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COMMUNITY BASED RESPONSE TO THE JAPANESE TSUNAMI: A BOTTOM-UP APPROACH

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Highlights

- Focuses on community based response to the 2011 Japanese tsunami.
- Introduces an arts based cultural animation methodological approach to vulnerable communities.
- Focuses on long term community interventions in order to 'build back better'.
- Highlights the role of culture in determining resilience in devastated communities.
- Stresses the importance of community based decision making in the reconstruction process.

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COMMUNITY BASED RESPONSE TO THE JAPANESE TSUNAMI: A BOTTOM-UP APPROACH

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Abstract

The 2011Tohuku earthquake and tsunami are said to be the most powerful ever to hit Japan. The result was tremendous loss of life, homes and livelihoods; the destruction of infrastructures; and the disruption of basic facilities. The aftermath of this disaster is the context of our research and we aim to show how a CBOR intervention approach can complement and be integrated into a larger social science project to offer a more praxis grounded understanding of the challenges faced. Our focus is on the interventions employed at the community level to reconstruct and rebuild a marginalized and devastated community - Minami Sanriku. We employ an arts-based methodology,supported by traditional qualitative methods, both as a means of data gathering and as a CBOR intervention in its own right, in order to understand and contribute to the socio-cultural dynamics of resilience and resilience building. Our pluralist and participatory methodology places community and concerned citizens at the heart of the rebuilding process. We analyze how a community in crisis draws upon social networks, cultural practices and collective interventions to rebuild from within. We frame our findings in terms of culture, community and resilience, and examine three interventions which have the ultimate aim of 'building back better'.

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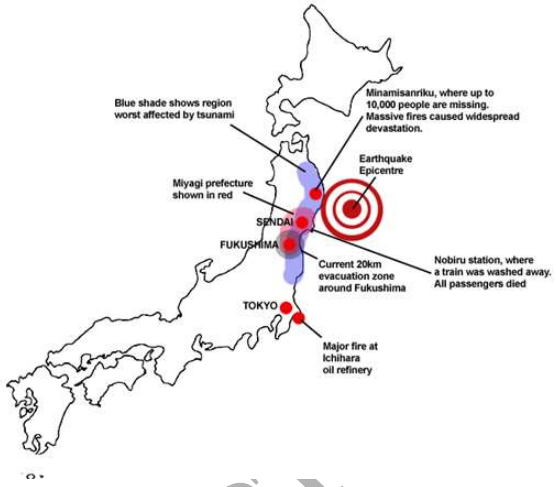
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Key words: Community operational research; tsunami; resilience; arts-based methodology; disaster

Introduction

Community Based Operations Research (CBOR), as a sub-discipline of the management sciences,emphasizes place, space, community, and the application of multiple methodologies to real life problems (Johnson, 2012a). In particular, and uniquely within the broader discipline, it prioritizes the needs and concerns of disadvantaged human stakeholders. In recent years, and in response to the global scale of both natural and man-made disasters, there has been a broadening of the concept to include disaster management (Drabek and McEntire, 2003; Altey and Green, 2006; Cutter et al, 2008; Johnson, 2012a;Johnson, Midgley and Chichirau, 2018).Much of this work draws inspiration from the Disaster Operations Life-Cycle (DOLC) proposed by McLoughlin (1985). However, to date, the main focus has been predominantly on the first three stages of the DOLC - mitigation, preparedness and response, with somewhat less attention given to the final stage of recovery (Altay and Green, 2006; Galindo and Batta, 2013).It is this last stage, the recovery and the rebuilding of community, that is of prime importance in this paper. The context of our research is the aftermath of the Tohuku earthquake and tsunami of 2011, said to be the most powerful ever to hit Japan.We focus on the communities of Minami Sanriku, a town in the north-east of Japan, close to Fukushima (see the map in Figure 1):

Figure 1: Map of Tsunami Disaster Zones



https://100gf.wordpress.com/2011/03/13/map-showing-major-areas-of-damage-in-japan-including-fukushima-missing-trains-prayforjapan/ moved to the bibliography

Japan is a highly developed, industrial and economically advanced society. Yet certain regions affected by the tsunami were made inaccessible through a devastated infrastructure and were largely economically and politically marginalized. These communities had no choice but to develop their own interventions for rebuilding and regeneration from the ground up in the so called JiJo-Kyojo-Kojo fashion, meaning individual self-reliance coupled with community help(see Okada et al, 2013).

This paper draws on research from a large, social science project, but takes the unusual step of integrating a CBOR approach to offer a practical intervention that helped to address some of the challenges the community faced. In the paper we explore the micro-practices of a community devastated by the tsunami and examine how this community in crisis draws upon social networks, traditions, cultural practices, and collective action to rebuild from

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within. As such, our emphasis is upon community intervention as opposed to government policy responses. In other words, we adopt a bottom up approach, which places community operations and concerned citizens at the heart of the rebuilding process. The research was funded by the UK Arts and Humanities Research Council and brought together scholars from the UK and Japan from diverse disciplines such as operations management, design studies, architecture, theatre studies and business communication, along with Japanese survivors from the local community and local business leaders. It adopts a pluralist methodology (Midgley, 2000) to explore the impact of the tsunami on the lives of those affected. The research project had three stages. The early stage of the project involved us learning from the community about its culture, histories, experiences, rituals, traditions and coping strategies. This understanding allowed us to design, in the second stage, an arts-based intervention that was culturally nuanced, made sense to those affected and had practical outcomes. The third stage, in keeping with the Japanese culture of self reliance, was predominantly community led (although other agencies had come involved by then). In this stagewe examined the interventions adopted by the community to 'build back better'. We believe that a traditional social science perspective for studying interventions(stage 1 and 3) combined with a CBOR approach to create a research intervention (stage 2) can offer a more praxis grounded understanding of the interventions adopted in the face of disaster. The paper also highlights how arts-based methods can contribute to methodological pluralism in CBOR.

Operations Research and Disaster Recovery

Disaster operations, as defined by Atlay and Green (2006), consist of the activities performed before, during and after a disaster, aimed at reducing its harmful impact. An important strand of the literature on disaster recovery focuses on the restoration and recovery of businesses. However, much of the work concentrates mainly on large businesses and global supply chains, rather than exploring how small, community-based businesses rebuild themselves with support from their community. As such, grassroots voices and perspectives are frequently overlooked or ignored.

The Role of the Community in Disaster Recovery Operations

It is now generally recognized that community involvement is an important part of the disaster recovery process (Murphy, 2007; Aldrich, 2011;Vallance, 2011; Takazawa and Williams, 2011; Shaw, 2014). Patterson et al (2010) provide an overview and assessment of a number of models which incorporate the community in one or more of the various stages of disaster management. This involvement may include risk perception and vulnerability assessments, along with resilience and capacity building. However, despite this recognition, the emphasis remains on those observable characteristics that can be measured and modeled. Accordingly, "Analysts who approach disaster preparedness and recovery from a 'top down' managerial, or policy, or planning perspective generally acknowledge that intangible social phenomena like 'resilience' play a major role, but they often find them hard to explain" (Patterson et al, 2010 p.129).

The nebulous phenomenon of social resilience is usually equated to social capital, or the existence of strong social networks, trust and reciprocity (Patterson et al, 2010). Community resilience is seen as encompassing individuals' sense of social justice as well as the supportive social contexts which enable them to prepare for, withstand and recover from disasters (Plough et al, 2013).It is also used to describe a community's ability to strengthen its response to crisis (Chandra et al, 2013). Strength lies in a number of interlocking factors, such as the

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connectedness, commitment and shared values of the community. Other factors include participation in the affairs of the community by members, the degree and nature of support, nurturance within the community, engagement by the community in problem solving, critical reflection and skill building. These are all enhanced by effective communication and the ability to obtain and utilize resources (Wyche et al, 2011).

Smit and Wandel (2006) argue for a 'bottom up' approach and emphasize the role of key stakeholders and community engagement as a means of improving adaptive capacity, coping capacity, resilience, and the implementation of positive change. Early research by Evans (2002) shows that the Japanese practice of Machi-zukuri (community-based planning) has worked well in some cases. This approach is radically different from the traditional top-down model that remains dominant in Japan (Sorensen and Funck; 2007; Matanle, 2011). Recent studies suggest that community-based decision making is an effective approach in terms of understanding a community's needs and enhancing community resilience in disaster rebuilding (Okada et al, 2013; Murakami and Wood, 2014). Here, decisions are seen to be taken collectively and democratically by leaders and their followers in accordance with existing shared needs and priorities. In particular, the theory of 'building back better' has received growing attention from scholars of disaster recovery strategies (Alexander, 2006; Lloyd-Jones, 2007; Kennedy et al, 2008; Mannakkara and Wilkinson, 2012; Fan, 2013). Consistently in and across this work is the idea that communities must drive their own recovery while working alongside other stakeholders (Baroudi and Rapp, 2014). These authors stress the importance of community members' ability to define their own goals and strategies for disaster mitigation.

Community-based participatory research (CBPR) recognizes this communal ability, by ensuring that bottom up viewsare accounted for when addressing issues that matter to communities, such as health inequalities, poverty or natural disaster (Wallerstein and Duran, 2010).This is also the case for Community-Based Operations Research (CBOR), and many case studies of projects where community participation is central have been published (e.g., Ritchie, Taket and Bryant, 1994; Midgley and Ochoa-Arias, 2004; Johnson, 2012b). Our study adopts a participatory stance coupled with a pluralist methodology, which puts the use of reflexive arts-based methodologies (Finley, 2014) centre stage as an alternative approach which facilitates processes of boundary critique (Midgley, 2000) and the connection of expert knowledge with lived experience.

Methodological pluralism andarts-based methodologies in CBOR

Successful Operations Research (OR) interventions are seen to benefit from "the practice of mixing methods, techniques and tools from a range of sources" (Velez-Castiblanco et al, 2015 p. 968). This is commonly called methodological pluralism or 'multi-methodology', and books on the topic that have been influential in Community OR and CBOR have been edited by Flood and Jackson (1991), Flood and Romm (1996) and Mingers and Gill (1997). OR interventions often have multiple boundaries and encapsulate a variety of values, which leads to diverse interpretations. When such interpretations conflict, it is useful to apply a boundary critique lens (Midgley, 2000) in order to shed light on the processes by which certain issues are marginalized or even made invisible while others are elevated. Boundary critique is a process of critical reflection of how boundaries are drawn and requires the ability to shift gear conceptually and experientially in order to affect transformative change (Midgley, 2003, 2008).

It has been argued that the capacity to critically reflect on boundary judgments can be enhanced by alternative ways of knowing, which complement scientific ways of knowing (Rajagopalan and Midgley, 2015). Heron and Reason (1997) suggest that there are at least four ways of knowing. First, there is *experiential* ways of knowing, which

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emerge from a direct encounter with the situation at hand. These are participative and immersive, and help to establish empathetic resonance with a world that is actively and creatively shaped through imagination and perception. Second, *presentational* ways of knowing are linked to our experiences and represented in graphic, music, story, movement, dance, sculpture and other aesthetic forms. Third, there is *propositional* knowledge, which is abstract, conceptual and causality-based. This is a form of knowledge widely embraced by OR researchers. Fourth, and finally, we have *practical* knowledge, which refers to knowing how to act in particular situations and how to solve particular problems. These forms of knowing are complementary and inform each other in a powerful way.

Arts-based methods, due to their participative nature, bring researchers and community members closer together in a reciprocal relationship based on equality and democracy. As such, they potentially lead to the development of ethical relationships in research and, more generally, in society by promoting inclusion and social justice (Keifer-Boyd, 2011; Lawrence, 2015). Gauntlett (2007) and Eisner (2008) argue that, although our day to day experiences are multi-layered and that visual and sensory dimensions are crucial to how and what we know, these experiences cannot easily be expressed in words. Thus, the use of arts-based methods can facilitate the investigation of those experiences and promote methodological pluralism in OR."The inclusion of non-linguistic dimensions in research which rely on other expressive possibilities may allow us to access and represent significant levels of experience" (Bagnoli, 2009 p 547). This, in turn, ensures that research data is triangulated and the robustness of findings is increased. Indeed, forcing researchers into a traditional written mode limits the type of knowledge they can access and communicate (Lawrence, 2015). Therefore arts-based methods are key to both methodological pluralism and transformative change in CBOR and could be more widely adopted when researching community practices in disaster situations.

Background to the study

On March 11, 2011, the largest ever earthquake and ensuing tsunami (and then a nuclear crisis from Fukushima) hit the North-eastern areas of Japan. The earthquake had a magnitude of 9.0 and the tsunami waves reached heights of up to 40.5 meters. The severity of the damage incurred was enormous. A recent report by the National Police Agency of Japan confirms 15,894 deaths, 6,152 injured and 2,561 still missing. Damage to property was also severe, with 121,805 buildings totally collapsed, 278,521 half collapsed and 726,146 partially damaged (NPA2016). In addition, roads, railways, the seawalls and the land were significantly damaged, and many businesses ground to a halt. The large scale of this disaster rendered the recovery process extremely challenging, requiring the involvement of multiple stakeholders and a long term approach for its success.

In 2012, the Japanese government set up the Reconstruction Agency, allocating 263 billion US dollars for a period of intensive reconstruction between 2012 and 2015, and a period of revitalization between 2015-2020. The reconstruction includes physical and mental care, community development, industry revival as well as the provision of health support to those in need (Reconstruction Agency 2016). Although much has been achieved, a number of serious problems still remain, such as the slow relocation of residential and commercial areas and the uneven recovery and development across different prefectures and towns. Given the scale of the reconstruction, some areas of activity had to be given priority at the expense of others due to limited resources and time pressure. In November 2013, and against this backdrop, we visited Minami Sanriku, an area that has been slow in receiving help from the government.

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The research was part of a UK Research Council project exploring communities in crisis with the aim of bridging the gap between academic knowledge and community practice.

Research Questions

Our initial aim was to explore the impact of the tsunami on the lives of those affected and to work collaboratively to help develop interventions to rebuild the community. Our research questions were: 1) What are the scale and impact of the disaster in terms of physical, psychological and social devastation? 2) What interventions does the community employ in terms of coping with such loss?3) What role can we, as researchers with multi disciplinary backgroundsand areas of expertise, play in helping the community come to terms with their loss and begin the process of rebuilding? and 4) What are the interventions employed by the community to reconstruct the commercial, environmental and physical infrastructure?Throughout the research our academic partner was SeinanGakuin University, while community partners included Minami Sanriku City Government, Isatomae Fukko Shoutengai Shopping Street Cooperative, Heisei-no-mori Temporary Housing Residents' Association (248 houses), Iriya Yes Craft Workshop and Minami Sanriku Fukko-dako-no-kai (Citizens' association for town reconstruction through manufacturing and marketing "octopus-kun" character goods).In total, over 200 community members from Minami Sanriku took part in this research. This is a collectivist and relatively homogenous community built on strong social ties and solid cross-generational relationships. The community has withstood many natural disasters in the distant and recent pasts and, as such, has developed sustainable strategies of self-help (Kyojo).

Methodology

Velez-Castilblanco et al(2015 p.969), argue that "papers reporting OR projects tend to discuss methods rather than the 'messier' human issues involved in their design and application". Arts based methodologies are possibly well positioned to capture such 'messy' human issues (Lawrence, 2015) as well as complementing qualitative research by making possible a better understanding of the context in which the research takes places (Hodgins and Boydell, 2014). Moreover, the inclusion of visceral, emotional and visual aspects of experience enriches the knowledge derived through textual qualitative processes. These benefits arise, not only for the actual research process, but also in terms of dissemination and impact, for target audiences are seen as more likely to change their ideas or behaviors when they are exposed to experiential or presentational ways of knowing (Heron and Reason, 1997). In our study we adopt a form of arts-based methodology called Cultural Animation (CA), coupled with story-telling, qualitative interviews and document examination.CA has been previously employed (2012 to date) in 12 research council sponsored grants (Kelemen and Hamilton, 2015),but is a relatively new approach to CBOR and the human issues which are central to this perspective. Yet, given the highly sensitive and often 'messy' nature of many community-based problems, it is an ideal methodology due to its democratic nature, which attempts to untangle and understand some of the less obvious, possibly messier, but predominantly positive, socially-grounded responses to crisis.CA is a methodology of community engagement and knowledge co-production, located within the broader field of creative methods (Gauntlett, 2007), and includes an array of visual, performative and/or sensory techniques (Barone and Eisner, 2007). Its aim is to accentuate the relational, processual and emergent nature of social life and its networks in order to give participants the ability to discuss, dispute or share meanings for themselves rather than yield to the academic's privilege of abstracting accounts on their behalf (Kelemen et al, 2017). The emphasis is upon creating a 'safe' space, away from

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existing hierarchies, in which participants focus on tasks that require little or no formal skills/training. By giving equal status to academic expertise, practical skills, common-sense intelligence and the relevance of day-to-day experiences, CA views knowing and doing as deeply connected. Drama, music, poetry, art and other creative activities are the practical vehicles by which participants co-produce various forms of knowledge, which are not necessarily textual.

Data collection: The data were collected in three stages: in the first stage we attended story telling workshops held at the Iriyado Centre (a newly built social space for the local community and visitors). We also visited and spent time talking to various actors at local facilities, such as the Koala library (the very first building to be rebuilt in MinamiSanriku), the Nagasuka beach, the Municipality building (a standing steel frame that used to be a building that housed the headquarters of the town's Crisis Management Department), Sun-Sun Shopping Centre, and Iriya Yes Craft Workshop (a small crafts business set up by community members in the aftermath of the tsunami).Concurrently, we examined a wealth of documentary evidence, such as government official reports, websites and media reports (including TV news broadcasts, newspapers and Facebook postings). These documentary sources enhanced our understanding of the economic, social and environmental context of our research by exposing us to a wide collection of stories, videos and photos disseminated by community members, government, research institutions and volunteers. Ethical clearance for the study was granted by the Japanese university involved in this project.

In the second stage we ran two Cultural Animation workshops at the IsatomaeFukkoShoutengai Shopping Street and the Heisei-no-mori Temporary Houses. More than 100 community members and business leaders attended the workshops, along with ten academics from the UK, Seinan Gakuin University and Osaka City University, Japan (some of the latter acted as translators).During the workshops, a central role was played by the 'cultural animator', an award winning theatre director based in the UK. The cultural animation exercises were designed to resonate with the needs of the Minami Sanriku community and introduced ordinary objects which had universal significance, as well as objects and materials which were unusual or historically relevant. Our materials were a plain wooden tree, which was self-supporting in structure (see Picture 1), and a suitcase with a range of items as described above. The facilitator kept the instructions as broad as possible with the intent of enabling the participants to structure the tasks in their own ways. Indeed, people interpreted the instructions differently and responded in a variety of ways.

Picture 1: The Tree at the beginning of our cultural animation workshops



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A story in the form of a folk tale was passed on orally and in written form. The story incorporated important cultural symbols, such as a tree (the wishing tree is a tradition in Japan, and trees such as the cherry blossom have religious as well as cultural meanings), a bridge (which represents different liminal spaces between life and death, earth and the heavens, life and loss) and a river. The tree was the central character in the story. It was a sad tree because it had lost its leaves, which had been swept away by the river. The leaves contained all the stories of the local villages, stories of people, communities, games, songs, daily work and relationships, stories of mischief and mayhem, sadness and laughter, which the tree had now lost forever. The tree was bare. In order to help it thrive, people were invited to create/recreate items, stories, poems and songs to give as a gift to the tree so that it could be filled with life again.The stories gifted to the tree were driven through the ideas of the four seasons and the elements (Earth, Fire, Water, Air). As items were made, people attached them to the tree in whichever fashion they chose. As the workshops progressed, the bare wooden tree became filled with poems, dolls, stories (see picture 2). Items such as empty picture frames were filled with color and drawings. Boats and fishing lines were made and stories performed. A bridge was then co-designed and constructed by participants to join all the elements together. The community members were informed that the stories they had shared and items that had been created would be taken back to the communities in the UK and shared, thus building a metaphorical bridge between our communities.

Picture 2: The tree at the end of the second workshop



These exercises enabled participants to advance personal and collective views about past and present circumstances as well as imagine futures in which they would play a more central role. The cultural animation techniques helped flatten the hierarchy between academics and community members by inviting them to work together through difficult issues in a 'bottom up' fashion (Reynolds, 1984).At the heart of the workshops was the making of objects. Non-linguistic models of representation (charts, models, diagrams) have a long and established genealogy in operations and disaster management. Given their highly technical formats, they have tended to exclude lay people from contributing to or even understanding them. Yet, "by connecting images to the cultural context…researchers gain a more thorough (yet never complete) understanding of how images embody and express cultural values and contradictions" (Schroeder, 2006 p.303).

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In the third stage of the project, we conducted 20 interviews with community leaders and members. The interviews were conducted in Japanese. They were recorded, transcribed and translated into English by the third author. We carried out 5 informal conversational interviews and 15 semi-structured interviews. The former provided an opportunity to build trusting relationships with key participants, ensuring that they felt more at ease sharing their experiences with us. The interviews covered topics such as the individual circumstances when the tsunami took place, immediate reaction by individuals and relevant others, the rescue operation, the reconstruction activities and the impact these had had on individual and collective identities.

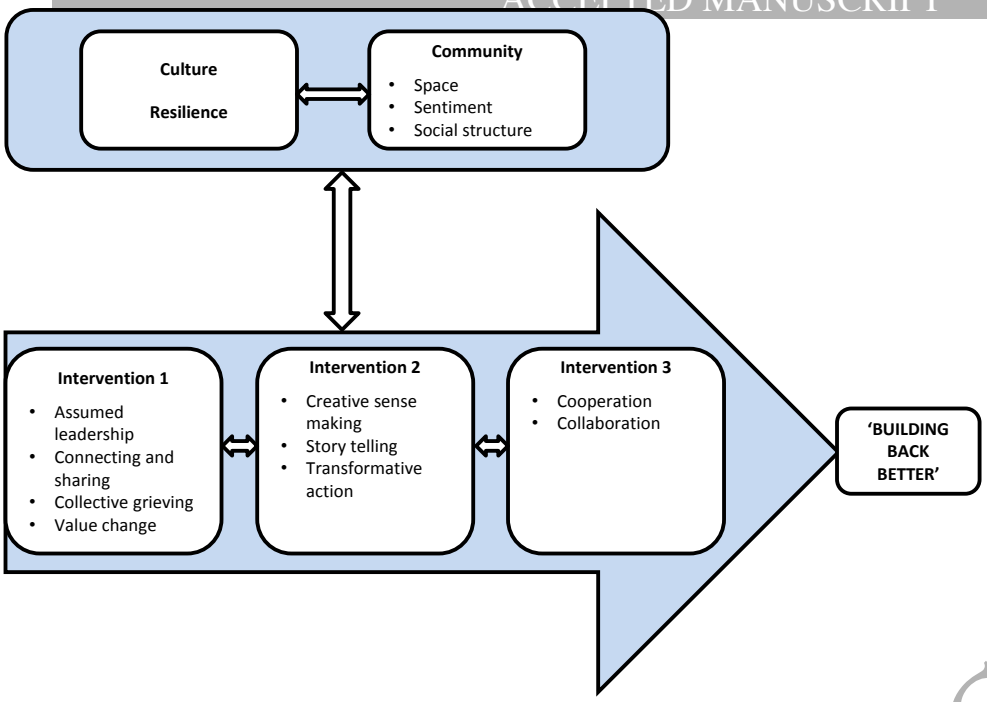
Data analysis. Adopting a content analysis (Krippendorff, 1980) approach, all three authors read the transcripts of the interviews independently, compiling types of recovery and reconstruction activities and pinpointing recurrent themes. The authors then compared their initial interpretations and agreed on three main analytical categories: culture, resilience and community. We employed narrative analysis (Lieblich et al, 1998; McIntosh, 2010) to look at the story-telling activities from stages 1 and 2. The images (installations and artifacts) from stage 2 were analyzed in terms of the stories they conveyed. The application of metaphor to these visual forms of data aided in assembling meaning and interpretation (McIntosh, 2010). The visual data also guided our verbal data analysis, ensuring that some of our interpretations were visually led. We concur with Bagnoli (2009), who does not see visual data as an add-on to text-based analysis, that the former can usefully contribute to all stages of the research process. Atlas software is increasingly being used as a multi-media coding system for large quantities of qualitative data. However, we chose not to use Atlas because content and narrative analyses were sufficient in allowing us to interrogate visual data on multiple levels. The data analysis in all three stages corroborated the finding that community-based interventions are underpinned by specific socio-cultural dynamics, which can be explained in terms of culture, resilience and community.

Community-Based Interventions: Socio-cultural dynamics

We stated earlier that, while concepts such as resilience are recognized as important in the process of recovery, they are hard to explain (Patterson et al, 2010). Also, in the tradition of much OR research, they are even harder to quantify and measure. Our study explores some of the 'fuzzier' and indeed more intimate effects of the disaster which we present via the stories and artifacts created by the community members involved. We further suggest that recovery involved a series of interventions involving residents, local organizations, volunteers and (later in the process), the research team, other key stakeholders, such as government, researchers and NGOs. Figure 2 summarizes the socio-cultural dynamics of culture, resilience and community that influenced the three interventions explored by the paper.

Figure 2: Socio-cultural dynamics of resilience building in disaster situations

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Culture: As a prelude to our disussion of the intervention strategies adopted by the community following the tsunami, it is important to note the significance of culture as underpinning the immediate reactions and those that followed. Two features of Japanese culture are central totherecovery and reconstruction process:collectivism and resiliencein the face of disaster. In fact, they are the catalyst for all the interventions we describe. Japan is an island nation with a long tradition of collectivism and high regard for harmonious group relationships (Grebosky et al, 2012). Collectivist cultures are predominantly rooted in, and determined by, the sharing of goals, values and attitudes within the social collective (Winfield et al, 2000).Whilst some of the larger cities in Japan may be shifting towardsindividualism (Grebosky et al, 2012), in the smaller, rural and agricutural prefectures, such as MinamiSanriku, there still remain strong ties and values which prioritize the collective over the individual. In fact, it has been suggested that pockets of Japanese society share very little in common with the other great Asiatic societies and cultures (China, India, Jarva, Egypt), and have more in common with medieval and renaissance Europe in terms of adherance to traditions and hierarchy (Gorer, 2012). As such, these smaller scale communities tend to differ in terms of their propensity to resilience in the face of adversity, largely sustained through collective collaboration and mutual help. This highlights the fact that societies are often comprised of numerous diverse cultures, which need to be understood and contextualized in terms of their likely response to disaster. In particular, "geographical differentiation, cultural heterogeneity and social plurality are important in the process of recovery as are local practices and knowledge making traditions" (Weichselgartner and Kelman, 2015 p. 263). Failure to account for such cultural nuances can diminsih the effectiveness of any given intervention or can result in the wrong type of intervention. As Weichselgartner and Kelman (2015, p.262-3) eloquently argue,

> "Apolitical resilience thinking 'tends to favor established social processes at the expense of social transformation….understanding the historical and sociopolitical processes that create and maintain social [and environmernal] vulnerabilities should form the basis of enquiry. Ignoring these powerful forces leads to a focus on 'undifferentiated communities at risk', common 'vulnerable communities' and generalized 'resilient pixels'".

Moreover, the "contemporary quantitative production mode of streamlining resilience into one community signature or country index hides far more than it discloses" (Weichselgartner and Kelman 2015, p.262).

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Resilience: A sa concept, resilience has become central to much discourse on disaster recovery.Above all, the received wisdom suggests that, in order to move on and rebuild lives, disaster victims need to learn resilience - the capacity for successful adaptation in the face of disturbance, stress or adversity. Resilience in this sense is defined as "a process linking a set of adaptive techniques to a positive trajectory of functioning and adaptation after a disaster" (Norris et al 2007). Yet, it is not an uncontested concept; nor is there any universally accepted definition of what resilience comprises (Pike et al, 2010; Helfgott, 2018). As O'Hare and White (2013) suggest, as a concept it is an agreeable, but somewhat fuzzy notion, while Pike et al (2010) urge academics and planners to look more closely at adaptation and adaptability as key to understanding resilience.

In this paper we focus on community based resilience,or "the ability of the community to withstand external shocks to their social [and environmental] infrastructure" (Adger, 2000 p.347 brackets added). Manyena et al (2011) suggest that central to the resilience paradigm is an emphasis on capabilities and the way in which communities and people deal with crisis and disaster. They discuss the stress on 'bouncing back' after a trauma or disaster as core to much of the literature on resilience. The term resilience, from the Latin *resillio,* or French *resiliere*, means to jump or bounce back to a previous state(Manyena et al, 2011; Alexander 2013; Sudmeier-Rieux, 2014), which implies a swift recovery, with minimal or no assistance (Manyena et al, 2011).Yet, in the case of Minami Sanriku, the devastation was such that the effects on the town meant that life as previously experienced was changed forever: friends and loved ones died or were lost in the tsunami, homes were washed away and livelihoods destroyed, along with much of the physical environment. Disasters on this scale are more correctly defined as catastrophes. Holgiun-Veras et al (2012a) define a catastrophic event as one where all or most of the built infrastructure is impacted; operational bases for the emergency services are hit; local officials are unable to undertake their roles; help from nearby communities cannot be accessed; most community functions are disrupted; and there are mass out-migrations from the area for a protracted period. "The Tohoku tsunami's impact on the town of Minami Sanriku, and the Port-Au-Prince (Haiti) earthquake exemplify catastrophic events" (Holguin-Veras et al, 2012a p.495). Following catastrophic events, change is both inevitable and seismic. "Yet the 'bounce back' notion does not seem to acknowledge that disasters are accompanied by change…..Bouncing back neither captures the changed reality nor encapsulates the new possibilities opened by the changes wrought by the disaster" (Holguin-Veras et al, 2012a p.413).Indeed, Lewis (2013) explicitly links the concept of resilience to that of change, whether technological, physical, social or cultural. Therefore, as an alternative lens, resilience should be viewed as the ability to 'bounce forward' and move on following a disaster. This in turn is inevitably determined by the degree to which the community has the necessary resources and capabilities to organize itself prior, during and afterwards in times of need (Lewis, 2013).

As stated, culture and community are not necessarily homogenous in Japan, and there is a growing fracture between urban modern western individualism and traditional, rural small-scale collectivism. These cultural differences are not merely academic; they are central to the interventions adopted in the face and aftermath of such large-scale natural disasters. As such,they should be integral to any planning or preventative decisions.

Community: In terms of contextualizing our use of the term 'community', we draw on Campbell's (2000) conceptual model and Hawdon and Ryan's (2011) application of the modelwhich posits that community is determined by three elements: 1)*space*, which refers to the geographical location and built environment of the community; 2) *sentiment*, which consists of the psychological, symbolic and cultural components of a given community, and encompasses psycho-social emotional bonds, trust, reciprocity and the sense of attachment felt by community

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members towards each other, and; 3) *social structure*, which refers to social networks based on either affection, coercion or functional interdependence. These form the basis of community interaction and determine who is a community member and who is not, who interacts with whom, who holds the power,who has access to key resources, who decides how these resources are distributed, and how the community works to collectively solve problems. In what follows, we analyze the process of recovery with this in mind. Intervention 1, which we discuss next, refers to the immediate action taken by the community to rescue survivors, bring them to a place of safety and ensure some level of emotional and social support.

Intervention 1: Dealing with the Immediate Aftermath of the Tsunami

In terms of the scale of the physical, psychological and social destruction (Research Question 1), this was extensive and devastating. The tsunami reached Minami Sanriku about thirty minutes after the earthquake struck. In its wake it left 778 people dead (566 accounted deaths and 212 people still missing). The town also witnessed the destruction of 70% of its physical infrastructure, with large areas of land submerged under water. After two and a half years (at the time of our fieldwork in November 2013), very little reconstruction had taken place and a large proportion of the population still lived in temporary accommodation. In the aftermath of the tsunami,9,746 people were evacuated and spread across 33 different facilities, such as schools and community halls. In May 2011, many of them were moved to temporary housing, consisting of tiny panelized structures, which were freezing in winter and baking hot in summer. Lack of insulation also meant that the level of noise was excessive, making both the physical and general-social environments uncomfortable. The tsunami also destroyed many vital facilities, such as roads, schools, hospitals, the market and shops. These were the physical realities brought about by the tsunami,which can be expressed in terms of the scale of damage. However, the emotional, social and psychological impactsare less easy to assess. Interventions took place predominantly at the local community level, at least in the early stages, and comprised immediate action via: 1) assumed leadership roles; 2) connecting and sharing; 3) collective grieving; and 4)values change.

Assuming a leadership role: Our first story was told by a volunteer fireman, and it reveals, in all its terrible detail, the personal devastation that the tsunami wrought upon this small community and their initial reactions to it:

> " We hurried to the affected areas first thing in the morning. It was horrible. It looked like it had been hit by a bomb. The tsunami warning was still on, we saw lots of people on the roof of the hospital, and we walked through the debris and rubble in order to reach them. There were around 230 people on the roof. I found my uncle in this group. It was a great relief, but I couldn't go to him and hug him and show my feelings as there were so many people around us. We were thinking about how we could evacuate these people from the building safely. We were not a professional rescue team; we did not have the knowledge, nor the special equipment, to rescue people. As a senior team member and highest ranking officer, I had to pretend to be calm. After observing the sea and tide and making sure that the tsunami would not come again,I asked two members to secure the safety of the evacuation route. We started to clear the stairs and corridors inside the building in order to evacuate people. While we were doing this, we found many dead bodies. Around 120 people followed our instructions and left the hospital; the rest of them were either patients and medical staff or those who could not walk. They were waiting for the helicopter to come and rescue them".

His story was replicated by other volunteer firemen. For example, one man spoke of how his priority lay in rescuing community members, even at the expense of personal loss:

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> "My grandmother was in hospital at Shizugawaat the same time as I was trying to get survivors to a sheltered place up the mountain…. I was very worried about her…even afterwards it was hard to get access to the hospital due to the debris. I later heard my grandmother had passed away".

These stories illustrate the importance of leadership, the ability to set aside personal safety and the natural tendency to rescue family, and the willingness to take immediate and decisive action without waiting for formal sanctions and directions. Such delays would inevitably have resulted in greater loss of life. Moreover, as the rescuers themselves noted, they had very little training in disaster management; they had neither the knowledge, equipment or the expertise to deal with a disaster on this scale, yet they reacted immediately and put into practice all the skills and training they did possess. Effective leadership is generally regarded as essential in disaster management (Kelman, 2008). In the cases we recount, and in keeping with a collectivist mentality, the role of leader was assumed without question, and the priority was the safely of the greatest number, even if this meant personal sacrifice.

Connecting and Sharing: Once things had settled down and survivors brought to places of relative safety, the natural reaction was for people to congregate and seek solace in each other's company. One elderly participant told us how important it was to be with others:

> "I come here [a disused village hall] every day at the same time, and it's like having a regular job which keeps me busy. Being with other people gives me a sense of belonging and lifts my mood for the better.I f I was on my own, I would worry too much about myself, my family, and about my house which was lost in the tsunami".

In this regard, connection with other victims and the social support they offered each other acted as a 'buffer' to protect people from the worst emotional after effects of the disaster. As Murphy (1988) points out, in situations of high stress, loss and/or trauma, those with high levels of support tend to suffer fewer mental and physical health-related consequences. For these survivors, sharing their loss and grief was vital in dealing with the initial shock. But sharing extended beyond the purely emotional level - it took many forms, from the sharing of stories of loss, to the sharing of basic provisions such as food and water, to cooking and distributing food to those in need. For example, a local businessman told us how

> "There were more than 1,000 cakes in the fridges at the time of the disaster. The next morning I took them to the rescue center. When I saw people hurrying to help with the recovery work, carrying a piece of cake with them as they had no time to stop and eat, I felt deeply connected to my community".

Belk (2007) suggests the most selfless forms of sharing are to be found either through 'mothering' or within the family unit. Outside of the family, other forms of sharing usually involve some sort of exchange or reciprocal relationship. But, in the case of these survivors, this was done for the general benefit of the community, with only a sense of personal satisfaction and connectedness in return. Sharing can have immediate tangible benefits (such as feeding or clothing the hungry), and when it occurs communally, can serve to connect people with each other and act as a powerful force for bonding and solidarity (Belk, 2009; Geisler, 2006). Sharing, and the propensity to share, is bound up with ideas about property, ownership and self that are usually learnt in childhood and can be culturally specific (Belk, 2007), as in the case of Japan, which is a culture that values sharing. Furthermore, the social connectedness and sharing of food and other basic provisions helped in some way to ameliorate the sense of social isolation, and was partly instrumental in coping with the psychological sense of loss and the natural grief for the death of loved ones.

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Collective Grieving: Those who had lost family and friends talked a great deal about the difficulty of reaching closure, particularly if the bodies) has not been recovered. They also spoke about the importance of community ties in helping them to grieve. One of the rescue volunteers recounted a heartwarming story of loss and a renewed zest for life through the return of a daughter and grandchild following the death of a son:

> "My relative lost his son who was only 27.What made it worse was that his parents were unable to say goodbye to him. They felt terrible, in a state of constant despair, unable to reach closure. They even held a funeral for him, even though his body has not yet been found. After two years it had not got any better or easier. But recently their daughter decided to come home to help them get over their loss. She has a three year old boy, and this child has changed their lives completely. When his grandmother takes a walk, the boy follows her everywhere. She needs a walking stick to walk, but her grandson wants to hold the stick for her, so she has to walk without her stick… The family is still grieving, of course, but they were really saved by that child".

In this case, the return of the daughter and grandchild helped to share the grief and provide a new reason and purpose to go on. However, loss of life through tragedy or disaster, i.e., 'catastrophic loss', can have tremendous damaging psychological effects, including anxiety, withdrawal, social isolation and depression, as well as loss of a sense of self(Dugan, 2007). This is exacerbated by the sudden, unexpected and traumatic conditions of disaster, which preclude healthy grieving, giving rise to reactions such as anger, shock and denial (Armour, 2007).In such situations, support mechanisms become essential, and in this case support came in the form of a family reunited. Research indicates that collective grieving and community support allow survivors to express grief, start to come to terms with their loss and confront their fears (Kliman and Llerena-Quinn, (2002). Hawdon and Ryan (2011) highlight the importance of collective mourning and public memorials in the wake of disaster, in that theyconfirm a sense of continuity of the group and allow the community to regain a sense of control. There is also evidence to suggest that, in Japanese societies and other collectivist cultures, collective mortality (that of the in-group) can have an even greater impact than that of personal mortality (Kashima et al, 2004). As Hawdon and Ryan (2011 p.1377) point out: "Tragedies not only produce grieving individuals, they also produce grieving *communities*".

One of the most traumatic post-disaster necessities is the recovery and disposal of the dead. As Sumathipala et al (2006) argue, the "identification of dead bodies and the missing as well as providing a dignified burial, is a crucial part of the overall management of a disaster. It will alleviate the long-term psychological as well as legal consequences" (p.294). Therefore a socially and culturally sensitive "development of a comprehensive and efficient psychosocial intervention at community level after a disaster should recognize the importance of dead body management as an integral part of it" (p.294). In such situations, burial is more than just disposal; it requires rituals to express social support, channel grief, cope with loss, and vent anger (Nugteren, 2001).

Value change: Undoubtedly, the tsunami had a deep and profound impact on the Japanese psyche. Apart from the reactions discussed here, survey data indicate fundamental changes in the values and life styles of the Japanese people. A report by Takahashi and Masaki (2012) on the Japanese mind set before and after the disaster found significant changes in family values. Following the disaster, people reported placing much greater value on family ties and social relationships. It also found that the expression of affection and benevolence intensified post-tsunami, along with the significance individuals placed on their local community. Another survey initiated by the Cabinet Office on changes in attitudes among the young (Uchida et al, 2013) found that people tended to value social connectedness and ordinary life much more after the disaster. There was also some evidence of a resurgence of traditional values. One community member stressed the importance of such values:

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"Japanese values are important. We now ask ourselves if we have a positive impact on the people around us, we work collaboratively, and do not place too much emphasis on ourselves as individuals".

These findings are supported by research into similar disasters, which indicate that victims may see a way forward through the adoption of strategies such as collectivizing personal trauma, reconstructing meaning, adopting a fatalistic perspective, utilizing extended networks, displaying grief publicly, and drawing upon beliefs, rituals and practices (Rajkapuret al, 2008). What is important to recognize and account for is that the interventions we discuss here do not represent a linear mode of progression from one stage to another - people do not stop sharing, nor do they stop grieving. Whilst each step in the journey is developmental, each carries with it the trace of what went before, although this is channeled and adapted in order to move forward.

Intervention 2: Communities as Resilient, Creative and Transformative Networks

Our second research question focused on the interventions employed by the community to cope with such loss as we have described. O'Hare and White (2013) point to the difference between resilience 'talk' and resilience 'action', and ague for a 'sense making' framework for understanding how resilience emerges in a crisis situation. Ostensibly, when planning for resilience is divorced from meaning or abstracted from the realities of the world of practice, effective interventions are less likely. Moreover, all too often resilience-building strategies draw upon "unchallenged assumptions about the social world, effectively imposing a technical-reductionist framework upon more complex webs of knowledge, values and meaning - and thus action"(Weichseigartner and Kelman, 2015 p.263).However, finding meaning and making sense of a radically changed world and environment is a core component of the grieving process and a step on the road to recovery (Bonnano et al,2002).Nevertheless, finding meaning in the face of such disaster can be a difficult task because the nature of extreme loss does not fit commonly held beliefs about how the world normally operates (Armour, 2007).To answer our question, we not only identified and observed the interventions implemented by the community; we also constructed our own CBOR intervention in collaboration with community members, focused on 'meaning' and, in particular, 'creative sense making'. The objective behind this was to enable victims to reflect on and confront the past; start to make sense of it in the present; and begin to imagine and anticipate a better future. In turn this also addressed our third question which was; what role can we as researchers with multi-disciplinary backgrounds and areas of expertise, play in helping the community come to terms with their loss and begin the process of rebuilding? Our intervention consisted of two cultural animation workshops, which were conducted in November 2013 with community members and leaders from Minami Sanriku.

Resilience through creative sense making:We soon realized that a mere reliance on text (be it spoken or written) would not allow us to engage meaningfully with communities from Minami Sanriku, not only because of the language barrier, but more importantly because of the sensitive nature of the research topic. We decided from the outset to construct a socio-cultural 'intervention' that went 'beyond text' by adopting non-traditional arts-based research tools (Beebeejaun et al, 2013). Our Cultural Animation intervention embraced a co-production research ethos, placing community members center stage, thus treating their experiences of dealing with crisis as transformative, expert knowledge.

One of the workshops was held in a temporary shopping street, while the other was held in a building being used as temporary housing. Over 100 participants engaged in collective tasks that required little formal training.These relied mostly on practical skills and the use of day to day materials in order to make objects, compose haikus and write stories to be hung on the Tree installation. For example, a group of elderly women decided to make dolls because they

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never had dolls when growing up during the early part of the last century (Picture 3). They took precious care in getting all the details right, and gave them names of famous soap stars. In the process, they recounted their childhood (going to the fields with their little siblings wrapped around their bodies, to help their parents with the harvest), their adulthood (when food became more plentiful and more available in Japan) and how they survived the tsunami (stranded on roofs for days, after which they were rescued by the volunteer fire fighters).

Picture 3: Women participants making dolls at the workshops



Other participants made flags, paper flowers, hand-knitted hats or cats' cradles. Many chose to write haikus: one of these haikus (in translation) stated, "I lost everything in the tsunami, but I still have myself"; while another read, 'The tsunami did not take everything, I still have my identity'.

The relationship between material culture and grieving is timeless (Doss, 2002). Through object making and storytelling, participants were able to make sense of the past, the present and the future. It became obvious that,for many, the immediate past was still painful, but most of them were able to accept the present and look to the future with a sense of hope. In this regard, art making and the creation of meaningful objects helped to express internalized or taboo thoughts, and reduced feelings of alienation and despair. In a similar vein, Armour (2007 p.76) describes how:

> "survivors who attend mutual support or advocacy groups find understanding companions that help cushion feelings of abandonment and counter the marginalization that accompanies unnatural or stigmatized death. Survivors feel at home because they have the opportunity to express feelings, including seemingly unacceptable emotions…..These groups build community, normalize survivor's experiences, and foster coping strategies based on realistic expectations".

Resilience through storytelling: Storytelling has a long tradition in Japan, which may explain why our Cultural Animation workshops were so rich and powerful. Storytelling is a familiar form of expression for laypeople, whouse it to share their experiences with the wider community. In our CA interventions, storytelling was participant led (Geertz, 1973; Gabriel, 2000; Feldman et al, 2004) and mediated by object making. Described by Little and Froggett (2010) as an inclusionary intervention, storytelling: "draws out different, often opposing strands that allows their co-existence within the framework of a narrative that can be shared" (p. 470). This makes storytelling ideal for disaster research. Storytellers engage in individual analytical and critical thinking for themselves, and in so doing, they facilitates creative, collective sense-making. Some survivors have in fact become 'professional story tellers',

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sharing their personal accounts of the tsunami with visitors to the area and, in the process, teaching younger generations about the dangers of a new tsunami and how to better prepare.

A new centre was built in Iriyado to welcome visitors and volunteers to the area. We were hosted here for the first two nights of our research trip, and it was here that we learnt about the tsunami from three professional story tellers. Their message was that the people of Minami Sanriku were determined, that their experiences would not be forgotten by the rest of the world, but would serve to inform and inspire others to cope in similar situations. While their stories focused on what was lost, the message was also one of how to 'build back better'. One of the storytellers stressed that a sense of loss could also be productive and transformative:

> "The town used to mainly depend on fishing for a living and we had delicious seafood and a nice environment to live in. We did not realize how great it was until we lost it, but now we have to think about how to survive and build a better life".

Another talked about the importance of the community's voice in planning for the long term:

> "Basically, it is the end of the story if we do not discuss our concerns - if we do not express our *own* opinions, we end up being silent. If you are silent, silence means consent. Therefore we have to articulate our expectations for regional development and have a long-term plan".

Resilience through transformative action: Our experiences point to the fact that this community was determined, not only to recover, but to recover 'better'. As such, the idea of transformation, from the 'old' to a new 'better' future, needed to be integral to the process. It also involved acceptance of a new reality in a changed world along with a changed set of beliefs about how this new world operates (Armour,2007). The importance of training the next generation to become community leaders and champions of growth and reconstruction is expressed below:

> "The next thing will be to train the younger generation to take over the job of reconstruction, because I am now 55 years old…. it will still take another five or ten years to rebuild this town. It was us who came up with all these ideas for reconstruction, but longer term those now in their 20s and 30s will need to take over. In doing so, I think it is very important to convey the story and the facts of the tsunami to the younger generation, so that they can prepare for future disasters".

Armour(2007) stresses the fact that trauma can sometimes be the catalyst for personal and social transformation, which can open up opportunities for growth. She also suggests that:

> "resilience or the ability to prevail in the face of horrific loss may be more common than is often believed and may be reached by a variety of different pathways….the struggle with the new reality in the aftermath of the trauma determines the extent to which posttraumatic growth occurs…..The struggle can increase self-reliance or self efficacy as well as resilience to new trauma…."(p.58) .

However, despite evidence of self-sufficiency, collaboration and community support systems, this should not be taken as a community void of a need forexternal assistance. On the contrary, it is important to understand the social dynamics of the community and to recognize issues of agency and power (Sudmeier-Rieux, 2014) in order to work *with* the community to find the best and most appropriate solutions to recovery. This is an important theme in CBOR (e.g., Johnson, 2012b).

Intervention 3: 'Building Back Better'

Our fourth question concerned the interventions employed by the community in their efforts to reconstruct and rebuild the community. Focusing on theseallowed us to dig deeper into the grassroots actions taken to rebuild

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businesses and the local infrastructure by interviewing twenty survivors. Cooperation and collaboration were the main themes that emerged from our data.

Cooperation: One thing that we quickly realized was that people from Minami Sanriku did not expect immediate help from the government (this public help is called ko-jo -公助) after the disaster. They were well aware that obtaining government support would be a long process due to existing bureaucratic procedures. Therefore, mutual collaboration (referred to as Kyojo -共助) was seen as a more effective way to deal with crisis situations. As such, their response to the crisis was to build from within and not to wait for hand-outs or help from above. Moreover, with the adoption of the 'build back better' philosophy central to all initiatives, the new businesses that were created were specifically based on a cooperative business model rather than one based on market competition (Kiyomyia et al, 2013).

People in the community volunteered to clean the debris, and many residents became community leaders inspiring others to work together towards the goal of 'building back better'. It is important to note that in Japan, if one does voluntary work in one's own community, it is not labeled volunteering. Volunteers are always outsiders, and in the case of Minami Sanriku, the post-disaster voluntary response involved national quasi-government groups, business groups and civil groups, as well as people from outside of the area (Avenell, 2012). Therefore, it is vital to differentiate between 'local action', and 'foreign' groups, defined as any group, whether from the same country or not, who are not part of the local social fabric of the impacted area (Holguin-Veraset al,2012).As one example, many volunteers came to help clean the Nagasuka Beach, which used to have two kilometers of beautiful golden sand, and attracted thousands of visitors each year. Prior to the disaster, the beach had been a significant community space for local celebrations and festivals. The tsunami left the beach shrunken and buried under a huge amount of debris (Picture 4).

Picture 4:Nagasuka Beach after the Tsunami



The Nagasuka Beach Recovery project was inspired by a school trip in 2012 to Onna Beach, Okinawa, involving twenty three local children. Despite enjoying the experience, when the children returned home they said they wished they could have swum in Nagasuka bay. The community responded to these requests and instigated an extensive beach cleaning project. This began on11 March 2013, and was completed in time for the start of the school summer holiday on 20th July 2013 (Lin, Kelemen and Kiyomiya, 2016).As one community leader explained,

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> "We did it to fulfill the dreams of our children because, if such dreams come true, our community becomes more united and resilient in its attempts to rebuild itself".

Collaboration: The beach cleaning project recruited over 3,000 volunteers from many parts of Japan as well as from the USA (Miyagikanko 2011). In addition to building a passionate and committed voluntary work force, the beach cleaning project gave local children and young people a sense of pride and ownership of a local amenity that they valued. It also facilitated the formation of new social bonds and learning exchanges, which strengthened the social fabric of both the community itself as well as links with the outside world. One community leader involved in the beach project talked about why he was inspired to set up a new business:

> "The idea of the fishery and the fishing boat experience came from the volunteers. For me, the seaweed, fishing by boat and so on was something normal in my life and something I took for granted. I had never really thought about it as a business opportunity. The reason that I established the fishery project was to give people the chance to experience the sea and taste its delicious fruits. I wanted to share with them the bounties of our charming sea".

It is interesting to note here that the sea, which was the cause of the disaster, was not treated as a source of fear, apprehension or hatred. On the contrary, it was recognized for its bounties and seen as an opportunity to reestablish a community business. The new businesses set up in the aftermath of the tsunami served two purposes: first they gave the community hope by restoring some of the old routines while simultaneously creating new aspirations. Second, they showed the outside world that bottom up reconstruction can be effective when it is based on a collaborative model rather than a competitive one.

Another example is the 'Iriya Yes Craft Workshop'. This is a social enterprise which was designed as a community space where people could meet and craft objects together. The objects made here are now sold all over Japan as symbols of resilience, hope and fortune (Picture 5). In particular the Octopus-Kun brand is a favorite with students, as a talisman for good luck in exams. It has also become a cult figure. A life size version is sent to visit schools, fire stations and shops as a way of rallying support, and of celebrating the resilience of the local people.

Picture 5: The Octopus-Kun figure and the Iriya Yes Craft workshop



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One of the founders of the business attributes the success of the venture to the human connections that became possible after the tsunami, and the collaborative spirit that now permeates the area:

> "Many people helped us to sell the octopus goods. Some people offered to sell the octopus at their sports festivals. We now have stronger personal relationships compared to those we had before the disaster. I feel like our family has expanded and grown. I truly feel that we can do anything if we are united as one team. Although we cannot regain everything we have lost, if we are to rebuild, we have to do it in such a way that benefits everyone. We lost our property in just ten minutes, but I feel that the relationships we have now are much more valuable".

Usually reconstruction programs are likely to be influenced by interaction from at least three sectors - the economic, the political and the humanitarian – but these often overlook the role of local participation and grassroots contribution to the process of recovery (Lyons, 2009). Intrinsically, Schilderman (2010) argues the case for 'putting people at the centre of reconstruction'. Central to this is the idea that planning for reconstruction needs to adopt a more holistic approach that integrates the rebuilding of the general infrastructure with that of livelihoods and local markets. Such participatory processes have been at the heart of some development activity for a number of years. In particular, community participation in the rebuilding or 'building back better' philosophy is seen as important, in that it stimulates a sense of community empowerment and self-reliance (Schilderman,2010).

However, this is not to say that communities, regardless of how resilient or resourceful they may be, should be left to get on with it. On the contrary, decentralization may be possible within a centralized framework combining central strategic powers and resources with local strengths and capabilities. In order to achieve "personal, communal and political empowerment, improving the resilience of the population, reconstruction needs to be participatory" (Lyons 2010, p.39). Key to this is the notion of community mobilization in the planning process where effected households and businesses take collective action by developing their own plans for recovery (Lyons,2010). Moreover, the development of local committees and their involvement in every stage of the reconstruction process makes community members "better equipped to debate and prioritize aims, deal with authorities and developmental organizations, and demand accountability from representatives and agents" (Lyons, 2009 p.394).

DISCUSSION

Our discussion consists of two parts. The first part considers the findings and their implications. The second part reflects on the methodology and highlights the key issues and potential problems that CBOR researchers may encounter when applying the techniques we have described.

Reflections on the findings

We begin our discussion by reiterating the importance of culture and the recognition of cultural diversity and cultural nuances in reacting to natural disasters. First and foremost, it is important to remember that reconstruction "does not happen in a vacuum. It happens in a context which differs from country to country and even within countries" (Schilderman,2010 p.33).Japan is not a culturally diverse country, but it does have *pockets* of diversity, which in some cases differ greatly. Other countries may be much more fragmented and culturally heterogeneous, and as such may react differently to unexpected disasters. As Silove and Zwi (2005 p.265) argue, "The affected area may involve communities with great cultural, political and religious diversity…in these settings we must remind ourselves of the principles of cultural competence and how they may be adhered to when mounting interventions". The

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emphasis on collectivism in the case of Minami Sanriku was culturally determined, both historically and socially, and it enabled the community to work together through the various stages of recovery.

Second, the idea of resilience needs to be unpacked carefully with regard to how the term is used and how it emerges. This community did not start off from a base of helplessness. It was a community that had faced danger and harsh times before, and had overcome them. For example, the great Chilean earthquake of 1960 triggered a tsunami that crossed the Pacific Ocean and struck the town of Shizugawa (part of Minami Sanriku) with a height of up to 2.8m, causing extensive damage. In addition, being a remote countryside community, Minami Sanriku has always undertaken collaborative community-based activities. Therefore, practices of self-organizing are historically shaped, and mutual help among community members is seen as the norm. As Sudmeier-Rieux (2014) recognizes, many marginalized communities, such as Minami Sanriku, may already be resilient. Often such communities have adapted their life-styles and livelihoods to accommodate to harsh environmental, economic or social conditions, becoming resilient in the process. In the case of disaster, they are normally the first to be affected, and are also often the first to bounce forward (Manyena et al, 2011).Of course,

> "not every community is equal and not all communities are beneficial. The strengths and weaknesses of communities must be taken into account. On the positive side, well-functioning community organizations have the trust of their members and possess the moral authority to urge cooperative behavior and teamwork that government lacks. They also have strong abilities to "assess needs and distribute goods and services efficiently and equitably"(Patterson et al, 2010 p.138).

Moreover, as Helfgott (2018), using the example of the annual floods in Bangladesh points out, some communities may be well equipped to deal with certain types of recurring disaster, but may be more vulnerable to unexpected or unusual disasters such as the outbreak of disease.

Third, it is important to recognize that the process of psychological healing is every bit as important as the rebuilding of the physical community. And this is also a product of culture and community relations. "When planning to enter a disaster zone, mental health professionals must familiarize themselves with the contextual challenges in transporting psychological techniques across cultures"(Silove and Zwi, 2005 p.269). Consulting with communities, forging partnerships and promoting local leadership in these activities are all essential to ensuring that interventions are culturally appropriate. Moreover, while "those individuals directly affected by the tragedy or lack the social networks that help them to manage and cope with grief may need intense counseling, the efforts to provide that counseling should not interfere with the community's offering of parochial-realm activities" (Hawdon and Ryan, 2011 p.1378).In our work with the community, we employed a Cultural Animation approach that was sensitive to the situation and to the needs of the community. Despite the usefulness of this approach, we are aware that personal stories and storytelling are generally still seen as unconventional in many forms of academic writing (Grey and Sinclair, 2006), and particularly in OR, where even problem structuring methods (based around participative modeling) are considered unacceptable in the US mainstream (Ackermann, 2012; Ackermann et al, 2009; Simchi-Levi, 2009; Mingers, 2011; Midgley, Johnson and Chichirau, 2018). However, more orthodox methods of counseling may not have been effective, either emotionally or culturally. Whilst we appreciate that not all countries or regions would have the resources to initiate programs involving experts in the field of arts-based approaches, training could be provided by those involved, for example in art therapy as an alternative and culturally adaptable approach to psychological healing.

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Fourth, in the process of 'building back better', Lyons (2009) suggests that the decentralization of decisions and actions can be more effective than a totally centralized agenda, particularly in situations where the environment is difficult geographically or geologically, and where the operationalization of local knowledge across a number of spheres is vital to the immediate response.

From our observations and field work, we witnessed a community working together, pooling resources and expertise, turning negatives into positives, allocating roles and responsibilities across the community, and taking control of people's futures through extensive involvement in the recovery process, not only in terms of what the town might look like from a purely physical or functional perspective, but how supportive networks and business developments might also assist in the process of psychological healing. In some ways the community has had to become stronger as a result of the disaster, but this strength has brought with it a sense of determination and demands for a greater say in the construction of a better future. This idea of 'building back better' (Alexander, 2006; Lloyd-Jones, 2007; Kennedy et al, 2008; Mannakkara and Wilkinson, 2012; Fan, 2013;), and in particular the Japanese practice of Machi-zukuri (community-based planning), is a model that has been adopted by this community, and to date it is proving successful (Evans, 2002). What we found were actions and interventions that are radically different,and in some ways at odds, with the traditional top-down model that remains dominant in Japan (Smit and Wandel 2006; Sorensen and Funck, 2007; Matanle, 2011). However, and in line with the findings of other research into disaster recovery (see for example, Okada, Fang and Kilgour, 2013; Murakami and Wood, 2014), such community-based decision making is effective in understanding the community's needs and strengthening community resilience. As Weichseigartner and Kelman (2015 p. 263) argue:

> Produced in a specific science-policy setting with particular institutional arrangements, decontextualized top-down knowledge on resilience offers a severely limited guide to operational practice, and may have considerably less purchase in problem solving than pursuing co-designed bottom up knowledge.

Table 1 provides a summary of our findings and suggestions for how they might be implemented in terms of a more collaborative and community-focused approach to community operations management in the face of disaster.

Table 1: A Summary of Community-Based Interventions for Disaster Recovery

STAGE	COMMUNITY BASED INTERVENTIONS
PRE-DISASTER	Integrate cultural context and community features into any planning decisions. Be culturally aware of the socio-historical environment of potentially disaster prone communities. Put in place training for voluntary and official services at the local level for emergency disaster procedures. Ensure all potentially vulnerable areas are supplied with necessary equipment. Provide education programs for volunteers and residents. Put in place safe physical spaces. Promote the value and necessity of sharing.
IMMEDIATELY AFTER A DISASTER	Be aware of cultural traditions concerning the loss of loved ones, property and livelihood. Provide communal grieving spaces and places of

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	communal congregation. Consider the cultural role of emotional, social and psychological counseling and deploy the most appropriate support mechanisms. Use CA, which is a form of intervention that can be developed and employed by local agencies in the aftermath of disaster. Promote a more cooperative model of rebuilding and new business generation.
PLANNING FOR THE FUTURE	Put people at the center of participatory reconstruction and work with communities as risk. Wherever possible and feasible, decentralize decisions and actions. Consider the interactions and mutual strengths of multi-agency networks. Assess the tools and resources needed for mutual cooperation. Establish emergency committees that can work together to put in place interventions if needed, rather than wait to react. Adopt a more holistic approach that integrates the rebuilding of the general infrastructure with that of livelihoods and local markets. Ensure community mobilization in the planning process,and allow affected households and businesses to take collective action by developing their own plans for recovery.

We recognize that our research was conducted within a collectivist community, which is built on strong social ties and relationships. It is also a community that has a certain innate tendency towards resilience. As such, our model would not necessarily work in communities that do not have such a history, or which are highly individualistic. Additionally, while we have stressed the centrality of CA throughout the research process, we do not suggest that it is a methodology that should, or could, be applied to investigate all community-based problems. We conclude this paper by reflecting on some of the key issues and potential problems that researchers considering using CA or other arts-based methodologies may wish to consider.

Reflections on the method

As noted earlier, there are many arts-based techniques, all of which can play an important part in the healing process (Rankin et al 2003). In the case we discuss, the focus was on a particular culture defined by tradition, communal values, and a deep sense of collective responsibility. The context of the research was the aftermath of a disaster that devastated the community in terms of loss of loved ones, livelihoods and homes, and which left members in a state of extreme vulnerability. However, disaster management is only one area in which CA has potential. Communities exist in many forms and face multiple issues, and the methodology has to be adopted and adapted according to the nature of the community and the problems they face. Indeed, the authors have used and adapted CA across a number of different situations, to examine a variety of issues, with a diverse range of groups and individuals. These groups and contexts include health in the community (Lam et al 2017), volunteering groups (Kelemen et al 2017), people living in food poverty, social inequalities and excluded and disadvantaged youths (Burgess et al 2017). In each case a different approach was used after careful consideration of the group, their culture, their definition of art

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and their ability to create various art forms. As such there is no one arts-based technique that works in every situation, the form and nature of the art has to be adjusted according to the needs and understanding of any particular community. For example, Baker (2006) used art therapy to work with displaced Bosnian war survivors, and had to consider gender roles and traditions when determining the type of art to create. Ultimately, young women were placed in one group and given needlework tasks to work on; the elderly 'grandmothers' group was asked to collectively work on quilts, which became 'history quilts'; while the 'men's' group were asked to express their lives, their homeland and favorite pastimes through drawing and painting. Apparently needlework is highly valued as a 'feminine' skill in Bosnia, and it is a skill that has significance, meaning and status for women. Men, on the other hand, were encouraged to engage in practices that reflected their masculinity. In this way, art became a vehicle for communicating the 'unspeakable' and a means of embarking on a process of healing and personal transformation. Similarly, Yohani (2008) describes working with child refugees and getting them to develop an 'ecology of hope' through the use of collages, scrapbooks and the creation of a 'hope quilt'. Conversely, rather than the art form itself, Herman (2005) stresses the importance of safe 'liminal' space for survivors to express themselves – somewhere between history and imagination. A liminal space is one that is at a safe enough distance from the action. As is evident from these accounts, just as there is no single or universal art form, neither is there a prescribed formula for defining the composition of a group. The parameters of the group need to be determined by a number of factors, including the degree of trauma, the intensity of the experience of the crisis, cultural values and traditions, age, gender roles and an understanding of various forms of artistic expression.

More commonly however, arts based techniques challenge researchers and audiences to engage differently with the data. Rather than codes, arts-based methodologies use images and metaphors, which require a different way of knowing and realizing the value of a project. But the issue of value also raises questions regarding the direction, control and desired outcomes of the project. Frequently, as with many types of social or policy driven enquiry, the design and execution of arts-based research may be constrained by issues of resources and funding. It may also be dictated by organizations or indeed political agendas (see for example, Clements 2007). We also need to be aware, through self-reflexivity and constant monitoring, of how our values and perceptions influence what is documented. The values of the group may be identified through the use of creative art making, whereby participants are encouraged to explore the key areas of importance for them personally and collectively. One thing that does need to be made clear from the outset, however, is the role of all involved and the various values that each holds.

It is also important to note, when considering using an arts-based methodology, that an understanding of culture is essential in order to select an art-making technique that makes sense and has meaning to all. Through the use of particular aesthetic devices, it is important to recognize the social, political and historical context of images, symbols and narratives, and to ensure that offence or distress is avoided (Springgay 2002). In our case, for example, the British team was concerned about how CA exercises would be received by the Japanese people. Would they be willing to write poems, enact human tableaux, create artifacts and share their feelings with us, given the cultural sensitivities involved? The night before the first workshop, the theatre director invited the translators and the Japanese academics to her shared hostel room, opened the CA suitcase which consisted of various theatre props (including the tree of life installation) and asked them to choose a few objects and create an installation and a narrative. Seeing the joy on their faces and obvious enthusiasm for the exercise, the team felt more confident and assured about running the CA workshops the following day. Importantly, we did not want to be perceived as 'research vampires', only there to

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suck up interesting narratives to be published in academic journals. It was vital for all involved to be able to see and understand the purpose of the research and the value of it to the community. But this can never be taken for granted during any phase of the research, and reflexivity should be a built in requisite throughout (Romm 2002). As such, it was important for us to recognize and account for 'positionality', or the various positions that we, and those in the community, occupied in the field; the different power relationships that existed; and to be aware of how these shifted and influenced which narratives were produced (Taket and White 1998; Romm and Hsu 2002; Banu 2012).

Culturally animating a community involves acknowledging existing power and knowledge hierarchies and taking steps to minimize them via experiential exercises that build up trusting relationships between participants by inviting them to work together in activities that draw on their life experiences. According to Finley (2014), arts-based methodologies dissolve existing hierarchies by opening up spaces for subjugated and marginalized voices to be heard. Consequently, careful consideration has to be given to the ongoing process of interaction and meaning making between the various parties to ensure these voices are understood and heard.

In the kind of research that we describe, boundaries will always be there: they are inescapable at numerous levels - between the researcher and researched, between differing academic traditions and positions, between academics and practitioners, and between people of different cultures and languages. Boundaries also exist between survivors - between those who have lost everything and those whose lives remain relatively intact, and between those who can see a future and those who can only look back. We do not intend to imply that these magically disappeared through our intervention. On the contrary, it was important to recognize them, account for them and work at breaking them down as far as possible. This was a process of creating collaborative experiences, intimacy, honesty and recognition of power differentials (Spaniol 2005). In our case, the research had to become a learning process for all involved, but it was one of frequent negotiation, debate, discussions about our various theoretical stances, and collective reflection ways forward could be agreed.

In addition, there were our own internal boundaries of selfhood, our place in the research context and our reaction to it (and also see Midgley et al, 2007, for a consideration of the boundaries of researcher identity and their impacts on CBOR projects). Springgay (2002) suggests that there are questions that the researcher needs to constantly consider such as, how does the 'story' affect me emotionally and intellectually? And how accountable am I to standards of knowing, and for telling the stories of those people who have survived such a devastating tragedy? In this sense, ethical considerations were never far from the surface, and remained so throughout. The important thing was to be aware of the boundaries and the impact that they had on the various relationships and on the research itself, and to carefully document when boundaries started to crumble. For example, when participants began to use the objects they had made as positive metaphors for the future. Such artifacts acted as ‘boundary objects’ (Carlile, 2002; Star, 2010; Carlsen et, 2014) due to their capacity to bring people together in a genuine dialogical encounter (Beech et al, 2010; Franco, 2013). Once boundaries were transgressed, it aided the healing process and we gradually witnessed the transformation of 'victims' to 'survivors', whereby hope became a possibility. Even space and place acted as both an emotional as well as a physical boundary to be broken down - from decimated space/home/work, to place as recovery, revival and new beginnings. Ultimately, making objects allowed people to express their emotions and ideas without necessarily making recourse to language. This was particularly important in our context due to the language and cultural differences between the academics and community members.

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In cross cultural research, language and language differences and limitations inevitably influence how we think about people and how they think about us. Language can erect invisible boundaries, but it can also help dissolve them. In this case, the art-making process became a language in itself, and a means for all involved to communicate and make sense of the world. Using CA requires the researcher to use expressive rhetorical devices that evoke alternative possible realities and suggest rather than state meaning (Springgay 2002). In this sense, art has the power to create culture and also to change culture. It can erect boundaries and exclude people, or it can be used to heal, emancipate or envisage possibilities. It therefore carries with it responsibility, and as researchers we too bear responsibility and a duty to use it carefully and constructively as an instrument of research, regardless of the purpose.

Finally, it is important to point out that, while we are keen advocates of arts-based approaches to community problems, we also recognize that it is not a methodology that is applicable to all social situations, nor that it can be applied without knowledge and experience of art-making in its various guises. In our case, the research team comprised 9 individuals: 7 from the UK (four were community partners with a proven track record in working with communities in the UK and abroad) and 2 academics from Japan. The latter enrolled support from 4 Japanese PhD students, who helped with the translation of the CA exercises. One official translator was also employed for the research. The academics came from diverse disciplines: community studies, design, architecture, theatre, organization studies, communication studies and management. The British academics had been involved in community based research for a number of years, but this was their first exposure to Japanese culture. The Japanese academics had excellent relationships in place due to their previous research in the area and student field trips organized after the disaster. As such, they had access to key players and were trusted by the local community. In this sense, we had a number of advantages that are not necessarily inherent in other arts-based projects. We would, however, suggest that large scale, cross cultural arts-based research is best done from a multidisciplinary and multi-expertise base, which is not always possible or even feasible. By their nature, arts-based projects can be resource intensive and are often longitudinal, given the difficulty in demonstrating social impact in the short term. As such, arts-based research can be both time consuming and expensive.

Given the complexities, sensitivities and logistics involved in much arts-based research and intervention, it is not surprising that it has its critics. O'Donoghue (2014) warns that some researchers may expect art to do more than it is capable of doing in research terms, while neglecting its primary functions. Eaves (2014) further warns of possible risks to both researchers and participants in terms of the consequences of self-disclosure and blurred identities, and also the possibility of burnout brought about by investing too much sentiment and emotional labor in the research process. Authors such as Bagnoli (2009) talk about the discomfort these methods can trigger for individuals who are shy or impaired in some way. Moreover, balancing the need to have a collective voice in the form of shared themes with the power of individual images may run the risk of the form overpowering the collective voice. But this in itself raises issues around communication and presenting a convincing and credible account of a social, cultural, communal or individual sense of the 'real' (Springgay 2002).

CONCLUSION

Traditionally the social sciences have tended to focus on the 'messier' human issues (Velez-Castiblanco 2015) associated with societal, collective or individual experience, with a view to building theory. CBOR on the other hand leans towards a more pragmatic, interventionist approach, through methodology and practice. However, and as we

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have tried to demonstrate, the integration of the two can be complementary and lead to a more praxis grounded understanding of what are often very complex human issues and emotions, combined with practical steps for addressing some of the problems faced. Of course there will always be extreme views held by those who want to defend the boundaries of their discipline; for those in the social sciences who see theory as an end in itself, and for those in CBOR and OR, who have little time for theory and focus on immediate practical solutions. However, theory for theory's sake has little, or no relevance to the lives of those suffering in traumatic conditions. Conversely, a lack of theoretical grounding may run the risk of rendering invisible the culture, traditions and rituals that can be central to the recovery process. But as many of the papers in this special issue demonstrate, there is a middle ground, or at least the potential to cross disciplinary boundaries. In effect these boundaries can be fluid and porous and in certain cases lead to a richer, more holistic approach to both CBOR problems and issues of concern in the broader social sciences. We have focused on one such approach that aims to build a bridge between the two. We do not suggest that it is perfect, but we do argue that, used properly and incrementally, arts-based methodologies could usefully become instrumental in the processes of boundary critique and methodological pluralism.

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