Using learning to harness social and organizational culture for disaster risk reduction

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ABSTRACT

This paper, an output of the project EDUCEN: European Disasters in Urban Centres, provides an overview of learning in the context of disaster risk reduction (DRR). It explores when and how learning takes place within and across organizations and people, introduces prominent concepts, approaches and methods for learning, and links existing literature on learning in DRR with EDUCEN’s work with learning across cultures. Key factors that may foster learning within DRR include highly engaged and committed organizers; a technically skilled, competent and engaging mediator or facilitator; a high level of commitment of the leaders; establishment and maintenance of the legitimacy and openness of the project; and continuous feedback. Key barriers to learning that are relevant for EDUCEN include unclear status and aims of an initiative; failure to include all stakeholders; lack of clarity about the involvement and role of stakeholders (e.g. form and timing); lack of stakeholders’ belief that their inputs would make a difference; and differences in the scale of the project and the scale of interest of the stakeholders. Many of the principles of learning derived from the literature are well aligned with the hypotheses of the EDUCEN project itself: that there is a need to better integrate different communities of science, practice and policy, and between different sectors, and efforts need to focus more strongly on the needs and priorities of people at risk. Moreover, lessons from on-the-ground learning need to better inform decision-making by translating (tacit) knowledge into policy and practice.
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1. INTRODUCTION

Learning is essential to successful disaster risk reduction (DRR) – yet how learning occurs within organizations, and across different groups such as policy-makers, practitioners, and people at risk, is not well understood in the DRR field. This working paper, an output of EDUCEN: European Disasters in Urban Centres, draws on insights from different areas of research to synthesize the literature on different forms of understanding and learning, and the cultural-organizational opportunities and barriers to learning and evaluation within an organization and across organizations working towards a common goal. These insights will inform EDUCEN’s collaborative learning methodology.

1.1 What is EDUCEN?

Started in May 2015, EDUCEN is a €1.7 million European expert platform funded by the European Union to focus on the role of culture in disaster management and risk. A consortium of 10 organizations from seven countries, EDUCEN aims to build on existing European networks to increase the effectiveness of DRR design by including culture as a valuable component in all phases of disaster risk management. EDUCEN’s networking and support actions aim to address the complex interplay between culture(s) and DRR. In the context of cities, the project seeks to better equip formal and informal emergency responders, risk managers, the military, urban planners and planners at the regional and national levels to deal with elements of culture. The goal is to ensure more competent disaster responses and increase community resilience (EC 2014).

It is our contention that DRR policies and practices are intrinsically cultural, as they emerge from and are therefore largely shaped by the interplay of cultures prevalent at the community, organizational and institutional levels. Therefore, any effort to improve DRR should be founded on a comprehensive understanding and appreciation of this interplay – and, more important, of the role of culture in how people prepare for, experience, respond to and recover from disasters.

EDUCEN starts by making knowledge and understanding of culture(s) in the DRR context accessible to relevant stakeholders. The next step is to encourage, enable and sustain multi-stakeholder dialogues among academics, practitioners and communities, to facilitate the sharing of knowledge, expertise and experiences. This will enable all to strengthen their capabilities and impact, and will result in better-informed risk managers and planners, spatial planners, and emergency responders in cities. The final product will be a multimedia handbook, including visuals, maps, written narratives, and videos to help DRR professionals to better appraise relevant cultural aspects in their own “community of practice” and in the environments where they work.

EDUCEN’s overall objectives are:

1. To consider culture as a fundamental element of existing and emerging DRR designs and practices, and to improve these through specific attention to the role of culture;
2. To identify actions that build and support culture and cultural diversity as reservoirs of assets that people can tap to prevent, mitigate, prepare for, cope with and adapt to disaster risks – cognitively and practically;

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1 To learn more, visit http://www.educenproject.eu.
3. To increase the effectiveness of DRR design by including culture as a component in all phases: prevention, mitigation, preparedness and response, and reconstruction;
4. To provide an overarching framework for incorporating culture in disaster knowledge and awareness, policies and practices, including methodologies, tool kits and guidelines.

**Key ideas about culture and DRR expressed in EDUCEN**

The project departs from the European Commission’s broad understanding of culture as “the characteristics of a particular group of people, defined by everything from a set of values, history, literature, language, religion to cuisine, social habits or music and arts” (EC 2014, Part B, p. 8). In the context of DRR, the project distinguishes between five aspects of culture: cultural memory, cultural and social networks, cultural learning, city cultures and infrastructures, and cultural empathy.

Cultural memory reveals how communities adapt their cultural reservoirs over time in light of disastrous events, based on the accumulated shared experience and knowledge of a group of people. Critical event analysis can be used to better understand how communities learn from their disaster history and, in doing so, shape their “disaster (sub)cultures” and cultural heritage. Cultural memory also includes understanding how “catastrophic events” are absorbed into history and exert an indirect influence on culture by contributing to its historical context.

Cultural networks focus on trust, through the use of, among others, social network analysis and a specific and appropriate operationalization of social capital. Empirical evidence demonstrates the role played by formal and informal networks in supporting or hindering DRR. This work package will investigate trust and information-sharing within these networks and, through social network analysis, identify “change agents”, which could improve the effectiveness of DRR efforts.

Cultural learning, the focus of this working paper, will be examined through workshops and engagement with stakeholders. Different groups, institutions and communities have different domains of knowledge, understanding, expertise and practice that are determined by both socio-economic and cultural patterns. It is essential to identify those domains and to see how culture can be an asset to improve cooperation, integration and mutual learning. This paper addresses impediments to learning before, during and after disasters; reasons why lessons learned do not lead to action; and how to get beyond placing blame to achieve meaningful learning in a safe environment, including a culture of learning from failure.

City cultures and infrastructures refer to both “soft” and “hard” infrastructure. We look at hard and soft infrastructure, differentiating between critical infrastructure – assets that are essential for the functioning of a society and economy – and vital infrastructure that has a more transboundary dimension.

EDUCEN’s work on cultural empathy seeks to embed the consideration of culture in future European civil protection. Simulations and games will link the project to existing exercises and ongoing European initiatives, such as Resilient Cities.

Expected outcomes of the project are threefold:

- More appropriate, effective and sustainable approaches, methods and tools for DRR that demonstrate a greater awareness of cultural aspects of risk, vulnerability and resilience are developed.
• The integration of cultural aspects into decision-making processes in order to enhance the acceptability of risk reduction strategies by communities at risk.
• The understanding, sensitivity and development of competences are grounded on a deep cultural understanding and skill set that helps to strengthen the safety and security capabilities of citizens and emergency responders.

In order to achieve the above aims and outcomes, we propose to develop a conceptual framework and learning process for EDUCEN, in part informed by the learning methodology literature review presented in the following section.

2. THE IMPORTANCE OF LEARNING IN REDUCING DISASTER RISKS

The ability to learn is considered a key component of the disaster risk management and adaptation processes (Armitage et al. 2008; 2006; Lonsdale et al. 2008; Pahl-Wostl et al. 2007; Tschakert and Dietrich 2010). The importance of learning in underpinning efforts to reduce disaster and climate-related risks is increasingly gaining prominence (IPCC 2012; United Nations General Assembly 2015).

The Sendai Framework for Disaster Risk Reduction 2015–2030 (United Nations General Assembly 2015), launched at the World Conference for Disaster Risk Reduction in March 2015, aims to advance knowledge and promote mutual learning and exchange of good practices and information. It plans to achieve this through voluntary and self-initiated peer reviews among interested states, as well as through international and regional mechanisms for strategic advice, coordination and partnership development for disaster risk reduction, such as the Global Platform for Disaster Risk Reduction and regional DRR platforms.

The Intergovernmental Panel on Climate Change’s Special Report Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation considers learning as central to adaptation to climate change. It notes that DRR and adaptation “offer frameworks for, and examples of, advanced learning processes that may help reduce or avoid barriers that undermine planned adaptation efforts or lead to implementation of maladaptive measures” (IPCC 2012, p.27). It further states that an “iterative process of monitoring, research, evaluation, learning, and innovation can reduce disaster risk and promote adaptive management in the context of climate extremes” (p.17), and that an increased emphasis on adaptive management and learning can facilitate transformational changes that may be needed for reducing risk from climate extremes.

A review of the literature on learning methodologies employed in natural resource management, climate change adaptation, and DRR, reveals a series of recurrent enhancing factors and potential limitations regarding how organizational and network learning can drive risk reduction and resilience-building (Mostert et al. 2007). These include:

• Continued high motivation and engagement with high technical competence;
• Personal qualities establishing and maintaining the legitimacy of the organizer;
• An independent technical mediator or facilitator;
• High level of commitment of the leaders;
• Establishment and maintenance of the legitimacy and openness of the project;
• Continuous feedback, dissemination of minutes, questionnaires, comprehensive language, presentations, and background documents.

Furthermore, Mostert et al. (2007) highlight several factors crucial for transnational learning, of which the most relevant for the EDUCEN project include: lack of clarity on the status and aims of the initiative; failure to include all stakeholders; lack of clarity about the involvement
and role of stakeholders (e.g. form and timing); lack of belief among stakeholder that their inputs would make a difference; and differences between the scale of the project and the scale of interest to the stakeholders.

2.1 Learning as an important element of resilience

The notion of resilience is a central aspect of the policy discourse and academic debates about dealing with uncertainty and change (Hutter et al. 2013). Resilience management has been explored in fields such as flood risk management (Steinfuehrer et al. 2009), urban development policy (Mueller 2011), and institutional (Anderies et al. 2004), organizational (Pelling et al. 2008; Weick 2009), and climate change adaptation research (Pelling 2011).

The concept of resilience can be summarized in three central points: a) the ability of a system to absorb or buffer disturbances and still maintain key attributes; b) the ability of the system to self-organize; and c) the capacity of adaptation in the context of change (Berkes et al. 2002). Resilience is an important factor of how societies adapt to external change, such as global environmental change. The more resilient a system, the greater is its ability to absorb change and perturbations, and adapt. The less resilient it is, the harder it will be for its societies to cope and adapt to change (Adger 2000).

Despite growing recognition that resilience thinking is important when dealing with uncertainty, understanding the ways in which resilience theory can be translated into concrete actions has been a challenge (Garschagen 2013). In response to this challenge, different approaches have adapted the concept of resilience differently. Within flood risk management, a social resilience perspective has been employed for analysing institutional, organizational, and planning aspects (Hutter et al. 2013). Social resilience refers to “the capacity of a community or society potentially exposed to hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure” (Steinfuehrer et al. 2009). One important factor is the degree to which the community is capable of learning from past disasters, and thus better protect itself in the future and improve risk reduction measures. Developing this capacity requires having institutions capable of promoting collective action, robust governance systems, and the ability of communities to diversify livelihood choices. Thus, communities with knowledgeable, prepared and responsive institutions are likelier to be able to prevent long-term social disaster in the face of an extreme natural hazard (Adger et al. 2005).

Below, we explore three concepts that are central for social resilience in DRR and which constitute important points of departure in EDUCEN.

Organizational resilience

In the field of natural hazards research, some scholars have adopted a view of resilience that stems from organizational studies. In contrast to the social resilience approach, organizational studies focus more on human actors and decision-makers than on the macrosystem. The main message from this strand of literature is that organization is crucial for dealing with uncertainty, and that in order to deal with uncertainty, decision-makers should develop general solutions with uncertain benefits in the present, but possible benefits in the future (Hutter 2013). Such an understanding of resilience calls for rigorous assessments of local institutional settings, including how ideas are institutionalized and how they shape management practices, and understanding challenges and opportunities for adopting resilience concepts and translating them into action (Garschagen 2013).
Organizational resilience has emerged as a management strategy to address the failure of traditional institutional models that are inadequate for addressing unexpected change. Increasingly, focus has shifted away from looking at tools to assist a crisis response, and towards tools that contribute to improved preparedness before a crisis hits (McManus et al. 2008). Organizational resilience is understood as the ability of an organization operating crucial emergency functions to help the community maintain normalcy during a disaster, avoid excessive damage, support recovery, and facilitate the transmission of resources and information (Jung and Song 2015). Organizational resilience is found to have three attributes: situational awareness, management of keystone vulnerabilities and adaptive capacity. Situational awareness means organizations are aware of the wider network of actors, of the resources available, and of their relation to other stakeholders (obligations, expectations and limitations). Management of keystone vulnerabilities requires knowledge of the components in the organizational system that, if lost or impaired, has the potential to cause exceptional effects throughout the system (tangible resources such as buildings, or intangible ones, such as relationships). Adaptive capacity takes into account leadership and decision-making structures, information and knowledge management, and the degree of creativity and flexibility promoted by the organization (McManus et al. 2008).

Many scholars see resilience-building as the ultimate goal of any DRR governance activity (Djalante et al. 2012). To build resilience, it is necessary to increase the adaptability of modes of governance to environmental change. Adaptive governance is seen as a process to increase the resilience of communities and societies to natural hazards and climate change (Djalante and Thomalla 2012). It includes polycentric and multi-layered institutions, participation and collaboration, self-organization and networks, and learning and innovation (Djalante et al. 2012). Adaptive and integrated disaster resilience can strengthen societies’ ability to “face complexities and uncertainties by designing institutional processes that function across sectors and scales, to engage multiple stakeholders and to promote social learning” (Djalante et al. 2013, p.2105).

Risk governance

Governance (as opposed to government) is characterized by a move away from centralized authority and decision-making and towards the inclusion of different actors, networks and partnerships, so that the state is no longer necessarily the main or only player governing places (Rosenau 2004). This implies increased interdependence between actors and agencies, a need to negotiate shared goals, but also increasingly blurred boundaries between the private, public and non-profit sectors (Walker et al. 2013). These changes have brought new forms of authority and control, whereby traditional coercive methods are replaced by diplomacy, co-management and negotiation between a large and broad spectrum of actors.

While the management of natural hazards has always involved the participation of various actors at different levels, within the field of DRR there has been recent recognition of the need for new forms of collaboration and partnerships on risk issues that are symptomatic of new governance arrangements (Walker et al. 2013). Consequently issues like “governance of preparedness” and “multi-level governance”, where risk communication, risk education, international frameworks for disaster reduction, and regional networks that facilitate learning, cooperation and coordination strategies are increasingly considered crucial in DRR. Parallel to this, the shift from government to governance also has produced a shift away from costly structural and technical mitigation schemes and towards enhanced social capacity-building, adaptation and resilience (Kuhlicke et al. 2011; Walker et al. 2010). However, the ways in which the governance of natural hazards takes places differs from context to context, and it is
not always clear how to find common grounds that facilitate learning in very diverse and at times contrasting realities.

Table 1: Eight governance characteristics in the risk governance characterization template

<table>
<thead>
<tr>
<th>Strong national policy framework</th>
<th>Weak national policy framework</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is a clear, well specified and comprehensive policy framework in place at a national level that is effective in achieving its objectives</td>
<td>There is little in the way of a national policy framework, policies are poorly specified or missing and are highly ineffective in achieving their objectives</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Strong role for regional institutions</th>
<th>Weak role for regional institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are clear roles for regional institutions who play an important part in implementing national policy and/or specifying effective regional policies</td>
<td>There is very little or no role for regional institutions, which may not exist within the political system</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Strong local/municipal role</th>
<th>Weak local/municipal role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local authorities or municipalities have a clear and important role in implementing national/regional policy and/or in specifying their own local strategies and responses</td>
<td>There is very little role for local authorities or municipalities, and/or what they do is largely ineffective</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Major responsibility on those at risk to protect themselves</th>
<th>Minor responsibility on those at risk to protect themselves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Households, businesses or others who are at risk are largely expected to take action to protect themselves from hazards. There is little responsibility for, or expectation of, input or support from government or other organizations</td>
<td>Households, businesses or others who are at risk are not expected to take any significant action to protect themselves from hazards. The government or other organizations primarily have the responsibility to provide protection and minimize risks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Strong culture of multi-stakeholder participation</th>
<th>Weak culture of multi-stakeholder participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Many different stakeholders and organizations are involved in collaborative partnership working, they have opportunities to participate and have their inputs to decision-making</td>
<td>There is very little or no collaboration between government and stakeholders; there are very few opportunities for participation and decision-making is closed rather than open</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>High reliance on segmented and marketized insurance</th>
<th>Low reliance on segmented and marketized insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insurance costs for the hazard involved are strongly related to the degree of risks faced by the household or business; there is a substantial difference in insurance costs between high- and low-risk locations</td>
<td>Insurance costs for the hazard involved are not at all related to the degree of risk faced by a householder or business; there is no difference in insurance costs between high- and low-risk locations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Extensive public risk communication</th>
<th>Very little public risk communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is substantial, frequent and effective communication with the public</td>
<td>There is very little, infrequent and ineffective communication with the public</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Good balance between governance tasks and available resources</th>
<th>Imbalance between governance tasks and available resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizations involved in managing the hazard are well resourced and as a consequence are able to undertake their role effectively</td>
<td>Organizations involved in managing the hazard are very poorly resourced and are as a consequence not able to undertake their role effectively</td>
</tr>
</tbody>
</table>

Source: Reproduced (with minor copy-edits) from Walker et al. (2013), p.2226.

Communities of practice

A community of practice refers to how people learn socially from their peers within communities focused on a particular activity. Definitions vary depending on the particular goals and fields of interest, but Wenger (1998) offers a general point of departure for understanding their importance: “Communities of practice develop around things that matter to people. As a result, their practices reflect members’ own understanding of what is
important.” The community’s mission generally includes fostering interaction, identifying and sharing best practices, creating new knowledge, and fostering learning.

Within disaster risk reduction, communities of practice have been defined as “temporary horizontal organization[s] with varying levels of formality whose primary mission is to identify and solve complex, institutionally cross-cutting problems and whose major characteristics are: (1) a task-focused existence, (2) flexible and evolving membership, (3) openness to a wide input array, (4) shifting loci of leadership, (5) democratic decision-making, and (6) autonomous funding, within a continuous learning environment” (Sarmiento et al. 2012, p.14).

As these communities are often seen as horizontal, self-organizing and spontaneously emerging groups, they may be perceived as incompatible and even competitive to established hierarchical organizations. It is here where organizations play an important role in facilitating and fostering their establishment by acting as conveners rather than knowledge providers (Wenger and Snyder 2000).

Communities of practice within DRR may have several functions, but knowledge management is an integral one. While there are several ways to explore knowledge management, Kimble et al. (2000) propose dividing knowledge into “hard” and “soft”. The former is formalized and structured and can be captured, codified and stored. The latter can be classified as socially constructed knowledge generated by social activity, and internalized domain knowledge, which is linked to skills, expertise and proficiency. Through communities of practice, hard knowledge is used and made available, and at the same time, soft knowledge management is addressed and transformed into experience (Sarmiento et al. 2012).

3. LEARNING IN EDUCEN

EDUCEN aims to look at three aspects of learning:

- Are existing risk governance systems appropriate for addressing current and future disaster risks?
- What kinds of socio-cultural networks enable appropriate coordinated disaster preparedness and response efforts?
- How can learning within and across organizations engaged in DRR ensure that “lessons observed” become “lessons learned”?

The project starts from the recognition that in governing risks in complex urban systems, collaborative learning between multiple stakeholders is crucial in order to reduce existing risks and to prevent or minimize the creation of new risks. Although Albright (2011) suggests that learning can also evolve from the political competition between various stakeholders for supremacy of their political objectives. A learning approach helps to identify and understand barriers to addressing risk in an integrated way (e.g. differences in mandates, administrative, organizational, and operational cultures of organizations and communities of practice tasked with different aspects of DRR). Learning is needed to better understand why existing knowledge does not seem to make much of a difference in generating the kinds of actions needed to make desired changes at the appropriate scale (Matten 2004).

Different organizational cultures represent different values and underlying perceptions and assumptions and these determine what actions are taken (Senge 1994). Identifying the nature of these barriers can help to overcome such differences and to develop appropriate processes and tools for reducing risk. A learning process can facilitate the adoption of new knowledge and skills at the individual, organizational and societal levels (Reed et al. 2010). Learning
networks consisting of public, private and civil society actors are particularly effective (Ullsten et al. 2004).

Learning between cities and countries has the potential to strengthen actions focused on disaster prevention and resilience-building and to reduce the need for reactive post-disaster relief and recovery work. However, the role of cultural aspects in multi-stakeholder collaborative platforms, such as the Resilient Cities initiative, has not yet been explored, even though lessons learned would represent an opportunity to further facilitate collaboration between different actors.

Another key insight that underpins the work of EDUCEN is that in order for actors to collaborate successfully, they need to be receptive to changing their own mental models. This starts with the recognition of problems and interests of all the people involved. Insight is gained between one’s own problem and problems of others. In other words, problems are put in a new, broader perspective or frame (Aarts and van Woerkum 2002).

For organizations, learning about the knowledge, experience and culture of other organizations is a way to share insights and spread good practices and innovation. Learning can also enable better institutional integration and coordination among relevant actors, because it helps them understand the need and benefit of working together (Johannessen and Hahn 2013). By collaborating closely to examine the success of different responses to risks, actors jointly learn which strategies and policies show the most promise.

Based on the above understanding of learning in EDUCEN, three main approaches – social learning, social network analysis, and knowledge transfer – are applied across the pilot cities in order to address the five different dimensions of culture – cultural memory, cultural networks, cultural learning, soft and hard infrastructure, and cultural empathy. Below is a discussion of how each of these approaches is used in EDUCEN and the link of these methodologies to the core concepts discussed in the previous section.

### 3.1 Social learning

Social learning is increasingly recognized as a vital aspect for realizing ecological sustainability (Reed et al. 2010), positive social-ecological change (Armitage 2005; Diduck 2010), climate change adaptation (Pelling et al. 2015), and resilience (Pelling 2011; Pelling and Manuel-Navarrete 2011), in theory and in practice (Pelling et al. 2015). Social learning is a cyclical process influenced by both external knowledge and intrinsic reflection. Whether or not and why new knowledge and ideas are accepted and taken up by other organizations and actors is pertinent when examining disaster resilience building processes. Popular, well-received ideas can permeate through networks of actors and stakeholders, leading to a convergence of governance and the institutionalization of knowledge and practice across scales (Pelling et al. 2015).

In the field of environmental management, social learning is increasingly regarded as a useful analytical and facilitative framework for collective decision-making and action in complex resource management settings (Kilvington 2010). It has been used both as an overarching and as a normative concept to understand the interplay between different agencies (e.g. policy-makers, organizations, planning agents) and for exploring ways of bringing together different sources of knowledge for collective decision-making in complex settings (Keen et al. 2005).²

² Muro and Jeffrey (2008) provide a critical perspective on the theory and application of social learning and identify conceptual and practical weaknesses and their implications for the design of participatory processes in natural resource management.
Nilsson and Swartling (2009, p.2) describe social learning as “the process by which agents and organizations continuously frame and reframe the issues at stake and develop enhanced content and relational capabilities to deal with common problems which individuals often cannot resolve on their own”. It can be understood as a change in understanding within communities of practice facilitated through social interactions (Reed et al. 2010). At a management level, social learning implies planning for maintaining long-term relationships between the communities of practice and facilitators, co-producing knowledge (learning together and from one another), and exchanging knowledge within each community and with others. The aim of these processes is that all participants engage in the co-development of a particular plan, from inception to closure (Cundill et al. 2014).

Applying a social learning approach is expected to lead to the convergence of goals, criteria and knowledge of various actors. This in turn can help build trust and respect and lead to a change in behaviours arising from a developed mutual understanding of the issues at stake. Organizations can be seen as spaces for engagement, where learning may be constrained as well as enhanced (Tompkins et al. 2002). Organizations that bring about learning for the goal of building resilience do so under the assumption that social learning enables the vertical flow of information from those who initiate discussions around learning to the community actors below (e.g. Sims and Lorenzi 1992; Argyris and Schön 1996; Keen et al. 2005). The literature on “learning organizations” also suggests that vertical flows are more common than horizontal flows, such as within an institution (Pelling et al. 2015). Vertical flows of information can be important for resilience-building, as the knowledge “sphere of influence” is grown, and as information flows between levels, learning can be shaped by and expanded with local insights. Equally, influential opinion-leaders at the local level have the capacity to spread learning, ideas, and cultural practices from the bottom up.

Pelling et al. (2015) identify four factors that can trigger social learning for building resilience to disasters, which we explore in turn below:

- Effective communication of personalized information (four key aspects: grab attention, ensure retention, foster reproduction, provide motivation);
- Learning from whom? External drivers of social learning;
- When should social learning be initiated? Disasters as opportunities and other triggers;
- Creating an enabling organizational environment.

**Effective communication of personalized information**

When communicating knowledge and information for disaster risk reduction and resilience-building it is key that the risks to the audience or individual are relevant and even personalized (McClure 2006). Sufficient motivation and incentives are required to initiate a desired behavioural change in an organization or society. Learning that capitalizes on people’s self-motivation for reflection, learning, and adaptation, rather than being driven by a desire to close a knowledge deficit gap, may foster greater self-efficacy that in turn can build coping capacity when faced with disaster (Pelling et al. 2015). For instance, motivation for action to build resilience can come from personal experience of disasters, particularly if impacts have been severe or regular (Brody 2009; Kreibich et al. 2010; Albright 2011).

**Learning from whom?**

Learning processes within social-ecological systems are influenced by external knowledge, ideas and values: this highlights the importance of inter-agent partnerships and connectedness for continual learning (Pelling et al. 2015). Specifically, organizational learning benefits from
feedback mechanisms which allow conversations for learning from experiences to begin, and be returned to later in the learning process for incorporation into project outcomes.

The conventional process for disseminating risk information is initiated by new knowledge being generated by “experts” such as researchers and academics. This is used to inform change by decision-makers, who then communicate that change to the public for inclusion in their responses to those risks (Pelling et al. 2015). However, learning processes require that the communication goes beyond this, and attempts to uncover how, when, and where other actors or opinion leaders have helped the knowledge be consolidated and adopted by the target audience of the message. In this way social learning can ensure greater ownership of knowledge and self-efficacy. Case studies on the importance of involving all stakeholders in the initial dissemination of information (in the context of water resource management in Europe) found the sense of inclusion and value in multi-stakeholder processes led to increased trust and understanding of one another (Mostert et al. 2007). The common belief that participation and interdependence are needed for success is important for enhanced learning outcomes.

**When should social learning be initiated? Disasters as opportunities and other triggers**

Disasters have been identified and analysed as “windows of opportunity” (e.g. Birkmann et al. 2010). For instance, knowledge may have a better chance of being turned into effective action and practice immediately following an event. The opposite may also be true – extreme events may drive a preference towards more technical, structural interventions rather than investing in long-term adaptation and resilience through social development activities and other soft measures. Further, disasters can act as “threshold events” which lead to organizational change and transformation as the dominant thought and action pathways (e.g. by local and national governments) come under examination. Transformative learning is most likely to occur in contexts where systems are highly vulnerable, and change is vital (Holling 2004). Instances where disasters cement the uptake of knowledge that was available and disseminated beforehand indicate the nature of learning as an ongoing and ever-changing process (Pelling et al. 2015). However, the effectiveness of learning for resilience-building, when knowledge is introduced and disseminated at different times, and at different stages of the disaster cycle, is not well understood.

**Creating an enabling organizational environment**

Organizational learning (Pelling et al. 2008) is influenced by a set of factors, both external and internal. Further, organizational learning conditions are created by factors operating at other scales, for instance at the community or global levels through new and established institutions. Pelling et al. (2015) identify the following characteristics needed to encourage and maximize learning within and across organizations and institutions: leadership, partnership, engagement, negotiation, feedback, trust, and new ways of thinking and doing.

In EDUCEN, social learning is used to identify different domains of understanding, knowledge and practice in the disaster risk and urban management landscape, including that of local and (subaltern) stakeholder groups; to identify organizational-cultural barriers to learning and enhance the notion of a “learning organization” within civilian bureaucracies, militaries and gendered environments; to promote mind set change to enable synergies with environmental quality and risk management and urban planning. This includes promoting design principles from “control and protect” (fail-safe) to a “resilience perspective” (safe-fail) and linking stakeholder groups who are actively involved in the whole chain of different aspects of integrated flood management; to promote the development of “knowledge for
action” and link existing and new knowledge to action by synthesizing, communicating and disseminating different types of knowledge and experience; and to cross-link and capture the knowledge and insights about learning across the entire project.

### 3.2 Social network analysis

Social network analysis is a method to map and measure relationships among people, groups, organizations or things. Social network analysis labels networked structures in terms of nodes (individual actors, people or things within the network) and the ties or edges (relationships or interactions) that connect them. To understand networks and their participants, the location of actors in the network is evaluated, with a focus on each one's “centrality”. Centrality is the number and strength of ties that an actor or organization has with others. It has been used to capture the flow of information in a network and the potential level of coordination (Moore et al. 2003). These measures give insight into the various roles and groupings in a network: who are the connectors, experts, leaders and bridges; who is isolated; where are the clusters and who is in them; who is in the core of the network, and who is on the periphery (Orgnet n.d.).

Some of the newer approaches to social network analysis consider networks as a whole, and powerful techniques and software allow analyses of the what, where, how, why and when of situations. Available software tools help describe the features of networks either through numerical or visual representation, which in turn enables a user to identify the need for interventions, plan for them, and provide input for policy management (see Figure 1 below for an example of how a network analysis can be visualized). Thus, through social network analysis it is possible to analyse and predict the impact of information or activities on individuals and the network as a whole for different scenarios and options. “Because social network analysis can reveal the characteristics, composition, and structure of networks at a given time and over time, social network analysis could be an important tool for understanding how parts of the community work or could work together to plan for and respond to disasters” (National Research Council 2009, p.3). Further, social network analysis has also been used to:

- Understand the importance of social networks in disaster and post-disaster contexts (Zhao 2013);
- Analyse how structural arrangements for collaboration within emergency management networks influence disaster resilience (Jung and Song 2015);
- Reach vulnerable populations that may become disconnected from the larger community following a disaster;
- Understand how social and personal networks are used to both create networks among vulnerable populations and potentially influence behaviours within the networks;
- Understand preparedness amongst networks; to enhance communication flows during all phases of a disaster;
- Build more effective community networks and improve disaster resilience; to facilitate emergency preparedness and response in networks among organizations and within local communities (National Research Council 2009);
- Examine communication patterns and how climate information spreads across different sectors and countries (Pacific RISA 2015).

In EDUCEN, social network analysis is used for 1) the production and validation of maps of institutional and informal networks related to DRR in different pilot cases. More specifically, social network analysis has been used to collect and structure information on the role and responsibilities of main actors in DRR, including informal networks, with aim to better
understand the social structure as created through cross-scale relationships between people and organizations. The aim with this analysis is to improve knowledge on the dynamic nature of social and cultural networks, to identify the main actors in the networks (cultural brokers), and to assess the disasters’ impacts on trust, norms, information and network. 2) To analyse ambiguities in risk perception. Here the goal is to map differences and similarities among the existing social and cultural networks in order to increase the awareness about differences and similarities in risk perception. As a result, decision-makers can take into account the existence of different networks characterized by different and equally valid problem understandings for the implementation of DRR strategies. And 3) social network analysis has been used to analyse the relation between social networks and urban infrastructures during emergency management.

The image below illustrates the social network analysis carried out for the city of Lorca. The analysis mapped a) the interaction amongst different institutional actors during the DRR phase; b) the relationships between actors and information (who manages what information? Who owns which expertise?), as well as the connections among different pieces of knowledge; and c) the role played by each actor in the DRR process, the information used or needed to perform a certain task, and the work flow (relationship between tasks).

**Figure 1:** Image of EDUCEN social network analysis results for DRR in the city of Lorca

Red dots represent the actors, blue dots are tasks, and green dots represent information; red lines represent the actor-task connection; the green line actor-actor; the cyan line the agent-information connection.
3.3 Knowledge transfer

While the practice of “learning from others” is nothing new, the learning possibilities for transferring policy measures between governments and organizations have increased due to improved communication possibilities. However, there is limited literature on policy transfer and the exchange of experiences in general, possibly because policy transferability has been studied via different disciplines (political science, comparative politics, etc.) and does not have a common theoretical or methodological discourse (Evans and Davies 1999).

EDUCEN departs from an understanding of transferability as “the ability to transfer/adopt in a given city successful measures previously adopted elsewhere, and achieve comparable results” (Macário and Marques 2008). The aim with transferability is that practitioners and decision-makers can be aware of undesirable and indirect effects and can implement solutions as efficiently as possible based on lessons learned from other similar conditions.

Mostert et al. (2007) point to a series of potentially restricting factors for transnational learning, of which the most relevant for the EDUCEN project include:

- A lack of clarity of the status and aims of the initiative;
- A failure to include all stakeholders;
- A lack of clarity about the involvement and role of stakeholders (e.g. form and timing);
- A lack of stakeholders’ belief that their inputs would make a difference; and
- Differences in the scale of the project and the scale of interest of the stakeholders.

Further, a review of how to examine learning in European cooperation projects (Vinke-de Kruijf 2015) raises the key challenge of how to actually transfer lessons learned to the various national and sub-national organizations, as well as other actors not directly involved in the project. Knowledge could be transferred horizontally (other local and regional actors) and vertically (up to the national and European level, and down to the community level).

In the case of EDUCEN, the full set of activities required to undertake a transfer process is structured into “Learning Loops” understood as the different levels of self-learning and mutual learning. These learning loops are continuous processes which evolve around different levels of interaction among cities and communities of stakeholders. The project considers at least three potential learning loops for each activity, and the jump from one learning loop into the following involves a larger type of interaction between or among cities.

The first loop focuses on the adaptation of existing methodologies for the definition of pilot activities in case studies. The second loop concerns the transference of activities under implementation from pilot cities to other pilot case studies, following a step by step approach. The third loop of activities/context interaction will concern the construction of a wider EDUCEN network of cities.
Figure 2: EDUCEN learning loops

The aim with the learning loops approach is to contribute to an improved framework for disaster policies which mainstreams culture into DRR through the formation and support of living networks of experts on culture in disasters encompassing community members and communities of practice, drawn together by a common interest in understanding the role culture plays, in mitigating the risks of, and accelerating recovery from disasters.

4. CONCLUSIONS

In this paper we have a) provided an overview of learning in DRR efforts and learning as an important element of resilience; b) explored when and how learning takes place within and across organizations, and people at risk; and c) discussed the main methodologies employed in EDUCEN to enhance learning across cultures within and outside the project.

This report traces the methodologies employed in EDUCEN to some fundamental concepts in DRR. Overall, the selection of appropriate methods for organizational and network learning requires careful consideration of a series of internal and external factors to the project and case studies. Furthermore, the review in this brief highlights that there is a need to better integrate different communities of science, practice and policy, and between different sectors; and that efforts need to focus more strongly on the needs and priorities of people at risk. On-the-ground learning needs to better inform decision-making by translating (tacit) knowledge into policy and practice.

EDUCEN starts from the premise that in order to incorporate cultural aspects into the planning and implementation of DRR activities, we need to first understand how local culture affects the vulnerability and resilience of people at risk from disasters. We also need to better understand how different cultures within organizations responsible for DRR shape the formulation of strategies, policies and interventions to reduce risk.

EDUCEN’s potential contribution to DRR lies in the consideration and incorporation of culture in the DRR equation by considering how cultural factors at different levels (e.g. organizational, social, political, etc.) affect whether knowledge becomes learning, and how learning occurs.
REFERENCES


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