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### The role of schools in disaster preparedness, response and recovery: what can we learn from the literature?

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## **The role of schools in disaster preparedness, response and recovery: what can we learn from the literature?**

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In order to contextualise the articles in this special issue, this introductory article surveys the relevant literature from recent disasters in mostly developed countries in order to explore the wider role of schools in disaster preparedness, response and recovery. The first section argues that as schools are hubs of their communities, it is important to understand the literature on communities in disaster contexts. This is followed by recent examples of school experiences of disasters, particularly in Japan, New Zealand and Australia. The final section synthesises the literature on children and young people in disaster contexts. The article closes with a set of recommendations for integrating schools into disaster planning.

**Keywords:** schools; disaster contexts; children and young people

In recent years, natural disasters and human tragedies have become commonplace on our television and computer screens. Technological advances have made reporting immediate and ongoing. We have seen the toll inflicted on communities by natural hazards such as tsunami, earthquakes, tornadoes, wild fires, snowstorms and floods. We have watched the horror of war, terrorist attacks, nuclear disasters, famine and random shootings. We have waited expectantly as people have been rescued from mine disasters, collapsed buildings and hostage situations. As each incident fades from our screens, and often our minds, the affected individuals, families, communities and countries are left to recover, repair and rebuild. Many of the events we witness occur in centres of population. And where there are centres of population, there are schools. Yet, research on the role of schools in disaster preparedness, response and recovery is sparse. This introductory article for the *Pastoral Care in Education* special issue on children and young people in disaster contexts aims to synthesise some relevant and recent research on the role of schools and their communities in disaster settings, in particular in the three countries that are the focus of this special issue – Australia, New Zealand and Japan, in order to contextualise the articles that follow.

### **A selected literature review**

Researching disaster situations is a relatively new but fast-growing field across many disciplines. In order to keep the review of the literature for this article focused and relevant, it has been narrowed to three phases of the disaster event sequence – preparedness, response and recovery – and viewed from three perspectives – that of communities,

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schools and children/young people. Given the nature of the events and the economic status of the countries represented in this special issue, the literature has also been limited to research studies that can further our understanding of disaster preparedness, response and recovery in centres of population in mostly developed nations.

### **Understanding the disaster sequence from the community perspective**

The literature on disasters defines these events in different ways. Some definitions focus on the hazards that can cause disasters (see, e.g. Ferris, Petz, & Stark, 2013), others focus on managing the crisis situation arising from the disaster (see, e.g. Porche, 2009) and yet others focus on the trauma caused by the disaster (Bonanno, Brewin, Kaniasty, & Greca, 2010). Ferris and Petz (2012, p. XIX) state that natural disasters are: ‘The consequences of events triggered by natural hazards that overwhelm local response capacity and seriously affect the social and economic development of a region’. Smawfield (2013, p. 2) uses the definition: ‘... sudden and calamitous events producing great material damage, loss and distress’. Bonanno et al (2010, p. 5) state that: ‘Disasters cause harm, destroy property, and disrupt survivors’ lives in myriad ways’.

Common themes across definitions in the literature are suddenness, unexpectedness, lack of preparedness, size of the event and ensuing damage, inability of existing systems to cope, large-scale death or dislocation, and often lack of immediate access to food, water, shelter and medical aid (Cahill, Beadle, Mitch, Coffey, & Crofts, 2010; Ferris & Petz, 2012; Ferris et al., 2013; Smawfield, 2013; Winkworth, 2007). Not all disasters neatly fit simplified definitions. A drought, for example, is cumulative rather than sudden and a mine disaster is localised to a small area. Regardless of the cause, the size or the location, there are many common impacts from immediate physical damage to long-term psychological trauma. A feature of a disaster is also the way in which it changes the lives of those most affected, both individually and collectively. As Winkworth (2007, p. 17) notes:

The scale of the consequences of the event is thus a defining feature of a disaster and so is the sense that a group of people make of the event – a shared identity that they have, together, been affected by a major catastrophe.

### ***Community preparedness***

While some disasters occur on a scale that is unprecedented, such as the 2004 Indian Ocean Boxing Day tsunami or 2013’s Typhoon Haiyan, many communities that are located in areas of vulnerability to natural hazards have built up levels of preparedness. In 2011, most buildings stood up to the East Japan earthquake; it was the size and force of the tsunami that followed that caused the devastation, loss of life and nuclear disaster (Ema, 2013; Ferris & Petz, 2012). The Japanese are well prepared for earthquakes which are regular occurrences given their location on the Pacific ‘ring of fire’ (Ministry of Education, Culture, Sports, Science and Technology [MEXT], 2012; Wisner, 2006). In reflecting on the 2011 earthquake, Ferris and Petz (2012, p. 9) state: ‘It is a testament to Japan’s pioneering work in developing earthquake-resistant construction techniques that only an estimated 100 people were killed in the earthquake itself’.

Japanese coastal settlements have also learned from a history of tsunami. People in the Taro district of Miyaki city on the Iwate coast had learned from disastrous tsunami in 1896 and 1933. Over time, they built several thousand metres of dykes up to 10 m

high. This was to protect them from the tsunami that followed the 1960 Chilean earthquake but sadly not the 2011 tsunami, where the Taro dykes were inundated with a wall of water over 20 m high. Also prior to 2011, over 80% of Japanese school buildings had been upgraded to an earthquake proof standard but for many schools not adjacent to the coast, measures to address tsunami had not been fully considered (Ema, 2013; MEXT, 2012).

Similarly, the state of Victoria in Australia anticipates bushfires every summer. Following each major fire, a report is released. While those in the affected area consider the reports are often, 'too little, too late' (Burns, 2013, p. 39), there is evidence of cumulative learning from these experiences. The approach developed in bushfire-prone communities is one of a prevention, preparedness, response and recovery approach. The Ministerial Taskforce in 2006 praised the preparedness of local communities and the 'spirit of cooperation that minimised individual tragedy and loss in the 2006 fires' (cited in Burns, 2013, p. 41). However, the high loss of life in the 2009 fires meant that this approach had not succeeded as well as it should have. Changing climatic and demographic factors were identified. For example, newcomers to rural areas were not often bushfire aware and older people who chose to retire on the fringes of the bush were not often able to help themselves during a major fire. Improved community education has been undertaken around pre-season scrub clearing and fire reduction burning, improved warning systems, early evacuation and emergency procedures. This is supported in the late spring by media campaigns, community meetings and a dedicated telephone line (Burns, 2013). In the 2013 New South Wales Blue Mountain bushfires, strategies such as early evacuation were used to minimise loss of life.

Yet, despite this preparation, examples abound where the event, or the scale of it, was unanticipated. New Orleans, for example, had become more vulnerable to hurricanes due to the destruction of Louisiana's wetlands, which in the past acted as a buffer to storms and floods. The common expectation was that a storm from the Gulf of Mexico would slow down when it hit land. Not only was New Orleans more environmentally vulnerable to flooding, the city was also home to large sections of the population living in poverty (Newton, 2013; Sastry, 2009). In August 2005, when Hurricane Katrina hit, the entire population of nearly half a million people had to leave and relocate (Sastry, 2009). The effects were severe as Sastry summarises: 'Many people had family members or friends who died or were injured, had homes that were severely damaged or destroyed, lost their jobs or businesses, and had their lives severely disrupted' (2009, p. 172). The city was poorly prepared. There was minimal disaster readiness, levees were in a state of neglect, no one had identified Red Cross-sanctioned shelters, and there were no drivers for the evacuation buses (Hawkins & Maurer, 2010). When the call came to evacuate, over a half of the population had no means of transport out of the city (Newton, 2013). The city's leadership fell into disarray, unable to deal with a situation beyond their experience or comprehension (Porche, 2009).

More information is now available internationally to enable governments, agencies and communities to be better prepared for the unexpected. As Haig (n.d., p. 6) explains:

These measures can be described as logistical readiness to deal with disasters and can be enhanced by having response mechanisms and procedures, rehearsals, developing long term and short term strategies, public education and building early warning systems. Preparedness can also take the form of ensuring that strategic reserves of food, equipment, water, medicines and other essentials are maintained in cases of national or local catastrophes.

### *Community response*

As Gordon (2004a, p. 1) suggests, 'Communities provide a shared life based on a common locality, culture and routine within a communicating group in which members are united in their common identity in spite of personal differences'.

Social bonds are built over time and through common values, shared identity, communication links and collaborative actions. In normal times, threats to a community's safety or social fabric are delegated to agencies such as police, fire or ambulance. Communities consist of *structures* that bond members together and *functions* that drive their interactions. When disaster strikes, the community has limited capacity to cope and the bonds and interactions are disrupted (Gordon, 2004a, 2004b; Kaniasty & Norris, 1999).

Drabek (1986) has identified a common sequence of community response following a disaster. The first phase is shock and disorganisation. This is followed by an altruistic or heroic phase when individuals put their lives at risk to help others. Groups quickly form to undertake collaborative action. This leads to a period of high morale, often called the 'honeymoon period' when communities are thankful to have survived, pleased with how they have pulled together and are optimistic for the future. This phase lasts until governments, aid agencies and response and recovery systems are not seen to not be living up to expectations. Groups begin to bicker and blame. Communities become dispirited; individuals become depressed. Eventually, however, reconstruction begins and a sense of hope for a positive future begins to re-emerge.

Following the 2009 Victorian bushfires in Australia, researchers Borrell and Boulet (2009) interviewed affected communities. Common response themes to come from the interviews were numbness and confusion in the immediate aftermath, initial community bonding, hyperactivity in attending to tasks, survivor guilt, protective parents and clingy children. Six months later there was realisation of loss and that that life had changed forever, hyper-vigilance and flashbacks, and coping with tragedy and loss through disassociation. Borrell and Boulet discussed their findings in relation to Gordon's (2004a) framework of community bonding.

Gordon, a community psychologist has observed patterns of community response over the last 20 years as Australia has faced and recovered from regular large-scale bushfires (see Gordon, 2004a, 2004b, 2007). He has explained community response and recovery as a process of de-bonding and re-bonding. Prior to a disaster, communities are webs of social structures and interactions. There are relatively predictable patterns of relationships and communication. In the immediate aftermath of a disaster, the focus shifts to survival. Communication is both simplified and intensified. Pre-existing social relationships and patterns are disrupted. Thus, the disaster causes social 'debonding'. As the immediate event subsides, people begin to organise themselves in order to search for survivors, get aid for the injured or provide comfort to the distressed. A new emergent and context-related social fabric emerges with little similarity to previous hierarchies or structures. This is a stage of 'fusion' or 'hyperbonding', in which acts of heroism, altruism and togetherness form new bonds. This stage, however, also sees miscommunication, disorganisation and loss of former boundaries. Tensions increase, rumours abound and groups begin to compare their plight with others. As the disaster situation moves from response to recovery, these tensions lead to perceived inequities, blame and judgement. The differences between groups are exacerbated and 'cleavage' planes develop. In order to promote individual and community recovery, social infrastructures need to be re-established through clear communication and 'rebonding'

opportunities. Recovery planning needs to take account of the importance of recreating workable social processes and structures.

Borrell and Boulet (2009) examined their bushfire community findings against Gordon's framework. Within their sample, they found some examples of de-bonding, but described the responses they observed more as disassociation, that is, inability to connect rather than deliberate separation. They did find examples of both fusion and cleavage but these 'would seem to be inextricably linked and overlapping to some degree, rather than being consecutive phases' (p. 11). They found insider groups bonded against outsider groups, with the criteria for insider or outsider status based on whether you lived in the community prior to the fires, were in the area when the fires happened, lost property or a loved one, stayed in the area after the fires, and/or received substantial aid. The parallel notions of bonding and cleavage went beyond the communities into the schools. 'The tight "fusion" associated with insider/outsider divisions was visibly evident in the school grounds, where pupils would arrange themselves in tight huddles almost physically excluding anyone else but their "own kind"' (p. 12). Overall, Borrell and Boulet felt that the Gordon framework was useful in providing an explanatory tool for community responses as it reinforced:

... the centrality of human relationships for recovery, both formal and informal, as well as relationship with the natural world and the built environment. Networks and processes of continuous relationship between people, communities, social/political systems, the material world and the natural environment are evidently intricately connected, and must be viewed together .... (p. 13)

### **Community recovery**

Understanding why some communities cope better than others is part of the burgeoning field of research into resilient communities (Price-Roberston & Knight, 2012; Thornley et al., 2013). Internationally, the focus is moving more from *community preparedness* to *community resilience*. In Thornley et al.'s (2013) study following the 2010–2011 Canterbury earthquakes in New Zealand, they found four key factors that influenced a community's ability to respond and recover from a disaster. Firstly, pre-existing community connectedness played an important role. This included the strength of a community's infrastructure. 'Differences in community responses and outcomes between the six case studies can be attributed largely to differences in community connectedness and infrastructure *before* the earthquakes. Communities that identified their own needs and solutions were well placed to adapt' (Thornley et al., 2013, p. 2, emphasis in original). They also noted the importance of communities reconnecting through community events in local venues although this was often difficult when community venues were closed due to earthquake damage. Secondly, the way in which a community participated in disaster response and recovery activities impacted on their levels of resilience. Having a community infrastructure, such as existing leaders or groups was helpful but new initiatives, informal leaders and grassroots activities also emerged. Thirdly, where communities took a strong role in local decision-making and there were opportunities to engage in official decision-making about the city's future, they gained a sense of empowerment. Fourthly, it was necessary to receive and acknowledge the need for support from outside their communities, especially from local and national agencies. Other disaster response literature, however, (e.g. Norris & Kaniasty, 1996) distinguishes between *received* and *perceived* support and the difference that makes to recovery. Regardless of the amount

and timeliness of support received, it was how this support was perceived that contributed to a community's attitude to how the support aided their recovery.

The Thornley et al. (2013) report suggests three strategies to increase community resilience in preparation for emergency situations. These are to: (a) encourage community-led organisation and action (b) understand community complexity and diversity and (c) develop and strengthen partnerships between communities and local and national government. They conclude:

Resilience-building efforts need to be developed by and with community leaders, and supported by authorities. Getting to know communities, and understanding community dynamics, is vital. This may require new models of partnership and shared decision-making between authorities and communities. (p. 3)

Disaster researchers are also finding the concept of social capital, in particular, bonding, bridging and linking capital as helpful explanatory tools for community recovery and resilience (see, e.g. Hawkins & Maurer, 2010; Winkworth, 2007). *Bonding* social capital refers to relationships in a network where individuals have a lot in common (for example, location, socio-economic status or family ties). *Bridging* social capital is where people build relationships despite differences (for example, differences in age, socio-economic status, race/ethnicity or education). *Linking* social capital is where individuals build relationships with institutions and people who have relative power over them (for example, with those who provide employment, services or resources). Following Hurricane Katrina, Hawkins and Maurer (2010) followed 40 families through their disaster survival, response, recovery and rebuilding experiences. Their research showed that all levels of social capital collapsed in the immediate aftermath. Bonding social capital was most important for immediate survival and support but bridging and linking capital were significant in longer term recovery and community revitalisation.

Further understanding of this phenomenon comes from Lin, Cook, and Burt (2001). When communities are more alike, the connections are stronger but the focus can be inward looking and therefore not as helpful in longer term community recovery and rebuilding. Connections between people who are less similar may not be strong but in a disaster situation may have more useful longer term outcomes. In New Orleans, there were numerous examples of immediate altruism and neighbourliness but response and recovery was hampered by the ability to bridge social networks and link with local and national agencies to prompt swift and appropriate action (Hawkins and Maurer, 2010). Lower socio-economic communities, especially, can be disadvantaged if they do not have the links to important wider social networks.

### **Understanding the disaster sequence from the school perspective**

The literature on the role of schools in disaster settings is sparse (McManus, 2005; Smawfield, 2013) despite the numerous ways in which schools might be affected. They might be the site of the disaster as in a school shooting; part of an affected community as in a flood; used as relief centre, if they are undamaged, as in an earthquake; or needed to support affected families through a community tragedy, such as a train disaster.

### ***School preparedness***

The most common literature relating to school preparedness for disasters is usually drawn from broader disaster literature and provides advice to schools on how to develop



school crisis plans or emergency response strategies. This is often triggered by an event in one community which then heightens the awareness for better preparation in other communities.

Following the Black Saturday bushfires in 2003 in Australia, schools were encouraged to develop a trauma management plan as part of a more comprehensive emergency management plan (McManus, 2005). It was suggested that this plan should be developed in collaboration with the community, written in a way in which all roles and responsibilities would be clear, specific, agreed and understood. By having it prepared through consultation and negotiation, it would alleviate the confusion and stress of post-event decision-making. McManus suggests that the collaborative development process should include considering possible events and their effects, immediate, short- and long-term actions, roles of school and community personnel, use of school buildings and facilities, impact on and support for staff and students, medical needs, communication and managing the media.

These days, Departments of Education in Australian states and territories, in conjunction with federal and state disaster management agencies, provide and publicise disaster preparedness resources at a range of levels. For schools there are guidelines for principals and school boards, such as *The principal's guide to bushfire* (Department of Education, 2011) which contains detailed information, flow charts, checklists, diagrams, templates, posters and post-disaster evaluation forms.

Similarly, in New Zealand, the Ministry of Education uses a range of strategies and resources to develop awareness in schools around the country. Following the September 2010 Canterbury earthquake and 2010 Pike River Mine disaster, they outlined how schools could deal with the unexpected. In the Ministry's official publication, the *New Zealand Education Gazette*, which is delivered to all schools, they reminded schools that: 'History tells us that every year in New Zealand there are going to be events that distress, disrupt and shock early childhood and school communities' (Ministry of Education, 2011, p. 3). They went on to provide the Ministry's free phone number, discuss the role of the Ministry's traumatic incident team and how to access guidelines, resources and workshops.

The Japanese Ministry of Education, Culture, Sports, Science and Technology has compiled a comprehensive report on school responses to the 2011 triple disaster and highlights the importance of school preparedness (MEXT, 2012). It gives the example of Tokura Elementary School, whose three-storey building was completely inundated but without loss of life. MEXT attributes this to the fact that the school was constantly aware of the possibility of a tsunami. The school regularly practiced evacuation drills and discussed possible needs, such as improved communication and survival kits. With this heightened awareness, they were attuned to the severity of the 2011 tsunami and were able to guide their students to safety.

In the UK, there are increasing recommendations from agencies and organisations, such as the Department for Education, the Royal Society for the Prevention of Accidents and the Red Cross, for schools to create or update emergency management plans. The literature also contains helpful individual school case studies. In 2007, floods inundated communities near Hull in the United Kingdom. Schools affected by these floods, such as Sydney Smith Secondary School and Cottingham Croxby Primary, have since made changes to their emergency preparation and response plans (Beaton & Ledgard, 2013). Sydney Smith has negotiated evacuation plans with students' families with updated information logged on the school's computer. The computers are backed-up, and important copies are kept in a waterproof safe above flood level. At Croxby,

they have installed floodgates and a depth sensor as well as updating their emergency evacuation and contact plans.

Following the 2010 Canterbury earthquake, principals reported that they had put measures in place and were better prepared for the more devastating 2011 earthquake that followed (Education Review Office [ERO], 2013; Mutch & Gawith, 2013). Schools updated their communication and emergency procedures, including systems for accessing information when power was out, using alternative communications, such as, texting, Facebook, twitter and websites and having alternative child collection arrangements.

Despite such examples, researchers highlight the lack of a comprehensive approach that incorporates school building design and construction, the school as a community facility for disaster response and recovery, the importance of incorporating schools into national and local disaster response strategies, the school as a disaster curriculum resource and the preparation of teachers and school leaders for their role in crisis management (Back, Cameron, & Tanner, 2009; Smawfield, 2013; Wisner, 2006).

### ***School responses***

US school psychologists, Lazarus, Jimerson, and Brock (2003a) have written extensively on how schools can prepare for responding to different crises. They state:

Children look to significant adults in their lives for guidance on how to manage their reactions after the immediate threat is over. Schools can play an important role in this process by providing a stable, familiar environment. Through the support of caring adults school personnel can help children return to normal activities and routines (to the extent possible), and provide an opportunity to transform a frightening event into a learning experience. (2003a, p. 1)

In 2008, a group of New Zealand school students and their instructor were swept away and drowned in a flooded river. The principal, Murray Burton, shared his experiences in order that other school leaders could learn from the tragedy. One of his immediate tasks was managing the flow of information. Details of what happened came through in a haphazard and fragmented way. He was asked by the police not to give out any information that was not confirmed by them. Meanwhile rumour and speculation were rife: ‘Throughout the unravelling of the tragedy, the police were always one step behind the media, and therefore, we were one step back again. This put me into ... a difficult situation’. (Burton cited in Cummings, 2013, p. 2). One way to manage the situation was for the principal to be the only one from the school talking to the media. While doing this, he was also leading his own team through the emotionally charged and quickly changing situation, arranging for the Ministry’s traumatic incident team to provide support to the school and families, and responding to the community’s and the nation’s outpouring of grief. In hindsight, what helped him manage the situation was ‘not around processes and guidelines and paper. It’s really been about the fact that life is about relationships and people ...’ (Burton cited in Cummings, 2013, p. 3). He needed to draw on his skills as a leader and the trust, respect and relationships that he had already established to bring his school through this tragic time.

In Japan, following the 2011 earthquake and tsunami, the principal, Kaiyaki Kisu and a teacher, Mikiko Mori, from Matsuiwa Junior High School shared their stories (Japan Society, 2011). The school was a temporary shelter on the first night of the disaster but without proper facilities it was necessary for evacuees to move to other sites in

the following days. When the school was reopened, the focus was on creating an atmosphere of calm and reassurance and to quickly restart regular activities. The school was in a state of disrepair with intermittent electricity. The gym was used as a community support centre and temporary housing was built on the school grounds. Principal Kisu noted that a most beneficial aspect was his teachers' 'bright attitude, positive thinking and enthusiasm for the students'. Ms Mori commented on the importance of the school as centre for the community: 'People gather and bring information, they come to shelter, and the children come to learn ...' The advice that Ms Mori, would pass on to others in a similar situation is to focus on student well-being and not to rush the process of recovery. The purpose of schooling, she now feels, is not just for students to gain understanding, 'but rather a preparation for them to have humanity and the strength to act'.

The ERO is New Zealand's school evaluation agency. The building housing their office in Christchurch collapsed in the 2011 Canterbury earthquake. When Christchurch schools were sufficiently recovered for reviews to be continued, ERO re-shaped the review process to focus on how schools had coped and what lessons could be learned from their experiences. In summary, ERO found the focus was on people rather than procedures. They also noted how students and families looked to school leadership for guidance. Principals and teachers needed to model calmness and confidence even if this was not how they felt. Schools put an emphasis on the well-being of children, staff and families, and on getting children back into good learning routines while managing ongoing anxiety (ERO, 2013).

### *School recovery*

School recovery is an ongoing process. Once the physical recovery, in which buildings and grounds are repaired or rebuilt or alternative sites or modes of learning are established, returning to a sense of normality can begin. Strategies and resources need to be in place for the social, emotional and psychological recovery of staff and students as schools return to the purpose of teaching and learning. The pastoral care role of schools becomes even more significant as Lazarus et al. explain (2003b):

Although the natural disaster may only last a short period, survivors can be involved with the disaster aftermath for months or even years. Collaboration between the school crisis response team and an assortment of community, state and federal organisations and agencies is necessary to respond to the many needs of children, families and communities following a natural disaster. Families are often required to deal with multiple people and agencies ... Healing in the aftermath of a disaster takes time .... (p. 2)

ERO (2013) highlighted the importance of getting children and young people back into school following the Canterbury earthquakes in order to normalise the situation. Even before the Ministry of Education reopened schools officially, schools put strategies in place for teachers to connect with their students, provide learning activities for students to undertake at home, where that was possible, or set up 'learning hubs'. There was considerable movement of families after the February 2011 earthquake, either temporarily or permanently. Over 10,000 students enrolled in schools in less damaged parts of the city or elsewhere in the country. Host schools had to deal with the influx of displaced students often with no records from their former schools. One school in a town many hours drive away reported setting up five new classrooms to cope with these students. This school chose to group the Christchurch students together and devise a more appropriate curriculum for them:

Programmes focused on oral language, retelling experiences, practical art, and education outside the classroom. Local teachers were engaged along with a teacher from Christchurch whose school was closed. Christchurch parents were made to feel very welcome in the school and the community. (ERO, 2013, p. 14)

As schools reopened across the Christchurch, adjustments needed to be made to accommodate all the children remaining. New locations or temporary classrooms needed to be found. Some schools shared sites and six secondary schools worked in shifts (early morning until noon and noon until late afternoon) on three sites with buses ferrying students across the city.

In comparison to the 2008 Sichuan earthquake in China, the New Zealand situation was small-scale. In Sichuan and neighbouring Gansu provinces, 88,000 people died, five million were made homeless and schooling was disrupted for 2.5 million children (Zhong, 2013). Access to schooling needed to be prioritised. Students facing examinations at the end of their primary or secondary schooling were the first priorities and were sent to neighbouring provinces or housed in pre-fabricated classrooms or tents. Vulnerable children were another priority, especially the 650 children who were orphaned by the tragedy. Child friendly spaces were set up in camps or temporary shelters to provide child protection and psychological support for dislocated communities. These spaces provided day care for young children, informal education for school-aged children, life skills training for adolescents and support for parents (Zhong, 2013).

Once schools are up and running, there are recommended strategies for supporting the emotional and psychological recovery of school personnel. Firstly, it is important to identify children and young people who are most at risk and secure appropriate support or interventions for them. Secondly, provide time for children or young people who are not severely impacted to discuss the disaster. Thirdly, allow staff to discuss their feelings and to share their experiences, and look for warning signs that they also might not be coping. The first two strategies are discussed in the next section but supporting staff is equally as important (Brock & Jimerson, 2013; Lazarus et al., 2003a, 2003b).

In an emotional narrative on the 2007 floods near Hull in the UK, this head teacher tells how he prepared his teachers for what they would find:

Being mindful of the extent of the devastation, I warned the staff to be prepared to shed tears as they toured the school seeing the fruits of their labour ruined. I suggested that they walk around the school individually to absorb the horror of the situation and then meet together near the staffroom in half an hour. Many tears were shed during that time and when they eventually made their way back to the staffroom where I appraised them of the seriousness and hopelessness of our situation. (Beaton & Ledgard, 2013, p. 112)

Similarly, a Christchurch principal discussed the teacher only day she held before her school reopened after the February 2011 Canterbury earthquake. There were two areas of focus for the day. One was for staff to share their experiences so that they could understand what each other was coping with. This information helped them to re-bond as a staff, enabled them to provide emotional and practical support to each other and prepared them to look out for signs of stress in the days to come. The second focus for the day was how they would approach the return of children, especially when two children had lost their mother in the earthquake. The school decided the best way forward was to release the deputy principal to focus full-time on vulnerable children and families (Mutch & Gawith, 2013).

## Understanding the disaster sequence from the perspectives of children and young people

The needs and responses of children and young people are often under-recognised in disaster research (Cahill et al., 2010; Gibbs, Mutch, MacDougall, & O'Connor, 2013; La Greca, 2006; Plan International, 2010; Save the Children, 2006; Winkworth, 2007).

### *Children and young people's preparedness*

The research into children and young people's preparedness covers three broad approaches. Firstly, there is the research that focuses on children and young people's individual preparedness for unexpected occurrences. Secondly, there is literature on how schools might better prepare children and young people to cope in an emergency. Thirdly, there is increasing research into the role that children and young people play in helping their families and communities prepare for disasters.

Building children's hardiness or ability to bounce back from a range of stressful situations is important in their long-term recovery from adversity. Cahill et al., (2010, p. 28) summarised a range of psychosocial and mental health literature from which they devised a model of key protective factors to enhance children's resilience and well-being. The five protective factors are:

- (1) Sense of safety and security (*I am safe*)
- (2) Self-worth (*I am respected and valued*)
- (3) Social connection (*I am wanted and needed. I can contribute and be contributed to. I can listen and be heard*)
- (4) Self-efficacy (*I can do things to look after myself and others. I can learn. I can control the way I behave. I can influence my environment*)
- (5) Sense of purpose, hope and meaning (*Life is worth living. The future is worth striving for. I am not to blame for the things I cannot change in the world around me*).

Schools are well placed to build on these protective factors and help prepare children to cope with the unexpected. As well as teaching about disaster events, they help children to develop relevant skills and dispositions through curricular and extra-curricular activities. In Australia there are teaching resources to assist teachers to prepare children for disasters, such as the *Disaster resilience education for schools* toolkit or the multi-media resource *Dingo Creek*. There are interactive learning tools, such as the cartoon series *Li'l Larikkins*, the *Get Ready Kidnas* computer games, the *Red Alert* digital stories and the *Stormwatchers* web-based game (Emergency Management Queensland, 2011). Following the earthquakes in New Zealand in 2010 and 2011, the Ministry of Education encouraged schools to review their emergency procedures, to become familiar with disaster preparedness resources, such as *What's the plan, Stan?*, take part in the nationwide 'ShakeOut', and to consider integrating disaster preparedness into the curriculum through health, science and social studies. Their overall preparedness message was to 'minimise harm and maximise protection' (Ministry of Education, 2012, p. 6).

School-based disaster preparedness programmes have been shown to reduce fear during weather-related and geophysical events. They lead to better decision-making under duress and promote a sense of control in disaster situations (Back, Cameron, & Tanner, 2009; Cahill et al., 2010; Ronan & Johnson, 2005). In an international review

of the role of schools in disaster risk reduction, however, Wisner (2006) found that many schools focused on earth science and disaster drills but few integrated the two. Fewer developed a local curriculum and even fewer went outside the classroom to consider the hazard in the school or local area. Similarly, a study of emergency preparation in the US, (National Commission on Children and Disasters, 2010) found the vast majority of schools were significantly unprepared for disasters despite a plethora of federal, state, district and NGO initiatives and resources.

Researchers suggest that one successful way to get families to be better prepared in case disaster strikes is to use children as a conduit (Back, Cameron, & Tanner, 2009; Cahill et al., 2010; Johnson, 2011; Plan International, 2010; Ronan, Crellin, Johnson, & Becker, 2008; Ronan & Johnson, 2005; Wisner, 2006). Useful disaster preparedness programmes can involve children in risk mapping their school and local environment and undertaking home hazard minimisation strategies. At school and at home they can practice disaster drills and evacuation plans. Participation in search and rescue, first aid, risk communication and survival activities can further prepare children and families for unexpected events. In order for drills and preparation to be effective, they need to be regular, participatory and across multiple situations. Homework tasks need to involve interaction between children and parents in order to be successful in imparting appropriate knowledge and procedures (Ronan et al., 2008; Ronan & Johnson, 2005).

In Jamaica, for example, children are central to the Office of Disaster Preparedness and Emergency Management's disaster preparedness strategy. Disaster preparedness, risk reduction and arts-related activities are integrated into the school curriculum. Drills, simulations and problem-solving activities are also a focus of during hazard awareness days, earthquake awareness week and disaster preparedness month (Morris & Edwards, 2008 cited in Cahill et al., 2010).

### *Children and young people's responses*

Disasters can have serious long-term effects children's health and well-being (Australian Psychological Society, 2013; Bonanno et al., 2010; Brock & Jimerson, 2013; Norris et al., 2002) but the severity of their reactions will often depend on their pre-disaster risk factors (Bonanno et al., 2010; Brock & Jimerson, 2013; Brock & Jimerson, 2013; Lazarus et al., 2003a, 2003b). Lazarus et al. (2003a, p. 2) summarise the possible pre- and post-disaster risk factors:

These include exposure to the event, personal injury or loss of a loved one, level of parental support, dislocation from home or community, the level of physical destruction, and pre-existing risks, such as previous traumatic experiences or mental illness.

The National Association of School Psychologists (2008) suggests that the most vulnerable children will be those whose family members were killed or injured in the disaster or might still be missing. Other factors include previous mental health issues, recent loss (particularly of a parent), prior traumatic experiences or strong identification with those affected through familial, community, cultural, religious or geographical ties. It is useful for adults in caring roles to recognise the signs of grief, anxiety or stress so that they can steer children and families to the support services that are available. Care must be taken to understand and respect cultural issues and boundaries around dealing with death and grieving.

Many children may experience some of the following symptoms of distress and anxiety but if these are extreme or prolonged, specialist help should be sought. Very

young children may experience bed-wetting, clinginess, thumb sucking, sleep disturbances, fear of the dark or loud noises, or withdrawal from friends and routines. School-aged children might also become irritable or aggressive, not want to go to school, display poor concentration or loss of interest in friends or activities. Adolescents might display sleeping or eating disturbances, learning problems, physical complaints, increased aggressiveness or poor behaviour (Australian Psychological Society, 2013; Lazarus et al., 2003a, 2003b; The National Association of School Psychologists, 2008). A study of Thai youth who survived the 2004 Boxing Day tsunami found that one year after the disaster they continued to have concentration problems, obsessive thoughts, nightmares, confusion, loneliness, a fear of the sea, headaches and lethargy (Tuicome-pee, 2008, cited in Cahill et al., 2010).

The principal of Matsuiwa Junior High School (Japan Society, 2011) commented that when students returned to school, despite what they had been through, including those who had lost family members, they expressed delight at being reunited with their friends and parents reported how children had matured through their experiences. As time went on, however, he did notice that the difference between those children who were directly affected and those who were not became more obvious. This was not always easy to discern but surveys given out to the children or discussions with counsellors revealed reactions such as their inability to sleep at night or their fear of the sound of the ocean.

In research on children's responses to the Canterbury earthquakes 12–18 months after the events, Mutch (2013, p. 450) tells of the vividness of the children's recall: 'They could describe in detail where they were, what they were doing and how they felt at the time of the September, February and June earthquakes ...' Their memories of the time included sights ('the city going up in dust'), sounds ('everyone shrieking, screaming and crying') and emotions ('really scared; really sad; freaked out; surreal'). Yet through all this, they could also tell stories of courage, humour and thoughtful reflection. One boy described the experience as 'sailing through a river of emotions'. A brother and sister learned that, 'Stuff didn't matter. You can buy new stuff but you can't buy someone's life back'.

### *Children and young people's recovery*

For children and young people with severe and ongoing trauma, appropriate therapies and counselling approaches are best left to those with the expertise (Australian Psychological Society, 2013). Lazarus et al. (2003b) suggest that schools should help children learn effective coping strategies, foster supportive relationships and help children make sense of the disaster event. Opportunities for talking to a caring and trusted adult, finding support from their peers, expressing their feelings through arts-based activities and maintaining normal routines are all suggested ways that schools can support traumatised children's re-introduction into regular school life (Cahill et al., 2010; Gibbs et al., 2013; Prinstein, La Greca, Vernberg, & Silverman, 1996; The National Association of School Psychologists, 2008).

The majority of children returning to school will display symptoms for the first few months but most will recover within a year or two (Australian Psychological Society, 2013; Bonanno et al., 2010; La Greca & Silverman, 2009). Parents and teachers are advised to return to normal routines as best suits the circumstances to give children a sense of stability and continuation (Cahill et al., 2010; Gibbs et al., 2013; Prinstein et al., 1996; The National Association of School Psychologists, 2008). Talking and

listening are important. Even children who are not directly affected can feel a sense of loss. Acknowledging children's feelings is important but so is not dwelling too much on the matters that they find distressing. Finding ways to distract them by focusing on the positives such as people's compassion or resilience is helpful. Getting children to find ways that they might actively contribute by helping others or fundraising can also give them a sense of agency (The National Association of School Psychologists, 2008). Prinstein et al's (1996) research confirms this advice. They found that the three best coping strategies for children were opportunities for emotional processing (for example, arts-based activities), the return to regular roles and routines (for example, returning to school or regular bedtimes) and distraction from rumination (for example, by listening to music). From their research, Prinstein et al. promote strategies that represent, 'an effort to gain control over a stressful environment and this appears to be an important concern after a destructive natural disaster' (p. 464).

Gibbs et al. (2013) discuss a variety of strategies used to assist children to process their experiences in a safe way. They report on the use of mobile methods in the aftermath of the 2009 Victorian bushfires in Australia. In this strategy, the researchers invited children on a walking or driving tour of their local area. The children acted as tour guides, pointing out and photographing features of their local area that had significance for them. Gibbs et al. also discuss the 'Teaspoon of Light' drama programme used with children following the Canterbury earthquakes in which children helped a story character repair her torn cloth of dreams. Several years later teachers and children report how important that activity was in bringing the school together and focusing on a positive and hopeful future (Burwood school, personal communication, 2013).

The Japanese MEXT recognised the importance of sports, outdoor education and the arts in helping children's recovery from the 2011 triple disaster. In Fukushima, for example, 36 different programmes covering music, drama, literature, arts and film were offered:

The children participating in these programs danced to African music performed by a duo consisting of a Senegalese dancer and a Japanese musician, cheered as they watched a circus performer juggle while riding a unicycle, felt the intensity of a real Tsugaru-shamisen, laughed at the farcical stories told by a star Rakugo comedian, and were moved by a Noh performance viewed close up and melodies played by piano and wind instruments. (MEXT, 2012)

Cahill et al. (2010) suggest that strategies to support children and young people's recovery should be proactive rather than reactive. They also need to be contextual, flexible and holistic in approach. Firstly, they suggest that the strategies 'relate realistically and responsively to the cultural, political, economic and social circumstances of the particular situation' (p. 12). They should advance children and young people's rights, seek their active participation in planning, implementation and evaluation, and provide activities that promote autonomy and agency for children and young people. Active participation, they claim, should engage children and young people from various backgrounds, at all stages, alongside the community, with opportunities for decision-making and leadership, with a long-term view. They also note that children and young people need to see the results of their input and know that their views have been heard and acted upon.

As the children in the Canterbury earthquake study processed and recorded their experiences through arts-based activities, Mutch (2013) found: 'The children connected with the idea of contributing to something much larger and longer lasting; something



that preserved their stories, their schools’, and their families’ experiences for history’ (p. 452). Gibbs et al. reporting on the same study concluded (2013, p. 135):

This experience has enabled the children to begin gaining different perspectives and allowed them to discuss their experiences more objectively. They are moving from the particular (‘my story’) through the more general (‘our story’) to the conceptual (‘what does our story tell us about who we are?’). In doing so they are able to envisage a role as *participatory* and potentially *socially critical* citizens.

**Conclusion and recommendations**

This selected literature review has focused on what recent research, in mostly developed countries, can tell us about the role of schools in disaster contexts. There is very little in the disaster literature about the part schools have played or could play in a co-ordinated way in wider disaster preparedness, response and recovery. By broadening the focus in this review to beyond the school itself and including the role of schools in community disaster initiatives and in children and young people’s psycho-social well-being in disaster contexts, we begin to see a bigger picture emerging. Table 1 synthesises some possible roles for schools before, during and after a major disaster.

As this literature review has shown, there is a place for schools in all phases of the disaster process. Even small communities have schools. Schools have both the physical facilities and the personnel to respond quickly to an emergency. They can support communities in their efforts to undertake risk analysis and disaster prevention. Should a disaster event ensue, schools are well placed to play a wide range of roles as immediate response and relief sites, communication centres, supply depots and support agency hubs. Their role as the ‘glue’ that holds a community together through the response and recovery phases is a strong theme in the literature. As schools are places of education they can play a further set of roles in community and family awareness of hazard awareness and disaster mitigation. As places of pastoral care, they have staff, or can access appropriate personnel, with the skills and knowledge of attending to social, emotional and psychological needs of children, young people and their families in post-disaster contexts.

Yet, the literature also shows that, despite well-recorded stories of the heroic and altruistic efforts of school leaders and staff, there is no preparation for this huge undertaking. Only now are governments and local councils recognising the potential that

Table 1. The role of schools in disaster preparedness, response and recovery.

	Preparedness	Response	Recovery
Community	Schools as part of the disaster planning and preparedness process	Schools as relief centres and community response and communication hubs	Schools as community drop-in and re-bonding centres
Schools	Schools as sites and facilitators of preparedness learning and activities	Schools as first responders or post-event response centres	Schools as pastoral care and agency hubs for staff, students and families
Children and young people	Schools as sites of integrated disaster learning inside and outside the curriculum	Schools as first responders and places of calm and security	Schools as screeners of severe responses and facilitators of appropriate recovery activities

schools and school personnel have to play in a co-ordinated disaster preparedness, response and recovery approach. In order to reach this potential, here are some final suggestions.

- (1) The design or upgrading of school buildings ensures that they provide adequate protection of the school population in the event of a damaging event (as is appropriate for the school's geographic and risk location).
- (2) School facilities are designed in a flexible manner so that they can be used in a range of community ways, including in the event of an emergency.
- (3) The school and local community develop emergency plans and scenarios collaboratively, in conjunction with relevant government agencies and disaster response organisations.
- (4) School leaders have professional development in crisis planning and management.
- (5) Teachers and other school staff have professional development on school-based strategies for emergency response and recovery.
- (6) Children and young people are considered and engaged fully in each part of preparedness, response and recovery planning.

While disaster risk reduction and pre-disaster planning is more cost effective than post-disaster rebuilding, it appears that this message has not been taken seriously by governments (Back, Cameron, & Tanner, 2009; Plan International, 2010). Until this happens, schools can take a lead in building resilience and self-efficacy into their everyday culture and long-term planning. The children and young people in their care deserve no less.

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