



## Resilience – A Case Study: Somerfield School, Christchurch

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### Introduction

The topic of 'resilience' thinking seems of late to have superseded that of 'sustainability' thinking. Sustainability means simply that which sustains and lasts but has taken on many different subtle nuances over the last 20 years since it came into common parlance with the Bruntland Report of 1987, which sought to clarify the definition. However, resilience 'speak' has become hot property now, especially highlighted since Christchurch experienced a natural disaster in the form of several large earthquakes from Sep 2010 until most recently in December 2011. Many people comment on how resilient people have been, how resilient the city has been, so it seems timely to investigate what resilience actually means and importantly, resilient to what and of what? (Lorenz, 2010).

This essay will look at the concept of systems and resilience, definitions and theories will be explored generally and then these concepts will be more closely defined within the context of a particular system, that of Somerfield School located in the western suburbs of Christchurch. This school has particular relevance to me as both my children attend, I am Chair of the Parents Teachers Association and the word resilience features as part of the schools' ethos (this will be discussed later on). I and many others were impressed by the way the school managed during and post earthquakes and as part of my research, I interviewed the Principal, Denise Torrey and many of her comments will be used in this essay.

## **Systems – a working definition and principles**

A system is often defined as an entity whose existence is maintained through the interactions and functions of its parts (Vallance, 2011). Looking at the system that is Somerfield School, there are many different parts that interact to make the school function as a whole entity. Staff, teachers, support staff, students, the Ministry of Education, the community and even the caretaker all interact to form the working nuts and bolts of the school system and if one of these parts is lost, then the system will not work effectively.

Many guiding principles of systems are evident in my example system - Somerfield School:

*The interaction of the parts is more important than the whole.* The Principal is very cognisant of this and strives to maintain these links in various ways. When the supplier of uniforms to the school went into receivership, Ms Torrey tendered within the local community for a new supplier and eventually contracted a supplier whose children attend the school. It was part of the schools' ethos pre quake to foster these links and connections, and this has been of great value post quakes.

*Knowledge of all the parts.* I can rightfully assume that when I send my children to school, they will get an education but I don't need to know that exact intricacies of how this will happen to know that this will be the case. One can also assume that the school will provide care for their students in time of crisis and that the schools systems will still function and this was evident post quakes. The school has a duty of care and the school lived up to this role and function. I do not need to know how this will happen, but I can predict it to be so.

*A system will likely change if something is added or taken away from it.* If a school loses its teachers, a major part of the system, the school will not function in the same capacity. A damaged system One should be able to make predictions about how the system will function without full or detailed likewise will not function. Somerfield School was very lucky in that it did not suffer structural damage after the earthquakes unlike many schools in the eastern suburbs. These schools lost power, sewerage and many buildings and therefore could not function.

*The behaviour of the system depends on the total structure.* So changes in the structure can lead to a change in the behaviour of the school. Using our example of a school, if Somerfield School decided that the students would run the school instead of the Principal, this would undoubtedly have major impacts on the behaviour of the school.

## **Properties of systems**

The basics of a system and how it interacts and functions are described below. Systems can be simple or complex. Complexity manifests itself in two ways:

*Complexity of detail* shows that there may be many different parts but they only fit together in one way. Our school example shows this, as in a classroom you have a teacher and the students and possibly a support teacher, but they need to stay in this exact role in the classroom or teaching could be comprised.

*Dynamic Complexity* shows that the parts can fit together in lots of different ways. There may be 30 students in the classroom, it doesn't matter where they sit in that room, they are still students none the less.

The *emergent property* of our school system is the education that they receive – you can put students into the system and at the end, hopefully they will be educated to a certain level. I could not break the system of a school down and expect the same result. The school system needs to work in its entirety for some degree of education to become apparent.

### **Resilience – a working definition and principles**

The Concise Oxford English Dictionary defines resilience as “able to withstand or recover quickly from difficult conditions”. This is a great working definition, although resilience has many different aspects to it. Walker and Salt (2005) offer another definition of resilience as, “the ability of a system to absorb disturbance and still retain its basic function and structure”. It is usually assumed that if something or someone is resilient, then this must be in some way positive. However, this is not always the case and is one point that needs highlighting at the outset. New Zealand recently elected a new Government and the leader of the New Zealand First Party was re-elected after having spent the previous three years out of Government. Some would say the leader, Winston Peters was resilient but it may be fair to say that some would argue that this resilience shown by him and his party was not necessarily good as his party only gained seven percent of the votes (Elections, 2011). In light of this, we can see that resilience need not be positive, but what other aspect makes up and define resilience and a resilient system?

Somerfield schools ‘slogan’ as noted on the bottom of their website is **SMART: Socially adept, Motivated, Articulate, Resilient, Thinkers**. The principal of the school was asked what resilience means in this context and how this is taught to students. The context here is kept relatively simple bearing in mind that this needs to be taught to children from the age of 5 through to 10 and 11 years of age. Ms Torrey mentioned that essentially “bad stuff” (Torrey, 2011) happens to us all, life is not always fair, and that we just need to make the most of what we have. If life is not always fair, then we can and need to be able to bounce back from this. The school provides resources to teach the children to cope such as support networks throughout the school and that there are just things in life that are not worth getting “het up about” (ibid).

Her comments show three of the main aspects of resilience:

*Bounce back* – this suggests returning to the status quo or in more engineering terms, the ability of a building to be able to withstand a shock such as an earthquake and return to its form after the event.

*Cope* – the ability to adapt to the change or to self-organise to the new conditions.

*Bounce forward* – the ability to thrive under new conditions. This is important as events may have changed so dramatically that it is not possible to return to pre-existing conditions. This is also coined as *adaptive capacity*. The ability to not only cope with change but to thrive under these new conditions.

Let’s look now in more detail as some resilience principals to see if Somerfield School displays these and if we can confirm that the school fared well post quake due to these principles being in place.

### *Principle One – change is the only constant*

This is the basic premise behind resilience thinking – things often and do change and we should plan for that change. This change can occur through *pressure* and systems will respond differently to different pressures and through *leverage*, knowing which “thread to pull” to force change. This change can also occur *incrementally* or in a *linear* manner and this usually manifests as slow change that can be detected over time. Conversely, change can be sudden or *non-linear*. A great example of this sudden, non-linear change would be the effects of an earthquake on a school.

The question was put to the Principal of Somerfield School, whether the school plans for stability or for change. Her response was that the only constant in the school is change. However the school strives for consistency as this makes the students feel stable, therefore change management is not done swiftly and suddenly and this consistency enables the students to better cope with change. By planning for this change and being cognisant of it, the school works with this founding principle of resilience.

If a system changes too much, it is said to have crossed a *threshold* and may then behave in a different way. The earthquakes changed some things for the school quite noticeably. Previous to the quakes, the evacuation procedure saw the classes evacuating to two different fields. After the first quake in September 2010, the Principal realised that this was not effective as it was difficult to account for all the students when they were in two different places. The quake caused a change and a threshold was breached – something needed to change so that evacuation was easier. The evacuation procedure was changed rapidly and the February earthquake evacuation was much simpler and more effective. Another threshold was breached by a member of staff. She “lost the plot” (Torrey, 2011) post February quake, the pressure and shock was too much and she crossed her own personal threshold – her system as she knew it had changed. She was given a dedicated member of staff to care for her as the school has a legal duty of care. She was released from duty once the school had another teacher to take over her role. Again, the school has policies in place to deal with this change and managed it accordingly and appropriately.

### *Principle Two – Optimisation, efficiency and redundancy*

Humans by their nature like to be efficient and work in an optimal way. Most of us desire what is useful and immediate to us and disregard that which is not. “Efficiency is at the cornerstone of economics” (Walker and Salt, 2005) and efficiency is seen as a desirable trait. Optimisation also is seen as something to strive for but in the process can simplify values to a few “quantifiable and marketable ones” (Walker and Salt, 2005) whilst ignoring those more intangible values such as beauty and nature. Moreover, efficiency tends to lead to the elimination of redundancy i.e. we get rid of things that are not seen as useful. Redundancy or ‘wriggle room’ is like the in-built safety net. It’s what we can fall back on in tough times or if the system breaks. Redundancy in our school example is having a pool of relief teachers for when they are needed due to staff illness for example. They may not be needed all the time but are very useful and vital when they are. If the school did not have this in-built redundancy, the school system would be in crisis if a large amount of staff all fell ill on one day.

Redundancy is vital in a resilient system as the system is only as strong as the weakest link. Optimisation and efficiency may appear to be valuable from the perspective of classical economics, but cannot come at expense of the system functioning correctly and as a whole.

### *Principle Three – diversity, modularity, distribution and connectivity*

*Diversity, modularity, distribution and connectivity* are important attributes that are essential to the working dynamics of a resilient system. *Diversity* is an important element as systems could not be viable if everything was the same. If all systems react to shock or disturbance in the same manner and the manner was a negative, this could have severe implications. If schools were all the same and all produced the same students with the same education, then life would arguably be quite dull. Diversity is what makes life vital and interesting. *Modularity* is making sure all the components of the system have a place and fit correctly into that place. This makes for ease of use and knowing where to find the relevant parts. If *distribution and connectivity* is the placement of the parts, how and where do they fit? What connections will work best so that if the system is shocked or breached in some way it will absorb that shock?

Diversity in Somerfield School can be seen as all the students standing on the field. Some may be tall, short, Indian, Maori, boys, girls but they will not all be the same. Modularity would be about deciding which students to put into which classes and how well they will work and combine together. The school puts much thought into which students to put into which classes so that the classes will function well. Distribution and connectivity and is about the placement of the classrooms in relation to each other and to other parts of the school such as the playgrounds, staff room, and hall. At Somerfield School, the distribution can be seen in having all the juniors in one block, the seniors on another and the support staff and staffroom in between.

These aspects all make for a resilient system, the school feels connected and the buildings are placed in such a way that creates connectivity and flow, and students know their place within that system.

### *Principle Four – Social Capital builds resilience*

Somerfield School was anecdotally seen as a resilient school post February quake. One major contributing factor was the social capital that already existed within the school. Social capital can be understood as “aggregate assets or resources that inhere in individuals and communities as a result of various dimensions of social organization” (Wellman and Frank, 2001). In simple terms, it is what binds and bonds people and communities that makes them strong, adaptable and resilient to change. The social capital within Somerfield School can be seen in the following example.

Two days after the February earthquake, one of the schools teachers felt himself at a loss as to what he could do to help. He was not the type to climb up roofs, dig silt or try to fix roads and houses so he looked at the strengths that he did have and in collaboration with another teacher, he organised daily activities for the students at a local park. They set up sporting activities and word spread quickly. By February 24<sup>th</sup> over 200 Somerfield School kids were coming to the park for 3 hours of fun and activities organised initially by the teacher but soon grew to parents helping also. This continued everyday for nine days until the students could return to school. Many parents commented upon how helpful this was in times of stress, the children got a break and had some fun, the parents got a break too and had the chance to let off some steam and relate their stories to others.

This activity built substantial social capital within the community and the school so that by the time the students were able to come back to school, the children were ready and it did not seem such a

huge change to them. The teacher commented that he felt these activities were a “huge part in the school bouncing back” (Harrison, 2011) and helped to establish community spirit and networks.

Ms Torrey noted that when she first took over as Principal, she felt there was a distinct lack of resilience within the school and this was one of her first action plans to turn this around. Resilience has now become part of the school ethos from staff through to students. Arguably, this new-found resilience helped the school through the last year. One could say the schools total structure was fostered around resilience and so the behaviour of the school acted accordingly.

## Conclusion

This essay intends to show how well Somerfield School fared in relation to the attributes that make for a resilient system and the Principal has resilience as part of the school’s ethos.

Upon breaking down the system that is Somerfield School, there are many connections that are vital to the functioning of the school as a whole. These connections exist both within and surrounding the school and encompass the school’s immediate community. This includes pupils, parents, teachers and neighbours, as well as the wider organisations of the teaching profession and central government systems. These networks, connections and systems thinking are important in building social capital, one of the main guiding principles of resilience.

The school’s ethos emphasises resilience and is therefore an example of a level of awareness for the inherent need to build resilience within the school. The principal has demonstrated exemplary skill at integrating this ethos into the school’s day to day functionality. When we take this principle and the others into account we see that these elements combined are vital in building a resilient system. These can be summarised as follows:

- The only constant is change
- Interaction of the parts is more important than the whole
- You can make predictions about the system will work without knowing all the details
- A system will change if something is taken away from it
- Diversity, modularity, connectivity and distribution are key to a resilient system
- Social capital builds resilience

Somerfield School displays all of these attributes and it is my belief that this is why the school was able to bounce back, cope and thrive following the traumatic events of 2011.

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