The importance of theory, analysis and practice to integrated disaster research: Introduction to the IRDR Conference Special Issue

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Abstract

The Second Integrated Research on Disaster Risk Conference was held in Beijing, China, on the 7th to 9th of June, 2014. This event gathered a diverse international combination of researchers, policy makers, practitioners, funders and disaster risk reduction agencies, to discuss the applied integration of disaster risk research. The current special issue consists of papers with an explicitly social focus which were presented at this conference. These papers are discussed in terms of vital elements for integrated disaster risk science, namely: analysis, theory and links to practice. The special issue papers include a landmark case study of community-led disaster recovery, amongst indigenous Māori affected by the earthquakes of 2011 and 2012 in Canterbury, New Zealand. Another paper takes an international approach, to analysing the use of the term 'disaster' in English speaking contexts. A paper on vulnerability and response to disasters provides a detailed account of needs for disaster risk reduction in low-income countries, such as Ghana. Vulnerabilities are also explored in a paper about the challenges faced by people with disabilities during an earthquake. The special issue concludes with a thought-provoking paper on concepts of modernity, which takes an expansive and historical view of the disaster risk domain. In sum, special issue authors have produced relatively unique combinations of disaster risk analysis, theory and links to practice. This special issue therefore represents an important illustration of integrated disaster risk research.

Keywords: *disaster risk, analysis, theory, practice, social dimensions, integrated research*

The Second Integrated Risk on Disaster Research (IRDR) Conference was held in Beijing, China, between the 7th and 9th of June, 2014. This conference gathered "researchers, politicians, practitioners, funding agencies and disaster risk reduction-related organisations to discuss and develop ways to better integrate disaster risk science into policy, practice and sustainability" (Rovins, Doyle, & Huggins, 2014, p. 332). According to Rovins et al. (2014), the conference included over 200 delegates, from over 50 different countries. A wide range of papers were presented at the conference. These papers were grouped into topics ranging from empowering local government, to interactions between science and central body politics, to data, technology, and meteorological issues (Rovins et al., 2014).

The current special issue consists of papers delivered at the conference which had an explicitly social dimension. The social focus of these papers meant they fit the established scope of the Australasian Journal of Disaster and Trauma Studies, in which this special issue was being published. To be considered for the special issue, papers needed to be submitted in an extended format which was then peer reviewed as a piece of academic scholarship. Peer reviewers were reminded of the practical scope of the second IRDR conference, which involved delegates from research, policy, and practice backgrounds (see Rovins et al., 2014). This more practically integrated focus is generally reflected in the diverse papers which have progressed through the entire publication process for this special issue. These papers also illustrate combinations of detailed analysis and theory, which do not always form the focus of applied research. This introduction discusses the importance of detailed analysis and links to theory, using the special issue papers as examples.

Analysis

It is often assumed that research which is truly responsive to pressing real world issues must be substantially simplified, to the point of being instantly transparent for all potential audiences. The current authors have witnessed a range of calls, amongst disaster risk researchers, policy makers and practitioners alike, for substantially simplifying disaster risk research. These calls have often referenced the need to tell a straight-forward story, as part of the drive to make sure that every aspect of research is rapidly understood by any given member of the audience.

It is not hard to question these calls for simplicity. According to commentary from Taleb (2010) and research by Huggins and Jones (2012), complex interactions between multiple dynamics, such as human and natural systems, cannot be usefully examined in terms of simple, linear story-telling. Even without delving into theories of complex dynamic systems, it is important to consider the issue of analysis, which is essential to any piece of research.

The concept and importance of analysis may be opaque in the domain of disaster risk reduction. For example, an official glossary of terminology produced by the United Nations Strategy for Disaster Risk Reduction (2009) does not define any form of disaster-related analysis. This glossary does not even define the most specific term of *risk analysis*. The definition of analysis may also be opaque for research in general. For example, notable glossaries of research terminology, including Thomson Reuters (2015) and the Colorado State University (2015) Glossary of Key Terms do not define the term. It seems useful to return to a generic etymology of analysis:

> *"resolution of anything complex into simple elements" (opposite of synthesis), from Medieval Latin analysis (15c.), from Greek analysis "a breaking up, a loosening, releasing," noun of action from analyein "unloose, release, set free; to loose a ship from its moorings," in Aristotle, "to analyze," from ana "up, throughout" (see ana-) + lysis "a loosening," from lyein "to unfasten"*
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> Harper (2014, p.1)

Papers in the current issue help illustrate the value of analysis for disaster risk reduction, by taking a detailed approach to extending understandings of relevant elements. A lack of instant accessibility does not mean these papers are not transparent, or useful. For disaster-related research, researchers with unique skills often enter a disaster-affected domain to meet particular analytical needs. Professional researchers provide a detailed level of analysis which they have been trained to perform as a unique craft. For example, research by Kenney, Johnston, Paton, Reid and Phibbs (2015) was made possible through though unique skills and experience which enabled a team of researchers to complete a detailed analysis of particularly local issues. This does not mean the population of interest did not have their own capacities. In fact, the researchers recognised these capacities by taking a uniquely participative approach which involved treating interview respondents as partners, not research subjects. The researchers' uniquely analytical skills and other resources provided an avenue for Ngāi Tahu research partners to tell their story of community-led recovery, in ways that share their learnings with a range of academic and other professional audiences.

Phibbs, Good, Severinson, Woodbury and Williamson (2015) used an analysis of interview and survey data to share how a major earthquake had been experienced by people with disabilities. The clarity of analytical structures used by Phibbs et al. (2015) make it clear that the experiences analysed *may* exist in many other earthquake-affected contexts, or contexts affected by other natural hazards. The findings of this research are clearly outlined, alongside issues of generalising from a limited sample of participants. Mayner and Arbon (2015) took a broader, international lens, to the domain of disaster terminology. Like Phibbs et al. (2015), their analysis of glossary texts has includes a clear description of the research limitations. Their analysis of single words, drawn from English language sources, can now be improved in further electronic analyses of disaster risk terminology.

Theory

Although his own theories of organisational change have been substantially revised over a number of decades, Kurt Lewin (1951, p.169) is often quoted as saying, "There is nothing so practical as a good theory." While this quote represents a potentially amusing paradox, critically examined theory plays a particularly important role for disaster risk reduction. Any robust prediction of interactions between social and natural systems, must

have a background model, i.e. theory, upon which to make those predictions.

Certain scientific disciplines have traditionally held a sharp division between practice, observations, analysis and theory (see for example, Steen, 1971). However these understandings of theory are not necessarily reinforced by more contemporary definitions of theory, used by a range of social science disciplines. Research-related theory is more than an abstract set of concepts. It is inseparable from a range of structured observations and analysis. For one example, Fearon (1991) defined political science theory as both the source, and result, of testing observable hypotheses. The example of abductive research, as outlined by Levin-Rozalis (2004), shows that not all social science theory is developed through a deductive analysis of hypotheses. This latter approach to research represents an explorative approach to structuring observations, without being limited to initial assumptions, i.e. hypotheses, which are fully formed. There are many other theories of knowledge to support a range of ways to gather and interpret theoretically-relevant research. This domain, of epistemology, deserves a whole special edition of its own. It is discussed in more detail in the special issue article by Barrios (2015). In sum, there is an entirely substantial quantity of robust social science theory which has been produced through accumulated tests and other structured observations. Research-related theory is often therefore a structured set of concepts, based on rigorous observations which can be fundamentally relevant to pressing practical problems.

Perhaps the importance of research-related theory would be easier to digest at a glance if scientific theories were simply fixed and not subject to change. While considering the economic impacts of disasters many assume, or believe, that theory from The Wealth of Nations has not changed in the centuries since it was published. However, like most theories, Adam Smith's (1776) economic theory has been heavily adapted and re-interpreted over time, through observations, political drivers, and occasional rounds of more ethical re-framing.

Theoretical revisions can be facilitated by breaking theories down into falsifiable hypotheses. Taking another leaf from his philosophy of science, more fundamental re-framing can occur through what Popper (1970, p.57) referred to as the "critical comparison of competing theories" and/or simply increasing the content of a theory. Social science theory can change in many other ways besides, depending on the analysis being applied. The way that social science theory is particularly apt to change over time has been referred to as "social and historical contingency" by Arfken (2015, p.24), for example. That is, societies and the people within them change. In the current special issue, Barrios (2015) reminds us of just how historically contingent many of our theories of disaster risk may be. He points out how many historical assumptions about development and disaster risk in the developing world, and elsewhere, may urgently need to be challenged.

Theory does not always adapt through direct challenges, against arguably defunct assumptions. Instead, the continuity of theory could be compared to the continuity through adaptation, of disaster affected communities. Deeming and Fordham (2012) describe this in terms of the fluid, but nonetheless coherent identities, of communities affected by disaster risk. Theories can likewise be identified as an extension of the original, regardless of changes over time. Kenney et al. (2015) provide a good example of this kind of continuity. Their paper outlines traditional theories of resilience which have been bolstered by centuries of testing against lived experience. Theories outlined in Kenney et al. (2015) are now being extended, to help guide thinking outside of the original indigenous context. It remains vital, however, to acknowledge where, and how, those theories came into being.

Links to Practice

Even assuming that analysis and theory have been addressed, there would be no integration of disaster risk science unless research findings are being implemented. Research cannot be responsive to pressing real-world issues when there is no link between analysis and actual solutions to complex problems. Among the papers included in the current special issue, Yawson Adu, Armah, Kusi, Ansah, and Chiroro (2015) provide a particularly direct example of linking research to practice. Their paper summarises a practical vulnerability analysis, based on a large body of prior research literature. Practical recommendations drawn from this analysis illustrate how particular findings are being applied to the acutely practical problems of flooding in Northern Ghana.

Papers by Kenney et al. (2015), and Phibbs et al. (2015) have also taken a distinctly integrated approach to their subject matter. Phibbs et al. (2015) outlines very clear considerations for emergency management agencies working with people with disabilities. As with other papers in this special issue, Phibbs et al. (2015) have outlined clear linkages with the Hyogo Framework for Action (HFA), which was under review at the time of writing. Kenney et al. (2015) clearly outline a range of efforts to deliver their research findings to both practice and policy audiences. Findings from Kenney et al. (2015) appear to have been delivered in a way which will help a range of agencies improve collaborations with indigenous peoples, while improving agencies' own approach to disaster resilience.

Conclusion

The Second IRDR Conference aimed to bring a wide range of disaster risk reduction stakeholders together, to discuss a more applied and integrated role for disaster risk science. This special issue provides a selection of papers presented at the conference. They have been included in this particular special issue due to their explicitly social approach to integrated research into disaster risk. All papers included in the special issue were peer reviewed, in addition to their initial acceptance for the conference.

A much smaller set of papers emerged from the peer review process. Nonetheless, these papers address a diverse range of social dimensions of disasters. Topics covered range from: indigenous knowledge; disabilities and earthquakes; vulnerability analyses; terminology; and conceptual assumptions about modernity. These papers represent contributions to vital dimensions of integrated disaster risk science: analysis; theory; and links to practice, including the HFA. The current combination of these dimensions helps to illustrate responsively integrated disaster risk research - as an epitome of what IRDR and their many partners aim to achieve.

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