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## One Message, Many Voices: Inter-Disciplinary Partnerships for Resilience Communication

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### Abstract

When a record-setting flood threatened a Midwestern U.S. metropolitan area in 2009, citizen involvement in emergency mitigation averted disaster. In the wake of this event, government and non-government disaster response agencies joined forces to enhance community capacity for resilience to future flood threats. A simple, clear, and consistent message based on resilience theory was spread through multiple communication channels by partner agencies. Preliminary data support endorsement of the message and applicability of the recommended resilience strategies across the disaster cycle. The authors describe development of the message and keys to success of inter-disciplinary partnerships in resilience communication.

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Floods are among the deadliest and most destructive disaster events. Flood disasters manifest in many forms which are broadly classified as slow-onset, rapid-onset, and flash floods. Impact varies dramatically depending on cause and location of the flood. Numerically, floods constitute 40% of all natural disasters and historically, floods have accounted for the highest proportion of natural disaster mortality [1]. In the aftermath, physical and psychological consequences may be severe and lingering.

## **1. Community Disaster Response: Red River Resilience**

The Red River dividing North Dakota and Minnesota flows to the north out of the United States into Canada. More disaster declarations have been made for the Red River Valley than any other section of the U.S. Consequently, river basin communities have had to engage in numerous flood control and mitigation activities. In facing the powerful flooding of the river, the leaders and people of the region have sought ways to lessen not only the physical damage but also the mental and spiritual challenges for survivors. These efforts have succeeded in preventing potentially catastrophic economic, physical, and mental health consequences. Because the threat of future significant flooding remains, civic leaders strive to maintain citizen engagement in mitigation activities and improve community resilience.

### *1.1 Historical and Geographical Context*

The Red River Valley of the North is a basin, the remnant of the former glacial Lake Agassiz, formed 10,000 years ago. The Red River flows north, originating in southern North Dakota and Minnesota in the Upper Midwest region of the United States. It separates the border communities of Fargo, ND, and Moorhead, MN, and continues through Winnipeg, Manitoba, Canada, eventually making its way to the Hudson Bay. The northern flow in a cold climate creates the annual dilemma of upstream thawing in the south, while northern portions of the river remain ice-bound. In years marked by a combination of heavy winter and spring precipitation and high water tables, the movement of water throughout this shallow, saucer-shaped valley is primed to produce major flooding.

The past two decades have reflected a wet climatic cycle in the Red River Valley, causing 20 consecutive annual floods (1993-2013), compared to 29 floods in the preceding 90 years. Most detrimental was the 1997 “flood of the century,” resulting in the largest pre-Katrina disaster evacuation in U.S. history. The economic cost to the Red River basin exceeded \$3.5 billion [2]. The 1997 experience propelled significant mitigation projects and community activation during subsequent annual floods, leading to successful outcomes. Then, in 2009, the Fargo-Moorhead area was again faced with a potentially catastrophic record flood.

### *1.2 The Flood of 2009*

Beginning on 20 March 2009, the Red River exceeded the 5.5 meter flood stage threshold. Flooding persisted for 60 days, including 32 days in “major flood stage” of over 9.14 meters [3]. The river crested at 12.45 meters, the highest water level ever recorded, causing considerable worry as to whether the sandbag dikes could create barriers high enough to outpace the river’s rise. Two separate flood crests occurred 19 days apart, maintaining a constant state of tension regarding whether the sandbag fortifications would hold throughout this protracted period.

The flood mitigation efforts in the Fargo metropolitan area of 200,000 represented the combined efforts of 85,000 volunteers, filling and stacking sandbags and staffing the levees [4]. Over 8.5 million sandbags were filled and deployed, most within a five-day period. Sandbagging took place in sub-freezing temperatures, often with dangerous wind-chills, and periodically during blizzard conditions. By relying on the dedicated effort of local citizens and thousands of volunteers from area towns, schools, and colleges, most of the metropolitan area was spared from flooding.

### *1.3 Community Needs*

Repeated exposure to flooding risk increases the stress of people living in the flood plain. Minimizing disaster impact is a responsibility of civic leadership. During the 2009 flood, a crucial aspect was the transparent planning and execution of the disaster response through daily televised meetings, including a focus on mental health. The American Red Cross, government social services agencies, and humanitarian groups were able to update the viewing audience daily. Public health officials and staff were linked with engineers to coordinate elevation mapping of special needs populations housed within the flood plain.

Part of disaster resilience includes changing the “built community.” Areas farther downstream, including Winnipeg, Manitoba, Canada, have been successful in funding permanent protection. The Fargo-Moorhead area is currently attempting to permanently protect its community, and has made strides in this area. Yet, the economic and emotional fatigue which results from repeated flooding episodes impacts citizen engagement and the willingness to continue to fight.

### *1.4 Establishment of Red River Resilience*

Red River Resilience (RRR) formed in the wake of the 2009 flood to heal the community psyche. Members represented volunteer disaster response organizations, spiritual care and ministry, public health, area colleges, medical and mental health facilities, and county social services. With intentional inter-disciplinary cooperation, RRR pursued its mission of promoting recovery of health, mental health and spiritual wellbeing for persons living in the disaster-affected area.

RRR promotes resilience by incorporating psychosocial aspects of community activation and mutual support paired with flexible civic leadership, community-wide involvement of mitigation efforts, frequently updated organizational linkages that enhance access to disaster resources, and sustained psychosocial support before, during, and after the crisis. It is an organization intentional about efficiency with clear objectives and follow-up.

## **2. One Message, Many Voices**

The initial task of Red River Resilience was to support the mental, emotional and spiritual wellbeing of community members as they faced disaster. Almost immediately the concept of resilience became central. With people busy fighting the flood, any resilience message had to be simple as well as effective. Since vulnerable populations were of particular concern, the message needed to be adaptable in a variety of situations. In 2009, faced with imminent flooding, RRR sought to help people immediately as well as to begin to develop a fully-researched public education program for building resilience.

### *2.1 One Message*

Resilience involves the ability to make a positive adaptation to environmental stress, and to maintain psychological health despite exposure to adverse circumstances [5]. Psychological theorists and researchers have conceptualized resilience in various ways: a set of stress-protective factors and attributes, a process of developing skills and strategies to cope with adversity, and a motivational force that contributes to personal growth through adversity [6]. The term resilience not only refers to the ability to “bounce back” and recover from difficult experiences [7], but also the capacity to withstand adversity and to sustain emotional and physical wellbeing in the face of challenging events such as natural disasters [8].

Pfefferbaum and colleagues [9] define community resilience as “the ability of community members to take meaningful, deliberate, collective action to remedy the impact of a problem, including the ability to interpret the environment, intervene, and move on.” Community resilience relies upon pre-existing adaptive capacities (e.g., economic development, social capital, information and communication, and community

competence) that can be mobilized during a disaster. Resilient communities provide strong civic leadership, involve citizens in mitigation activities, create organizational linkages to enhance disaster resources, and sustain psychosocial support during the crisis [10]. These attributes are particularly helpful when facing a natural disaster that is predictable and potentially controllable, such as a river flood.

To develop the resilience message, Red River Resilience incorporated strategies promoted by the American Psychological Association [11]: social support, planning and goal-setting, cognitive reframing (e.g., viewing a crisis as manageable, taking a long-term perspective), self-confidence, hope and optimism, learning from adversity, and self-care. The existing resilience literature yielded additional suggestions, as described below. Red River Resilience summarized five key actions that contribute to resilience by using an acronym, FACTS, and included three component skills within each action. Figure 1 summarizes the FACTS of resilience message.

The first letter of **F**ACTS stands for “Foster Hope,” which incorporates the component skills of focusing on the positive, having confidence in oneself, and putting things in perspective. The resilience literature provides strong support for these strategies. For example, Katz [12] found that children who grew up in adverse circumstances were most likely to thrive as adults if they were able to look beyond their hardships and visualize a better future. Resilience and optimism are strongly linked. People who experience positive emotions in the face of adversity are more resilient; they cope better and have a more successful adaptation to stress, as well as a more robust recovery [13].

The second of the **F**ACTS, “Act with Purpose,” endorses problem-solving, planning and goal-setting, and active coping. The resilience literature supports the importance of these strategies. Cognitive-behavioural and social problem-solving strategies are key components of research-based efforts to improve children’s psychological wellbeing by teaching resilience skills [14]. In times of disaster, taking purposeful action to ameliorate threat, minimize losses, and meet basic needs contributes to recovery and protects against long-term psychological distress [15].

The third of the **F**ACTS, “Connect with Others,” encourages people to maintain intimate relationships, give and receive help, and spend time with others. In the face of an external threat, it is common for people in a community to come together for mutual aid and assistance. Gordon et al. [16] found that community cohesion and volunteerism during the 2009 Red River flood reduced interpersonal risk factors associated with suicide. Social support promotes the resilience of both the helper and the receiver [17].

“Take Care of Yourself,” the fourth of the **F**ACTS, is often overlooked in resilience theory. The basis for including this principle is that people experiencing stress often tend to neglect self-care. Stress interrupts sleep patterns, alters appetite, and changes energy levels. These physiological changes can be adaptive in times of short-term stress, but over the long-term can lead to the development and/or exacerbation of health and mental health problems [18]. In addition to engaging in relaxing activities and taking care of physical needs, nurturing spirituality is an aspect of good self-care. Finding a sense of purpose and connection to a higher power or to something larger than oneself can contribute positively to resilience.

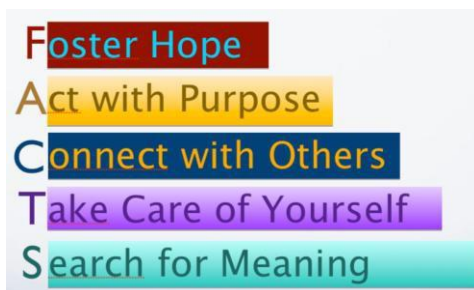


Figure 1. Resilience message (FACTS) promoted by Red River Resilience

The fifth and final of the FACTS of resilience is “Search for Meaning,” including positive meaning, self-examination, and personal growth. A positive sense of meaning helps people transcend adversity [19]. Successful therapies to help people recover from trauma often incorporate this concept [20]. The search for meaning may occur well after the crisis has passed, and it contributes to healthy recovery. People may experience post-traumatic growth or positive psychological change as a result of a struggle against extreme adversity [21].

The five FACTS of resilience are related strategies which work best in combination with one another. The FACTS are described in general terms to allow for individual differences in effectiveness and preferences. Red River Resilience encourages people to learn about their own resilience skills and develop their strategies as needed to meet new stressors and improve overall resilience. The FACTS message is applicable across all phases of disaster (preparedness, response, and recovery), and has been used successfully with a variety of audiences.

*2.2 Implementation and evaluation*

Preliminary research supports the FACTS of resilience in community disaster response and recovery. Youngs and O’Neill [22] conducted a qualitative study of two small towns affected by the 1997 flood of the Red River. One town (population of 4,000) mounted a heroic flood fight, but ultimately was inundated and suffered major flood damage. The other town (population of 1,000) hastily constructed a dike which successfully withstood the flood’s onslaught with only minimal damage to the town. Both communities had strong civic leadership and demonstrated extensive citizen involvement in flood mitigation during the flood fight. Eight years after the flood, thirty former civic leaders (fifteen from each town) were interviewed regarding what advice they might offer other communities facing similar disasters. Transcript excerpts were categorized using an *a priori* system based on principles of psychological resilience [11]. Five categories captured the vast majority of recommended actions: foster hope and optimism, maintain a realistic perspective, take purposeful action, accept support and help from others, and engage in self-discovery. These findings support the resilience strategies incorporated in the FACTS message as important to disaster-impacted communities in the Red River Valley.

Table 1. Mean use of resilience strategies by community flood volunteers

Resilience Strategy	N	Mean	SD
Maintained positive and optimistic outlook	124	4.18	0.69
Had confidence in ability to solve problems	124	4.27	0.63
Put current problems into perspective	122	3.96	0.73
Made a plan of action	123	3.61	0.96
Took decisive steps in solving problems	123	3.88	0.82
Faced my feelings and coped	123	4.07	0.72
Maintained close, positive relationships	123	4.28	0.65
Gave and received help from others	124	4.26	0.69
Spent time with other people	122	4.11	0.77
Took care of my body with healthy habits	124	3.83	0.87
Took time to relax	123	3.62	0.91
Nurtured my spirituality	123	3.83	0.99
Found positive meaning in the crisis	123	3.74	0.93
Tried to learn about myself and coping ability	123	3.60	0.89
Looked for personal growth from struggles	121	3.53	0.98

A second study examining the applicability of the resilience message was conducted in 2011, when the Fargo-Moorhead area faced another significant flood threat only two years after the 2009 event. A survey of community volunteers assessed the frequency with which respondents had used fifteen specific resilience strategies while mitigating the current disaster. Each of the strategies represented one of the component skills of the FACTS of resilience message (as described in Section 2.1 above). Table 1 lists the mean responses of 124 adult

respondents to the survey. Ratings ranged between 3.53 and 4.28, based on a 5-point scale (1= *never* to 5= *very often*), indicating frequent use of almost all resilience strategies. These survey findings support the acceptance of the FACTS of resilience as applicable for coping with disaster-related stress [23].

It is assumed that individual resilience builds community resilience (and vice versa), but there are surprisingly few studies regarding this issue. White and McNulty [24] found that individuals with confidence and mastery of certain skills in crisis situations were linked to community resilience. Future research is needed to determine the extent to which Red River Resilience's efforts contribute to building both community and personal resilience.

### 2.3 Many voices

Partnership in sharing the message of resilience is core to the vision of Red River Resilience, which functions as a consortium of public and private agencies from both North Dakota and Minnesota. Materials are designed for use by business, faith-based, health care, government and educational communities. RRR members committed to printing and distributing the original FACTS materials. Media groups, health care entities, religious organizations, and disaster response agencies have republished the information. The resilience message is available in seven languages (Bosnian, Arabic, Somali, Nepali, Kirundi, Spanish, and English), reflecting the ethnic diversity of the Fargo-Moorhead area. RRR seeks to share culturally-relevant FACTS materials, and incorporates input from the American Indian community and other groups to craft appropriate resilience materials.

In 2010, the University of Minnesota joined with Red River Resilience to create a *Day of Resilience* including disaster preparedness training targeting local public health workers, health care professionals, first responders, and partners in private and non-profit sectors. In subsequent years, numerous trainings were held for area social service agencies, libraries, schools, and health professionals working with those who were affected in some way by flooding. Red River Resilience members also moderated telephone call-in sessions for local residents in which a panel of disaster response leaders and psychological specialists presented the FACTS of resilience and other information. This impactful delivery mode allowed home-bound and disabled residents to receive timely information about flood preparedness, response, and recovery.

Other examples of inter-disciplinary partnerships in resilience communication:

- Students in a local university graphic arts class designed materials for public education purposes.
- A local university Extension Service donated printing of the brochures for state-wide dissemination and produced a YouTube video on the FACTS of resilience.
- A mental health facility provided printing for two new brochures, one geared toward youth and the other toward rural agricultural communities.
- A local pastor wrote a series of sermons, children's stories, skits and bulletin inserts for use in churches.
- A local social services agency created wallet cards with resilience FACTS for its clients.
- Several health care organizations included resilience messages in their electronic newsletters.

### 3. Keys to success

Encouragement and recognition of Red River Resilience by national disaster response agencies led to further study. How does Red River Resilience leverage individual and community resilience? What are the keys to success that can be identified and fostered in other locations with similar needs? Some of the keys are intuitive. Others are intentional. Still others are built out of practice; over the past two decades, the Red River Valley has been subject to annual floods, five of which were potentially devastating.

When there is great need, there is great motivation to act. In 2009, people in the Red River Valley came together to face a record flood disaster. Civic leaders crossed geopolitical boundaries, coming from multi-disciplinary organizations to be a part of the 2009 response and recovery effort. They joined to prioritize the shared vision of rebuilding the community's emotional resilience "one person at a time."

The organizational structure of Red River Resilience is intentionally non-hierarchical and decentralized, one that is conducive to creativity and is itself resilient [25]. The benefits of a flat organization include distributed political and organizational power with each person and represented group given the ability to act on behalf of the larger organization. The result for Red River Resilience was a geometric progression in the distribution and education of the resilience message. Red River Resilience members strive to stay abreast of research and theory, and develop disaster and resilience expertise and leadership.

The results of the moment, the message and the movement were and are synergistic. The Red River Resilience message is presented creatively to multiple audiences, in multiple venues, with multiple methods. Although there is no outside source of funding, the FACTS of resilience have been shared with thousands of individuals within the Red River Valley and beyond.

#### **4. New Voices**

Resilience is the antidote to the onset of stress and trauma [26]. Red River Resilience began its work to respond in a time of disaster, but its model and materials are relevant to crises of all forms. Because of their utility, the FACTS and other works of RRR are readily welcomed, with an every widening scope, beyond the flood season in the Red River Valley. Simultaneously, RRR continues its work to deepen the Valley's knowledge of and capacity for resilience, especially for the most vulnerable.

##### *4.1 Reaching the community's most vulnerable in times of disaster*

The deepest impact of a disaster often befalls a region's most vulnerable members [27]. Populations who require concerted care and outreach include those who are elderly, those living below the poverty line or with low income, those with disabilities and functional needs, and those residing in substandard housing. During all phases of disaster, Red River Resilience has made an effort to reach those individuals who may not be as connected to mainstream resources and opportunities. The FACTS of resilience transcend culture and can be strengthened by cultural values that produce resiliency.

##### *4.2 Building capacity, dissemination, and scope*

Red River Resilience looks to broaden its impact by helping those who experience crisis to discover their current resilience and to further develop their strengths. The FACTS of resilience have been taught to audiences as diverse as military families, homeless persons, children impacted by disaster, families in crisis, and clients of employee assistance programs. The FACTS message also has been incorporated into an award-winning disaster financial recovery toolkit [28].

Members of Red River Resilience have had the privilege of sharing their experiences and bringing their message to their own citizens as well as those abroad. They have provided support and materials to those in need and have presented to colleagues across the globe. Building bridges and collaborating with others provides opportunity to share the resilience message in culturally competent ways.

##### *4.3 Lifting new voices*

The efforts noted can create new voices of resilience from all segments of the community. The founding members of Red River Resilience have done their best to mutually systematize their network and materials. Their next step is to ensure that their work continues and that the reach does not recede. A new generation must be invited to step forward to share the message of resilience. Each community's wellbeing depends on it. For more information and downloadable resources, visit the website, <http://www.RedRiverResilience.com> and blog, <http://www.RedRiverResilience.com/blog>. Red River Resilience is also on Facebook.

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