

Communication research needs for building societal disaster resilience

Dr Judy Burnside-Lawry and Dr Yoko Akama (RMIT University) and Dr Peter Rogers (Macquarie University) report on a symposium to identify practical, theoretical and conceptual communication issues for building resilience to disasters.®

ABSTRACT

Disaster resilience emphasises capacity building and generative coping mechanisms that involve communities in strategic planning. Participation of various stakeholders increases public confidence by sharing responsibility and reduces the reliance on government agencies alone. Recognising there may be no single definition of 'good community participation process', RMIT University's School of Media and Communication invited a multidisciplinary group of scholars from the United Kingdom, New Zealand and across Australia to a one-day symposium to identify practical, theoretical and conceptual communication issues and challenges associated with increasing the engagement of communities in building resilience to disasters. This paper presents outcomes from the workshop.

Introduction

For Australia and its Asia-Pacific neighbours, the past decade will be remembered as a period of large-scale disasters with devastating impacts on economies, the environment and above all, the communities across our region. These have included the Indian Ocean Tsunami in 2004, cyclones and typhoons in Myanmar, Bangladesh, The Philippines and Vietnam, floods in Pakistan, China, Thailand, raging fires in various parts of Australia, and earthquakes in New Zealand, Pakistan and China. In 2011 the region experienced the Great East Japan Earthquake, tsunami and the ensuing nuclear disaster. In 2011 alone, these disasters caused regional economic loss of \$294 billion—representing 80 per cent of global losses that year (UNISDR 2012a p. 3). The United Nations Office for Disaster Risk Reduction (UNISDR) predicts that economic losses from disasters will continue to increase. It notes that, since 1981, economic deficit from disasters is growing faster than GDP per capita in the

OECD countries, meaning that 'the risk of losing wealth in weather-related disasters is now exceeding the rate at which the wealth itself is being created' (UNISDR 2012a p. 3).

The UN General Assembly adopted the *International Strategy for Disaster Reduction* in December 1999, reflecting a major shift from the traditional emphasis on disaster response to disaster reduction, promoting a culture of prevention. The Strategy's focus is risk prevention to enable all communities to become resilient to the effects of natural, technological and environmental hazards by reducing the compound risks of social and economic vulnerabilities (UNISDR 2012b).

There is increasing recognition that emergency and disaster preparedness will not be effective without the engagement of 'vulnerable' communities. UNISDR (2009) define vulnerability as '[t]he characteristics and circumstances of a community, system or asset that makes it susceptible to the damaging effects of a hazard'. Given the scale and severity of recent disasters, this means most communities can be regarded as 'vulnerable'. Building a community's capacity through active involvement can create confidence and pave the way for collective and continuous development in strengthening resilience. While this may require a greater focus on communication (in both the quality of public information and the quality of conversations with communities) it is not the purpose in this article to offer up a conclusive definition of communication itself. Rather, the concern is to reflect on the definitions of resilience and vulnerability in the light of ongoing communication research. This discussion may help build capacities for experts and lay-people through a more structured understanding of what communication researchers bring to the table.

Resilience is defined in a number of ways. Most common definitions of resilience include the ability to cope in the face of adversity (Gilchrist 2009, McAslan 2011). Variations include economic, infrastructure, socio-ecological, psychological, individual, community, disaster and more (Rogers 2012). The term is also often coupled with adaptive capacity, the presence of a local, strong kinship network and its ability to adapt over time to buffer stress to psychological and potentially threatening

environment (Smit & Wandel 2006). Of particular interest to those working in the area of communication are the implications of strengths and abilities to overcome vulnerabilities inherent in the community, who are framed as being capable of positive adaptation to change (Australian Social Inclusion Board 2009). Drawing out this capability becomes a key challenge for engaging communities and communicating with them, both in terms of providing information but also actively listening to their needs. The resilience of communities may be dependent on social interaction and collective action, itself tied to the complex networks of relationships, reciprocity, trust, social norms (McAslan 2011) and linked to the capacity of individuals, households and groups to adapt after a disturbance (Norris 2008).

As such, strengthening community resilience with an emphasis on the principle of shared responsibility between governments, business, communities and individuals sits at the core of current Australian national policy detailed in the *National Strategy for Disaster Resilience* (NSDR) (AGD 2012). Since its release in February 2011, the NSDR provides a high-level framework to help practitioners think about resilience differently and move towards implementation of this strategy across federal, state and local levels. A key challenge for practitioners working in the field of disaster management is rethinking and rearticulating their established practices, moving away from the traditional top-down, chain-of-command styles of communication and planning. Significant cultural and organisational shifts need to take place in order to implement participatory strategic planning and dialogic communication between all stakeholders—federal, state and local governments, emergency management practitioners, civic organisations, residents, technical

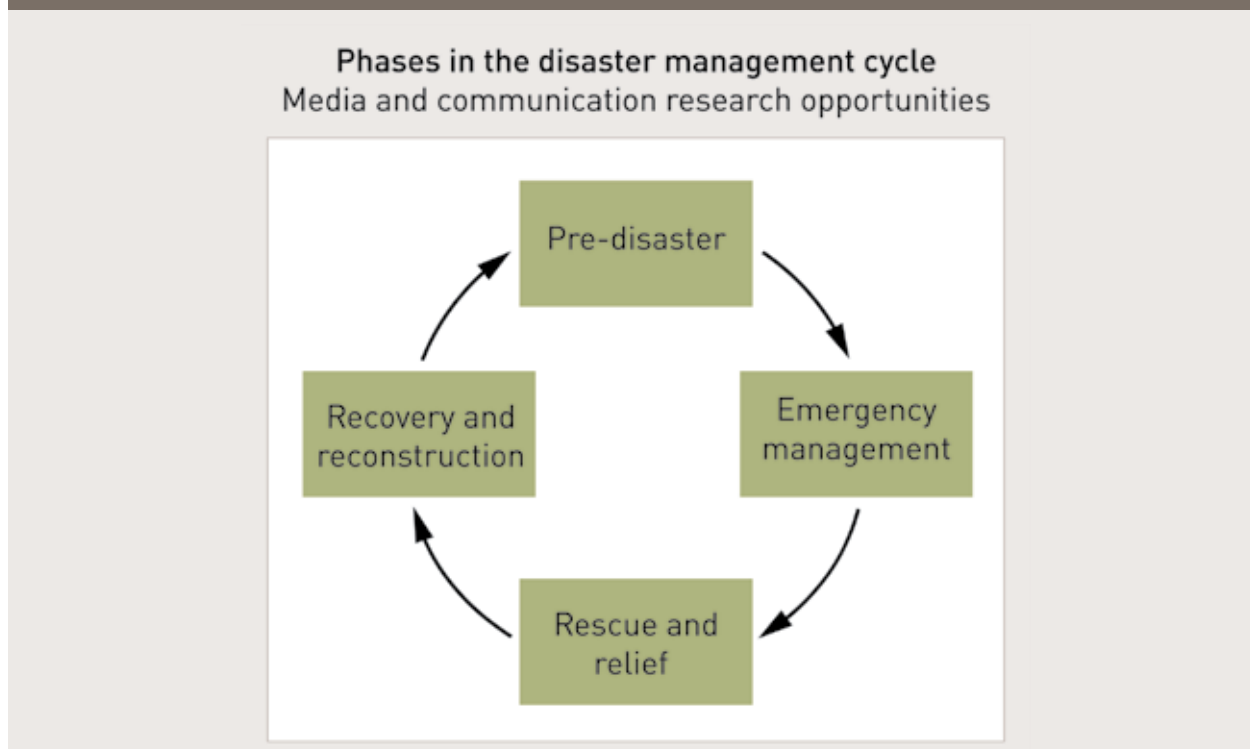
experts, business and community leaders. Rather than identifying effective methods of *disseminating information* to the community, the challenge is to design effective methods of *engaging with and listening to* the community.

Opportunities for communication research

Despite the rhetoric of community engagement, a coherent communication framework is noticeably absent. If engaging community capabilities and embedded knowledge and skills of local people is to be meaningful, then there *must* be a move beyond metrics and measurements. While the intra-organisational communication strategies for disaster resiliency are still being developed, these are often in-house steering documents focussed on communicating policy among experts, or informing the public. The challenge is how to engage while enabling and listening to the public, and how practitioners identify the skills and knowledge that is important, desirable and useful in the community. The expectations and needs of both groups must be taken into account but the complexity of challenges, both for capturing and capitalising the best way forward, remains traditional and poorly articulated throughout the different phases of a disaster management cycle (see Figure 1).

Some critical questions emerge as opportunities for communication researchers. Where in the cycle of disaster management does the community reside? At what stage should the community be engaged and involved as participants rather than recipients of service provision? How can they be empowered and

Figure 1. Disaster Management Cycle from the RMIT Symposium.



their voices enhanced in developing the participatory potential of meaningful resilience? This is even more vital when an overemphasis on expert-driven services may replicate existing top-down (and potentially) exclusionary delivery methods and thus fail to meet the needs or engage the potential of communities to contribute and take ownership of 'everyday' resilience (Rogers 2013).

There are a number of opportunities for communication research to be woven into the disaster management cycle. This can occur at various stages in the cycle:

Pre-disaster—through proactive community engagement for the identification of risk and vulnerability [see Akama et al. 2012] or the provision of better insurance assessment applications (e.g. Know Risk)¹. UNISDR's emphasis on disaster reduction and preparedness means that effective engagement at this stage can be the most critical in reducing negative impacts for disaster events.

In emergency management—throughout the established techniques for the assessment, preparation and planning activities and the potential for re-skilling community liaison officers and community development organisations in disaster management. This also includes ways that communication could scaffold more effective collaboration between various agencies and the community, or how social media like Twitter can aggregate and disseminate real-time information during disasters (see Burns & Burgess 2012, Cheong & Cheong 2011, Elmer & Dugan 2011).

In the post-event stages of rescue and relief operations—ranging from the potential of social networking platforms to provide real-time information and the dangers of managing misinformation from unverified or insecure sources to the potential of emergency information platforms (e.g. 'DisasterWatch') to provide more reliable up-to-the-minute information (Larkin 2009).

In recovery and reconstruction—where lessons learned can provide examples for the resilience of communities and show how they can flourish and creatively solve many problems. Such lessons could also critically reflect upon challenges, obstacles and mistakes that stymie local agency for individuals, groups and organisations. Removing these roadblocks can be possible, demonstrated by the Student Volunteer Army after the Christchurch earthquakes in New Zealand in 2010–11 and the 'Go List' in Victoria following the 2009 Black Saturday bushfires.

2012 Symposium

With the aim of exploring these opportunities, an international gathering of Australian, UK and New

Zealand researchers from RMIT University, Macquarie University, the University of Salford and University of Canterbury, came together in late 2012. The symposium generated lively discussion, helping to shape the research agenda and focus the media, communication and social science contributions in ongoing research that not only enhanced community engagement and communication but also informed a grounded and practical framework for community resilience. Hosted by RMIT's School of Media and Communication, 15 scholars from design, communication and anthropology disciplines with experience in national and/or international disaster resilience or management projects shared their expertise with Professors Dilanthi Amaratunga and Richard Haigh, from the Centre for Disaster Resilience, University of Salford.² The resulting debates showed how focussing a collective research agenda on a number of topical themes can generate a co-ordinated drive to secure funding for research. This helps to frame, enhance and develop community-driven projects, particularly in the areas of engagement, participation and communication for increased resilience. The focus of the research agenda is on the following six themes.

Theme 1—Interface and partnerships

Cyclical patterns of disasters creates particular communication challenges for diverse stakeholders attempting to create effective partnerships and shared responsibility. There is a need for different stakeholders to be involved to different degrees at each stage of the disaster management cycle (Figure 1). For example inter-agency communication in the pre-disaster stage can often be limited as there is no expectation for agencies to lead specific activities. However, in the response stage emergency services or civil protection services³ take the lead role in communication and inter-agency co-ordination. In recovery, civil services and local government are more likely to take the initiative. It is critical for us to understand how and where the lead responsibility changes. Communication flow must be fluid to aid in transition and engagement, with various stakeholders understanding their role in the critical interfaces. There is a need for research focussed on exploring the interfaces and partnerships between stakeholders involved in the various stages of the disaster management cycle, and during transition between stages. Case study examples of communication methods to stabilise these interfaces will provide valuable learning for policy makers, agencies and practitioners. Grounded research is

1 'Know Risk' here refers to a tool for mobile communications devices developed by the insurance industry to assist the private individuals in the self-assessment of risks and documentation and registration of possessions in their homes. It should not be confused with the UNISDR (2005) 'Know Risk' document.

2 The professors are Co-chairs of the EU-funded Academic Network for Disaster Resilience to Optimise Educational Development (ANDROID).

3 Civil protection services refers to the broader range of agencies involved in mitigation and response activities. This term is used broadly internationally; in the UK it is used to refer to 'Blue-Light' (e.g. fire, police, ambulance) (Rogers 2010) and can include local and regional civil government—in no small part this is due to the expansion and integration of capabilities in the resilience policy agenda (see for example Coaffee et al. 2009).

needed to identify where flows and blockages in communication could or have happened as well as where and why communication may have broken down and, more importantly, how to learn from this and avoid these failures in future.

Theme 2—Communication strategies to build community resilience

Participatory communication, stakeholder and community engagement are familiar concepts to communication scholars and practitioners and are increasingly recognised for emergency response and reconstruction, though there is a need for a greater cross-over of experience and skills in this emergent area of expertise. Key communication strategies need to be considered that assist constructive collective action, democratic participation and participatory communication among all stakeholders involved in disaster risk reduction. In order to build this area of research, there is a need to investigate a variety of community engagement methods, including design and social media, taking into account the variations in hazard experience, community make-up and social capital.

Examples of effective communication strategies have been piloted already, often in regard to bushfire preparedness, using participatory design-led research methods to facilitate co-creation and communication of local knowledge on risks and resources of their specific locality (Akama 2010, 2012). Through these processes residents share their perspectives and understandings of neighbours, neighbourhood environment and potential hazards, and question assumptions and generalisations. The process of visualising tacit or informal knowledge can make it tangible, concrete, valuable and significant for mitigation and planning. These design methods show the importance of social interactions and demonstrate potential of bridging relationships between neighbours that can lead to better preparation for all hazards. Key research questions to guide this research are; how can participatory methods of engagement be built



Consultation between emergency services personnel and community representatives on disaster risk reduction.

into the practice of communication beyond the well-established risk communication practices? How can all players manage the expectations of stakeholders before, during and after a disaster? How does the knowledge embedded in diverse communities play into being more prepared, being better able to act? How does it help all players learn to be more informed with higher confidence and ownership of the process for individuals, households and communities? How can we better communicate to tease this knowledge out in participatory communication? Outcomes from empirical research answering these questions could inform further studies to explore whether communication strategies used in small, rural communities can be used in larger, urban centres to build community resilience.

Theme 3—Theories of communication and the disaster management cycle

During the Symposium participants referred to the disaster management cycle as a framework to identify where communication theory can contribute to building resilience (Figure 1). As communication scholars, we have theoretical frameworks and models that guide our research which can be applied to the disaster management cycle. For example, theories on crisis and risk communication (Merkelsen 2011, Roeser 2012), change communication (Zoller 2005), Grunig's model of public relations (Grunig & Grunig 2002), relationship management (Cheney & Dionisopoulos 1989), participatory communication models (Burnside-Lawry 2011, 2012, Burnside-Lawry, Lee & Rui in press, Burnside-Lawry & Carvalho in press; Jacobson & Storey 2004), and Habermas's theory of communicative action (Habermas 2001). However, these frameworks may not be familiar to scholars and practitioners working in disaster management. These theories have to be re-contextualised to the complexity of disasters in ways that highlight the potential for more engaged and empowered communication. They can also highlight the importance and value of listening and provide better tools for training. Theory can inform practice, and an applied series of workshops, discussions and skill-based learning can draw out the value of communication theory in the field of disaster resilience. This can also help expand the growing interest in ethical considerations surrounding the role and behaviour of media organisations, which operate in a 24-hour media news cycle, and balance the hunger for live information with the responsibility to provide accurate information (especially during and after disaster events). Such considerations have been highlighted (Muller & Gawenda 2010) and draw theoretical and ethical research together with the real-life experiences and needs of the communities affected by traumatic events. Tensions between free access to information, security of affected locations, and the privacy of traumatised communities can all become issues for communication in theory and in practice.

Theme 4—Gendered work and community leadership

Gender tends to be a peripheral theme in disaster literature (Tyler *et al.* 2012) even though Fothergill (1998) states that women and men perform distinct preparedness activities. Tyler and colleagues (2012) explain that women are more likely to receive risk communication from their social networks. Women, in particular, can be a critical link between the family unit and those beyond. Women's participation in voluntary organisations such as the Rural Women's Network or Country Women's Association are historically known to support members of rural communities and enhance community interaction. Fothergill (1998) explains that women become active in such groups through female friendship networks, and they see such memberships as an 'extension to their traditional domestic roles and responsibilities' because disasters pose a threat to their home and family. Research by Akama and colleagues (2013) in Australia examines the role of social networks in bushfire preparedness, using participatory visualisation methods as a way to analyse how knowledge related to bushfire might flow, either in preparation for, or during a fire. They examine social relations and characteristics, including gender and leadership within the networks to contextualise this knowledge flow. Gender will continue to emerge as an important aspect of disaster research and it requires further examination. This is never more important than when mapping how informal networks operate in the pre-disaster phase, for identifying the emergent roles different people play, and understanding better what they can enable and what diverse groups and services (like Meals on Wheels) can bring to the table.

Theme 5—What is the relationship between communication and resilience?

Evidence shows that in the hazards field, provision of information is not directly related to the adoption of hazards adjustment (Brenkert-Smith 2010). Despite the effectiveness of distributing information to the broader public, this method alone is not enough to increase people's preparedness for fire (Robinson 2003). Irrespective of clear, accessible information displayed on websites, or dissemination of printed materials, these have not led residents to be more proactive towards preparation or to building their resilience (Akama *et al.* 2012). During the Symposium participants explored possible reasons for gaps between awareness and behaviour change, concluding that more research is needed to examine the way communication is framed at different stages in the disaster management cycle. For example, the communication-as-transmission process is often seen as a way to achieve immediate, unimpeded transmission of messages and a form of control of distance and people. This view of the audience as passive agents reinforces the power-dynamics that currently exist between authorities and local communities (Carey 1998). Participants agreed on the need for more empirical data that examines

the way communication is framed for different community sectors and demographic groups. Among the key research issues for this theme to address is how communication capacity may both create vulnerability and reduce vulnerability before, during and after a disaster event in different ways. There is also a need for an improved understanding of how different 'communities' are composed—especially the content and form of 'communication capacity' in different locations. This last feature of future research is particularly important in balancing the hunger for technical information and measurements with community needs. Such information must be rendered both legible and relevant to the public if it is to be useful.



Community-based dialogue: Aboriginal elders and volunteers in Cherbourg, Queensland, share their knowledge by mapping local risks and resources and build preparedness for floods.

Theme 6—How do we measure community resilience?

Often, governments and funding bodies expect a quantifiable 'Return on Investment' as ways to evaluate and measure research outcomes. If community is the central fulcrum that can tackle social ills and build greater resilience against calamities, how do we evaluate the quality of community resilience and could it be measured? These are questions prompted by the UK's 'Big Society' agenda. A report by the Royal Society of the Arts aims to provide such measurements by adopting a scientific approach (Rowson, Broome & Jones 2010). Their 'connected communities' project measured social capital by the network size and shape to make the 'Big Society' more tangible. Social network analysis and measurements are also being conducted by researchers in Australia, to understand how communities recover from disasters such as the 2009 Black Saturday bushfires (Gallagher 2012) and examining effective network structures for organisations responding to the 2011 Queensland floods (Robins 2012). In contrast, examples of qualitative research methods to evaluate the quality of community resilience within a city, town or region were presented by other symposium participants.

A number of researchers promote the concept of 'capital' in their assessment of the positive adaptive potential of community resilience to the disruption caused by diverse hazards. The attraction of using a 'capital' approach is the ability to apply measurements to various factors such as *social* capital (trust, norms and networks), economic capital (income, savings and investment) and *human* capital (education, health, skills, knowledge and information) as indicators for community resilience (McAslan 2011). Other researchers take a qualitative, grounded theory approach in defining resilience that is contextually specific to communities. Interviews with bushfire survivors in northeast Victoria by Stelling's (2011) research team examine what the interviewee's sense of 'community' means, how it is demonstrated and how that led to their survival and recovery. The analysis evidences support by neighbours, friends, family, services or those beyond the community, echoing findings from other studies (see Rowson 2010, Akama & Chaplin 2013). Stelling (2011) also points out the importance of media and communication to provide education, infrastructure, risk awareness, warning and greater preparedness strategies, supporting the need for further research.

Conclusion

It is acknowledged that this is a rapidly changing environment. Communication with the community members and listening to them is a growing feature of policy and practice. This paper provides a brief summary of some potential future research themes and salient questions that would contribute to the development of policies and processes associated with community engagement, public participation and empowerment within the context of disaster management. The study of communication research needs for building societal disaster resilience is a multidisciplinary endeavour. As such, a significant outcome of RMIT University's Symposium is the commitment by international scholars to collaborate as a research group, in order to advance practical, theoretical and conceptual communication solutions for increasing the engagement of communities in building societal resilience to disasters. We invite scholars, policy-makers and practitioners to join us in this endeavour, contributing the knowledge and expertise. The aim and outcome is to optimise effective partnerships between local communities, cities and nations for sustainable growth of resilience for all parties, now and into the future.

References

- Akama, Y, Chaplin, S, Philips, R & Toh, K 2012, *Design-led strategies for bushfire preparedness. Paper presented at the Earth: Fire and Rain—Australian & New Zealand Disaster and Emergency Management Conference, 16–18 April 2012, Brisbane, Australia.*
- Akama, Y & Chaplin, S 2013, *Understanding social networks for bushfire preparation [electronic version]. Firenote, Feb 2013. At: www.bushfirecrc.com/news/news-item/understanding-social-networks-bushfire-preparation.*
- Akama, Y & Ivanka, T 2010, *What community? Facilitating awareness of 'community' through Playful Triggers. Paper presented at the Eleventh Conference on Participatory Design 2010, Sydney, Australia. In Proceedings of PDC'10.*
- Attorney-General's Department 2012, *The National Strategy for Disaster Resilience. At: www.coag.gov.au/node/81 [6 December 2012].*
- Australian Social Inclusion Board 2009, *Building inclusive and resilient communities. Information Brochure, June 200, Australian Government. At: www.socialinclusion.gov.au/resources/publications?order=title&sort=asc [26 July 2012].*
- Brenkert-Smith, H 2010, *Building bridges to fight fire: the role of informal social interactions in six Colorado wildland-urban interface communities. International Journal of Wildland Fire, (19), pp. 689–697.*
- Bruns, A & Burgess, Jean E 2012, *Local and global responses to disaster: #eqnz and the Christchurch earthquake. Paper presented at the Australian & New Zealand Disaster and Emergency Management Conference. 16–18 April 2012, Brisbane, Australia.*
- Burnside-Lawry, J 2011, *The dark side of stakeholder communication: stakeholder perceptions of ineffective organisational listening, Australian Journal of Communication, 38, (1), pp. 147–173.*
- Burnside-Lawry, J 2012, *Listening and participatory communication: a model to assess organisation listening competency, International Journal of Listening, 26, (2), pp. 102–121.*
- Burnside-Lawry, J, Lee, C & Rui, S (in press), *Habermas and the Garants: Narrowing the Gap Between Policy and Practice in French Organisation–citizen engagement, Communication, Politics & Culture.*
- Burnside-Lawry, J & Carvalho, L (in press), *From awareness to implementation: A stakeholder approach to building community resilience', International Journal of Disaster Resilience in the Built Environment, Dec 2013.*
- Carey, J 1998, *Communication as culture: essays on media and society. London: Routledge.*
- Cheney, G & Dionisopoulos, GN 1989, (Eds.), *Public Relations? No, Relations with Publics: A Rhetorical-Organizational Approach to Contemporary Corporate Communications. Hillsdale, NJ: Lawrence Erlbaum.*
- Cheong, F & Cheong, C 2011, *Social Media Data Mining: A Social Network Analysis Of Tweets During The 2010–2011 Australian Floods, PACIS 2011 Proceedings. At: www.pacis-net.org/file/2011/PACIS2011-036.pdf [18 December 2011].*
- Coaffee, J, Murakami-Wood, DFJ, & Rogers, P 2009, *The Everyday Resilience of the City, Palgrave Macmillan.*
- Elmer, S & Dugan, S 2011, *Leveraging social media for disaster preparedness. A webinar organised by the US Center for Disease Control and Prevention. At: www.bt.cdc.gov/cerc/pdf/083111_Transcription.pdf [31 August 2012].*
- Fothergill, A 1998, *The Neglect of Gender in Disaster Work: An Overview of the Literature. In E. Enarson & H. Morrow (Eds.), The Gendered Terrain of Disaster: Through women's eyes (pp. 11–25). Santa Barbara: Praeger.*
- Gallagher, C 2012, *Beyond bushfire project: community networks and recovery post-disaster, presentation at Communities and resilience: A focus on social networks for disaster preparedness, RMIT University, 18th October 2012.*

- Gilchrist, A 2009, *The well-connected community: A networking approach to community development*. Bristol, Portland: Policy Press.
- Grunig, JE & Grunig, LA 2002, *Implications of the IABC Excellence Study for Public Relations education*. *Journal of Communication Management*, 7(1), pp. 34–42.
- Habermas, J 2001, *On the Pragmatics of Social Interaction: Preliminary Studies in the Theory of Communicative Action*. Translation by Barbara Fultner, Oxford, UK: Blackwell Publishers, pp. xiv–124.
- Jacobson, TL & Storey, JD 2004, *Development Communication and Participation: Applying Habermas to a Case Study of Population Programs in Nepal*. *Communication Theory*, 14(2), pp 99–121.
- Larkin, T 2009, *Social media earns its stripes in disaster communication*. At: www.police.qld.gov.au/Resources/Internet/services/reportsPublications/bulletin/357/documents/357_p36-37_socialmedia1.pdf [12 April 2013].
- McAslan, A 2011, *Community resilience: understanding the concept and its application*. Adelaide: Torrens Resilience Institute. At: www.torrensresilience.org/community-resilience [24 April 2012].
- Merkelsen, H 2011, *Risk Communication and Citizen Engagement: What to expect from dialogue*. *Journal of Risk Research*, 14 (5), pp. 631–645.
- Muller, D & Gawenda, M 2010, *Ethical free-for-all over media access to the fire zone*, *Media International Australia*; (137), pp. 71–79.
- Norris, FH, Stevens, SP, Pfefferbaum, B, Wyche, KF & Pfefferbaum, RL 2008, *Community resilience as a metaphor, theory, set of capacities and strategy for disaster readiness*. *American Journal of Community Psychology*, 41, pp. 127–150.
- Robins. G 2012, *Networks of organisations in the face of disaster, presentation at Communities and resilience: A focus on social networks for disaster preparedness*, RMIT University, 18th October 2012.
- Robinson, L 2003, *Education for resilience: Community safety communication for natural hazards [electronic version]*. At: www.enablingchange.com.au/Resilience_and_risk.pdf [5 August 2010].
- Rogers, P 2011, *Resilience and civil contingencies: tensions in northeast and northwest UK (2000–2008)*, *Journal of Policing, Intelligence and Counter Terrorism*, 6 (2), pp. 91–107.
- Roeser, S 2012, *Risk Communication, Public Engagement and Climate Change: A role for emotions*. *Risk Analysis*, 32(6), pp. 1033–1040.
- Rogers, P 2012, *Resilience and the City: Change, (Dis)order & Disaster*, Ashgate: London.
- Rogers, P 2013, *The Rigidity Trap in Global Resilience: Neoliberalisation Through Principles, Standards, and Benchmarks*. *Globalization*, 10 (3), pp. 383–395.
- Rowson, J, Broome, S & Jones, A 2010, *Connected Communities: How social networks power and sustain the Big Society*. RSA Projects, London, September. At: www.theRSA.org [8 October 2012].
- Smit, B & Wandel, J 2006, *Adaptation, adaptive capacity and vulnerability*. *Global Environmental Change*, 16, 282–292.
- Stelling, A, Millar, J, Boon, H, Cottrell, A, King, D, & Stevenson, B 2011, *Recovery from natural disasters: Community experiences of bushfires in North East Victoria from 2003–2009*: Institute for Land, Water and Society, report no. 65.
- Tyler, M, Fairbrother, P, Chaplin, S, Mees, B, Phillips, R, & Toh, K 2012, *Gender matters: Applying a gendered analysis to bushfire research in Australia*. Melbourne: RMIT University, The Centre for Sustainable Organisation and Work.
- UNESCAP & UNISDR 2012, *Asia Pacific Disaster Report 2012: Reducing Vulnerability and Exposure to Disasters*. At: www.unisdr.org/archive/29286 [6 December 2012].
- UNISDR 2005, *Know Risk*, Leicester: Tudor Rose.
- UNISDR (2009), *Terminology*. At: www.unisdr.org/we/inform/terminology#letter-v [12 April 2013].
- UNISDR 2012a, *Towards a Post-2015 Framework for Disaster Risk Reduction*. At: www.unisdr.org/files/25129_towardsapost2015frameworkfordisaste.pdf [6 December 2012].
- UNISDR 2012b, *International Strategy for Disaster Reduction*. At: www.unisdr.org/who-we-are/international-strategy-for-disaster-reduction [6 December 2012].
- Zoller, HM 2005, *Health Activism: Communication Theory and Action for Social Change*. *Communication Theory*, 15(4), pp. 341–364.
- Zorn, TE 2002, *Converging with divergence: Overcoming the disciplinary fragmentation in business communication, organizational communication, and public relations*. *Business Communication Quarterly*, 65(2), pp. 44–53.

About the authors

Dr Judy Burnside-Lawry is Program Director for the Masters of Communication, School of Media and Communication, RMIT University. Her current research with SES, Victoria explores citizen engagement strategies to build community disaster resilience. While based at the European University Institute, Italy as the Australian Research Fellow in 2013, she partnered with UNISDR's Making Cities Resilient—My City is Getting Ready! campaign to study community engagement strategies developed by two EU members.

Dr Peter Rogers as co-director of Climate Futures at Macquarie University, has consulted for federal government, presented research work internationally, and collaborated with the Economic and Social Research Council 'new security challenges' program. He was also an invited speaker at Safeguarding Australia, American Association of Geographers, British and International Sociological Association conferences as well as at numerous universities in the USA, UK and Australia.

Dr Yoko Akama is a Senior Lecturer in communication design in the School of Media and Communication, RMIT University. She undertakes research to explore the role and agency of design to tackle social issues. Her current research project with the Bushfire CRC explores design methods to strengthen community resilience in mitigating bushfire risks.