so monetary donation will be great if you can help us in Finland. I will let you know as soon as I have a bank account for it and etc."

"As a first shipment, a family member of the mothers living in Finland offered their help to go to Narita for pick-up and delivery to whichever groups in Tokyo managing to collect aid items voluntarily for Tohoku." "I am making a product information sticker in Japanese, but no clue how to fit this bunch of words into this size of sticker... I haven't touched MS Word for long time, so I am having very hard time with it..."

"Today, I am making phone calls regarding customs clearance. Our shipment must go through an inspection at quarantine stations at Narita. But I decided to ask import/export specialists..." "I made calls to the city of Shiogama, thanks to the information provided about it is significantly missing baby milk. And the city of Shiogama said that it would definitely help the people in need of milk there."

Also @TuttelitoJapan mentioned a second shipment of baby formula as if the first shipment was becoming increasingly likely.

"We have made the payment to the milk company. Now we are waiting for Finnair to confirm the departure schedule" "Today at around 2pm we stand for fundraising at the Market in Helsinki. If you are nearby, please come by and make your donations there (no specifics of to 'whom' to make donations, either Tutтели to Japan or Japan in general)"

“Thank you for sending your cheer up messages. We are almost set for the first shipment, but your support means a lot for us to keep moving forward to the second shipment if we can. So please keep helping us spread the word!”

“Regarding a website or a blog for what we are doing or somewhere on the web that is specifically for the milk project or together with something else, I will consider it to have it or not, once our first shipment is successfully made its way to hands of mothers in the disaster sites. Thank you for your kind words”

“The best way to help us out is to spread the word, there is a ready-to-drink milk, it is not powder-based but tastes the same, and it does not need to boil water and mix it to make the formula. You do not need a hot water. If the municipality and local governments learn that this type of baby formula exists and they decide to include this type of formula to their list for relief supply requests, that’d make this whole process that we are trying to make from Finland to the mothers in the disaster site a lot easier and faster. If they can do it with you all helping, it gets much easier and faster to reach the right people, real people suffering from the disaster and the mothers in need of baby formula.”

As the first shipment became a concrete possibility, @TuttelitoJapan received tweet messages that sound emotional too (not informational or purposeful, but just plain cheerful messages). The responders to @TuttelitoJapan’s tweets provided her with relevant and local information updated from Japan as much as possible (in regards to the conditions of the disaster affected areas such as food and water supply distribution, evacuation camps and locations, volunteer groups and their work). Simultaneously, some responders express their emotions toward what @TuttelitoJapan is trying to do. The following tweets demonstrate emotional and informational response to @TuttelitoJapan.

@mich [redacted] “Wow! This is great! Why don’t we import this now for the mothers with new born babies in Tohoku, or even start to manufacture similar product to this baby formula in the Westside of Japan?”

RT @sat [redacted]: @mich [redacted] Just for your information.
<http://suomi.exblog.jp/16071670/> #AutaJapania”

@ [redacted] betsey cheers up,

“@ [redacted] 7 Keep it up! I support you! I will do fundraising in Austin, by gathering all the mom's power!”

@wa [redacted] leaves a compassionate tweet,

“I am so touched by their act, with much heartfelt feelings. I am wishing their first shipment to arrive safely and get to the babies in disaster site without any troubles. Also, I am wishing their network to get known and expand the circle of connections.

@sak [redacted] @ [redacted] tokyo @pullachan #AutaJapania”

Among many others, @sak [redacted] points out to the domestic companies,

“Meiji Dairies Corp., Morinaga Milk Industry Co., Ezaki Glico Co.! Don’t you produce baby formula? In Japan are there any baby milk product, such that we do not need any hot water or such milk cartons that we can just replace the lid with baby bottle nipples? Do it now, start today the production and wholesale now! That is what we hope for! #AutaJapania”

@ [redacted] sun also expresses,

“I wish we have this (baby formula) in Japan. @pullachan @TuttelitoJapan”

Alongside @TuttelitoJapan tweeting, the mothers who created #AutaJapania and their followers continued tweeting to the people in power to branch out their networks of tweets. These people are Finnish and Japanese politicians, Japanese public figures (somewhat famous) as well as official accounts of Ministries, local/municipal agencies, and media outlets.

@au[redacted] tweets,

“A group of Japanese mothers in Finland is working to send baby formula to Japan. If you can, please RT their tweets and information @sou[redacted] RT @pullachan: Hear us out, the Japanese government! Htt://bit.ly/dJ03pC #AutaJapania”

@TK[redacted] goes,

“Please consider joining to support the Japanese mothers in Finland. RT@t[redacted] [Spread Info] RT (cont.) If we can get your (governmental) support (approval), we might be able to ship (deliver) large amounts of baby formula from Finland to Japan. We would like your special attention to us. Thank you. Here is the detail -> <http://suomi.exblog.jp/16071670/> #AutaJapania.”

Also, some people tweeted to Japanese companies manufacturing baby milk and baby products as well as Japanese associations for “Breastfeeding” and “Midwife.” For example, “I’ve got a response from the Japanese Nurse Association Special Unit for the Disaster Response!!! I sent an email to them yesterday. Very positive response. S/he told us that they forwarded my email to a secretary to the Diet Member immediately. Crossing my fingers. It seems like we are making a good progress. #AutaJapania” (Wak[redacted], 24-March). This act of tweeting to organizations with power or influential was carried out by different users/Twitter users/TTJ ‘someones’ at different points of time during the course of TTJ action (e.g., March 31 @ [redacted]ari, April 9 @yu[redacted], April 18 @ko[redacted], May 24 @ [redacted]walk, June 13 @ [redacted]tai).

Almost one day after the tweet sent regarding Finnair’s scheduling, @TuttelitoJapan’s tone of tweets seems to have changed (i.e., Thursday March 24, 2011 5:43:26). In this tweet, she emphasizes the urgency of her tweet. She writes,

“We are in the process of arranging the shipment to Miyagi prefecture, the city of Shiogama. However, the city suggested that we change it to other cities as our destinations, because the city just received enough of baby milk powder in the last couple of days as well as electricity and water back on. Regardless, we still believe that there would be small evacuation camps or private evacuees in remote areas in Shiogama adjustment areas where the residents were not able to receive enough supplies. Now then, please help us [find what to do and where to send]”

Her next tweet makes it clear that she is desperate for local information.

“Please help us find the information. Please let us know anyone in Miyagi (e.g., city of Ishinomaki and Kesenuma) and Iwate (city of Yamada); any other municipalities, local offices and groups, evacuation camps and daycare centers, and people in need located in these areas who will find the ready-to-drink milk useful. These are the most devastated areas suffering from a severe blackout (water & electricity shortages). They must need the baby formula. Please contact me, Takemoto via email at [redacted] [at] yahoo.co.jp. We will deliver the formula directly to the people in these areas!”

Simultaneously to her open call for help, people started to provide a local information not only to @TuttelitoJapan, but also @pullachan, and using the hashtag, #AutaJapania. For example, @ [redacted]ena says:

“I live in Ibaraki, the edge of disaster affected areas, it is damaged but minimum, so that our lifeline (water and electricity) is getting back on much faster than the other areas. As a “frontline” for the disaster area entry, I should be able to do something for you even though I might not be able to reach the center of the disaster affected areas. Please let me know.”

@florestan854 shares her concern,

“I just heard in the news about rescue troops from English/UK returned from Narita airport right after they arrived, due to the complications of assignments in disaster affected areas”.

@██████████po asks,

“Can you get in touch with someone in Minato ward in Tokyo? I will deliver other supplies from there to the city Iwaki in Fukushima”

@TuttelitoJapan also tweeted someone’s information via RT for example:

“RT@██████████ma: Someone just left Hyogo prefecture to Ibaraki to deliver baby milk powder and wipers!” “RT@tora3x: Ministry of Land and Transportation has now a real-time map to show available routes for delivery from outside the disaster affected areas, including functioning agencies within the affected. Please check it out!”

“RT@asahi: the number of patients are coming up and unstopably growing, but no medicines are coming in and unknowingly left untouched... the field of medical assistance is completely dysfunctional, the city Iwaki, Fukushima.”

While the circle of “Tutteli to Japan” (evolved from @TuttelitoJapan and #AutaJapania) became not limited to the intentional networking but to accidental, one of the mothers living in Finland, @pullachan on Twitter, began to write regularly in detail about what is happening with “Tutteli to Japan” and her reflections and involvement with the TTJ on her blog, named “TERVE!!” On “TERVE!!”, @pullachan shares her thoughts and expresses emotions both positive and negative. As a result, her blog became a reference point for TTJ. People started to refer to her blog using RT with URL of @pullachan’s blog; for example, on March 19, its first RT for the blog URL, “RT @pullachan: [Spread the word all over Finland!] We urge the people of Finland to help us - trying to send the Finnish formula to Japan to save the babies in the disaster areas. We created a hashtag, Japanese people; please help us spread the word, just like RT! #AutaJapania” (@██████████zen). Also, through her Twitter conversation, @pullachan receives information regarding the Red Cross,

“I saw a TV interview the Red Cross is committed to deliver and distribute the rations to every single person in the disaster communities. Their supplies are only for the victims. But I think it will take a lot of time for them to do so” (@pingu20, 2011-03-24 00:28).

At the same time, on her blog, @pullachan expresses her frustration with the situation, even though arranging the first shipment is becoming a reality. She refers it as limited power/effort in volume and speed since they (those people working on and for the milk idea) are just ordinary citizens who are just able to do/organize for good deeds, but all the effort they (“we”) are able to make is not enough to accommodate the growing number of people suffering from the growing areas of the post-disaster destruction. On March 23, with her entry titled, “Hear us out, the Japanese government!”, @pullachan cites an official response from the Japanese government. It goes,

“As for the time being, we have sufficient amount of powdered baby formula in stock. To the best of our knowledge, Japanese companies (which are the domestic

manufacture and producer of baby formula) have already voluntarily sent their formula to the affected areas for free.”

@pullachan argues that the real challenge in Japan is water (and electricity) not just because of the blackout, but also due to growing concerns about possible contamination in larger areas including Tokyo beyond just the Northeast region by the nuclear plant’s explosion. She writes, “Even if there is enough supplies (powered formula), people cannot drink the milk without CLEAN WATER. What would people do with bulks of powdered milk then?” “If the Japanese government just places a request to the Finnish embassy or consulate to ship the baby formula it will be done just by that and it would be bulks and bulks of formula, much more than just 2,000 cartons.” She concludes, “I wonder if we have a better idea for it.../are there anything we could do better?”

***@pullachan:** she is the blog owner of “TERVE!!” which I subscribed via RSS prior to the earthquake and found out about the TTJ from. @pullachan became a PR person for the TTJ as she stated in her blog entry on April 11th, titled “Let me introduce the TTJ staff.” Also, around March 19, @pullachan herself started to use her tweets to guide people to her blog for further information. Eventually, her blog space became the TTJ information desk where the project updates were posted on as well as the people on the twitter conversations came to or referred to for information about the TTJ. Also, on her blog on March 25, another supporting member in Japan was mentioned, with a URL of the supporting member’s blog, “Borderless enthusiasm” (translated from Japanese “Kokkyo wo Koete Sessatakuma”). Through her blog, I was able to find her Twitter account as well, @BlytheXCS. Thus, I will refer her as @BlytheXCS.

***@BlytheXC’s blog:** she explains on March 25 via her blog how her husband and herself found out about @TuttelitoJapan through their connection with Nordic ski and Northern Europe, including Finland. For many years, they had been involved in cross-country skiing through the Ski Association of Japan (to support this amateur sport) which directly connected them with Scandinavian culture and people. They were also deeply involved in the Nagano 1998 Winter Olympics, and through this experience and networks, they were able to find a person who was in the disaster area immediately after the earthquake and was working privately for the disaster response and recovery efforts there. Eventually one such person, Mr. Mr. Yo, became the TTJ “distributor” in the disaster affected area, and whom I interviewed in person in Ishinomaki, Miyagi prefecture. Mr. Mr. Yo was involved in disaster response and volunteer work for the first time during the 1995 Kobe earthquake. Mr. Mr. Yo was in charge of distribution (to reach out the right ‘people’ – the mothers in need in disaster affected areas) and worked with Mr. Mr. Y who was the “driver” for the TuttelitoJapan.

On the following day, March 24, approximately seven hours after her open call for information help, @TuttelitoJapan announced that they had teamed up with a female politician and her party Liberal Democratic Party (LDP). @TuttelitoJapan tweeted on March 24, 12:07:04, “Ever since this morning, I have received a lot of information and support from many of you. Thank you. Our first shipment will be delivered through cooperative effort by the LDP and other volunteers (Ms. Koike Yuriko promised and gave her word for the completion of delivery).”

Following to @TuttelitoJapan’s announcement, @pullachan updated her blog entry with additional edit where she wrote about her frustration last time. \

“My friends in Finland and myself have been contacting various politicians via Twitter for their help. Ended up with poor responses; however, the one who immediately responded and found out about our milk project was...Yuriko Koike of LDP! [Koike is a well-known LDP politician in Japan. As a rare female politician with international experience (she earned her B.S. in Egypt), she is perhaps a likely connection for this project.]

And...and...you know what! As we talked a little more in detail, this time, this first round of milk will be delivered by LDP directly to the affected area. It took me a lot of nerve and courage to directly tweet to politicians, but why not? After all I had nothing to lose. As it turns out, there is a politician who listened to us. I'm truly happy about it. So, let me remind you that today we are asking you for information about potential recipients in the affected area. That's all for now. Thank you so much, everyone! m(_ _)m”

After @pullachan's tweet, Yuriko Koike LDP tweeted back to her, saying “I can distribute/deliver from the headquarter office of LDP. We can deliver to even small neighborhoods” (@eco█, 2011-03-24-09:39). Also @au█ RTed @pullachan's tweet reporting that they were teamed up with LDP via Koike (2011-03-24-21:29). @TuttelitoJapan also replies to @█ki “Thank you. Now our first shipment is almost at its final stage. Yes, we are in contact with Ms. Koike LDP and her office” (Fri Mar 25 2011 4:30:06).

Later on, @Blythe also reported on her blog,

“The 2,000 milk cartons are scheduled to arrive tomorrow at Narita. After the custom clearance, Mr. Mr. Y, who is a friend of a friend of mine... is so kind that he will go to Narita and pick up the milk cartons, and go to the LDP Headquarters in Tokyo (in Nagata Cho), and then someone from the LDP/DCP will deliver the milk to the affected area” (2011/03/25 18:15).

In the same blog post, @Blythe also explains what she was told when she directly made a phone call to the city office in the area and addresses the problem that she experienced.

“In fact, I called in myself directly to the local crisis management office in Miyagi Kesenuma. But then, the response was, ‘we have enough rations already.’ And then, I asked further blandly, although I felt it would be impolite and not respectful. I goes, ‘I actually heard that those rations delivered to and are continued to coming in to the area, but all of the rations are being stuck at those institutions and government offices. The reality is that those individual victims and evacuees are left unserved, and those rations have not been delivered to them. Is that true?’ The officer responded, ‘That's the problem. We are aware of that. We will look into it as soon as possible’” (2011/03/25 18:15).

Regardless, @TuttelitoJapan communicates her experiences in her reply tweets. “@█sf It's been two weeks. It took us two weeks” “@mi█ Thank you. [It has been mind-blowing experience every day] These days have been so touching/moving/uplifting. Babies in Tohoku, please hang in there” (Fri Mar 25, 2011 4:31:41 & 4:32:23).

As this specific mission—to find a way to deliver the formula to Tohoku—is getting arranged and settled in with the powerful LDP teaming up, other missions were carried out as well. For example, the volume of inquiries from Japan was increasing, so that @TuttelitoJapan mentions that she was considering opening a bank account in Japan,

“@e [redacted] Thank you. We are planning on opening a bank account in Japan. When it becomes available, please come back, and I really appreciate your continuous support. Thank you. Takemoto.”

Also, someone found a typo on the sticker that @TuttelitoJapan was working on. At first on March 23, @k [redacted] asked if she can take a look at the sticker. And @TuttelitoJapan answers to her,

“@k [redacted] Of course you can see them. Please let me know your email address. I will send [it] to you directly. Tutteli (plant workers) offered their help to put the stickers on at their factory. Oh, my goodness, aren't they great? I feel so grateful”

Two days later, on March 25, @TuttelitoJapan tweets to “@florestan854 @k [redacted] u Regarding the corrections, it is embarrassing to see it so publicized” when she reported that in the morning two people/mothers went to the plant of Tutteli and wrote down messages on each stowage in order to personalize the baby formula, an import food, unfamiliar product from Finland and from strangers with Japanese handwritten message.

“This morning, two of TuttelitoJapan [the TTJ members] went to the Tutteli factory and wrote down messages directly on each cargo filled with the formula. We then went straight to the airport and finalized paperwork for the customs clearance. Finally, "a ready-to-drink milk" will depart tonight at 5pm to Narita. May the formula reach you without any further delay...” (Fri Mar 25 2011 12:27:23).

***Liberal Democratic Party:** LDP, a historically dominant party from 1955-1993. Due to its nearly four decades of dominance in power, the strength of LDP comes from local support groups networked in even rural and small villages throughout Japan. This is why the Koike's tweet emphasizes “they can reach out further deep inside the local areas”. Especially at the time, the LDP was not in the ruling, second time in its history. In 2009 when the opposition Democratic Party defeated LDP and continued as the ruling party during the 2011 disaster was ousted in the 2012 general election due to their poor management over the disaster and nuclear explosions).

***Yuriko Koike:** a female Japanese politician and former Defense Minister (July 2007-August 2007). During the immediate aftermath of the disaster in 2011, she mentioned the baby formula effort (not specifically introducing the TuttelitoJapan) during her press conference as one of the noteworthy private effort from ‘overseas’ (I obtain the YouTube video clip as listed in the data gathered from online, Table 2). She is the current governor of Tokyo (August 2016-).

6. 3/25-29: On the way of 1st shipment delivery]

On the next day, March 26, @TuttelitoJapan breaks the news, “The ‘ready-to-drink milk’ arrived at Narita. And all is set. Mr. Mr. Y and AC Systems, thank you so much. And big news! Our cargo will be delivered directly to mothers in Tohoku. Although it has to wait until Monday, it is almost there, it is! Please hang in there” (Sat Mar 26 2011 6:07:35).

@pullachan follows on her blog, titled “Bon voyage, Tutteli!”, “I got the phone call from Mrs. TuttelitoJapan.... From this early morning on, two of TTJ staff, Mrs. TuttelitoJapan and other staff, Mrs. S went to the factory of the Nutricia (the baby formula, Tutteli's manufacturing company) to pick up the milk cartons. They transported all the milk cartons to the Helsinki airport and cleared all the

customs processes. They told me that on each box of the milk cartons, they wrote down a message, ‘Tohoku! Keep your hope, we are with you!’ / ‘Dear everyone in Tohoku, we are with you. Don't ever give up!’”

7. Additional episode 1: Troubles after the shipment takes off

The TTJ mothers went through unexpected changes after the first shipment took off Helsinki. The initial plan was this: Mr. Y picks up at Narita airport and deliver to Tokyo, the Koike’s LDP office. Then, Koike’s secretary and staff was said to take over the rest of delivery to Tohoku as a part of LDP effort. However, Mr. Y took over all the delivery and went directly to Tohoku. During the interview, Mr. Y recalled that he and the mothers exchanged emails (he forgot names and which mother was) regarding the decision that the mothers made to take an offer from Koike. Also, according to Mr. Y, the mothers were thorough and had no hesitation to make extra efforts to make sure that the milk (shipment) would be handled by someone who is accountable and shares the compassion that the mothers have for the mothers in the disaster affected communities. Since Mr. Y was the only one who were directly working with the Koike’s office in order to coordinate their rendezvous point, the mothers were asking him about his opinions and feelings about how it had been working with the politicians. Mr. Y said,

“I tried to be honest as much as possible to the mothers.”

“They (the mothers) were really enthusiastic and truly committed. So, I told them that they (the politician office staffs) were very arrogant and demanding. For example, they kept giving us ‘instructions’: when to contact them over and over. But at the same time, they kept changing when and where to deliver. And each time they were not sincere but ambiguous.”

Mr. Y said that the mothers were very clear about their purposes: the milk is sent for the mothers in Tohoku, and so someone must be able to assure to make that happen. Eventually, Mr. Y offered he would take the shipment directly to Tohoku from Narita.

8. Additional episode 2: Troubles after the milk

From the personal email from the mother, she describes how painful it was to deal with one specific individual when the mothers were planning on summer project to send a “Santa Claus” from Finland. This project was made possible by the leftover funds from the TTJ, as well as by the leftover compassion for the mothers in Tohoku that the TTJ mothers had after sending the formula. The TTJ mothers knew that the immediately after the disaster brings people’s attention to Tohoku but it diminishes as time goes by. They were concerned about the psychological impact on the disaster affected residents who go through the gaps between such hypes of “aid” and media hypes and their struggling reality of reconstruction of lives. To support such post-disaster psychological intervention, the TTJ mothers thought about do-something in summer of 2011, approximately after five months of the disaster had passed as things were getting normalized.

9. Additional episode 3: Mr. Y’s story

From the interview with Mr. Y and his assistant Mrs. S, I created the timeline using the online application. His story behind his involvement with the TTJ highlights how he learned

about the immediately aftermath of the 3.11, specifically disaster response management at personal level. Such as; 1. gathering the information about what to prepare for delivering rations to Tohoku: gasoline, gasoline tanks, road access, road pass from the government, 2. networking the people in action, 3. networking the people in local community, 4. learning how to get around the chaotic situation at local including municipal office for paperwork, highway access from local to Tohoku, 5. setting up at the disaster affected areas.