Chapter 11
Building Resilience in Three Australian High Schools, Using the Resilience Doughnut Framework

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Defining Resilience

There have been, over the last 30 years, a number of definitions of resilience used with reference to individuals as they negotiate adversity. An international resilience project defined resilience as "the universal capacity which allows a person, group or community to prevent, minimise or overcome damaging effects of adversity" (Grotberg, 1995, p. 6). A more recent definition notes that:

> Resilience is the capacity of individuals to navigate their physical and social ecologies to provide resources, as well as their access to families and communities who can culturally navigate for them (Ungar, Brown, Liebenberg, Cheung, & Levine, 2008, p. 168).

Another definition acknowledges the changeable and reactive process of building resilience in the face of adversity:

> Resilience refers to the process of overcoming the negative effects of risk exposure, coping successfully with traumatic experiences, and avoiding the negative trajectories associated with risks (Fergus & Zimmerman, 2005, p. 399).

The above definitions demonstrate that there are several lines of thought around how to conceptualise resilience. Firstly, resilience can be conceptualised as a personal or group capacity that has been developed and achieved. Second, resilience can be represented as a dynamic process, affected by resources, adversity and the capacity of individuals. Thirdly, it can be seen as an individual's response to adversity as a practice and strengthening effect in building resilience. From this we can see that resilience is not a fixed state but rather a process which is changeable, dynamic and influenced by competing environmental influences.

This chapter will outline a framework showing potential pathways which can build resilience successfully. The framework is based on known contexts and how they

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interact with each individual. This framework has the potential to promote future planning, programming and policy development effecting positive changes in young people and can be used as a possible strengthening tool against mental health difficulties.

By highlighting the availability of personal strength resources, the framework maps an individual's capacity for constructively dealing with adversity. Theories that have influenced the development of the framework consider the internal qualities and the environmental contexts in which an individual develops (Benard, 2004; Grotberg, 1995; McGraw, Moore, Fuller, & Bates, 2008; Rutter, 2006; Ungar et al., 2008). The implication of these theories to practical application is best summarised by the dynamics associated with building resilience. Firstly, there are certain internal or personal characteristics that enable a person to bounce back from adversity (Benard, 2004; Grotberg, 1995). Secondly, external contexts or environmental influences contribute to the building of certain internal assets or personal competencies that help a person become resilient (Fuller, 1998; Ungar, 2008; Ungar et al., 2008; Werner, 2001). And finally, the interaction of certain internal characteristics with available external resources may hinder or enhance a resilience mindset, ultimately affecting an individual's reaction to adversity (Rutter, 2008; Sun & Stewart, 2008). These dynamics support the multifaceted definition of resilience, which is used for this chapter, indicating resilience is the process of continual development of personal competence while negotiating available resources in the face of adversity.

Research on Resilience

During the last two decades of the twentieth century, behavioural scientists interested in developmental psychopathology shifted their focus from exploring negative developmental outcomes to researching successful adaptation despite adversity. A rapidly growing body of literature has now accumulated that deals with the phenomenon of resilience. Early efforts were primarily focused on personal qualities of "resilient children" such as autonomy and high self-esteem (Garmezy, Masten, & Tellegen, 1984). However, as work in the area developed researchers increasingly acknowledged that resilience might also derive from factors external to the child (Luthar & Cicchetti, 2000).

Subsequent research led to the delineation of three sets of factors implicated in the development of resilience in children: (a) attributes of the children themselves; (b) aspects of their families and (c) characteristics of their wider society and environments (Garmezy et al., 1984). One project investigated protective factors that promote resilience in young Australians. The findings from this qualitative study found five categories of protective factors (community, family, individual, peers and school) that compensated for a child's risk factors (Fuller, McGraw, & Goodyear, 1998). Another project studied families living in caravan parks along the New South Wales coast, revealing eight categories of strengths that were evident in families that survived and thrived. One theme that emerged from the respondents captures the essence of being resilient during crisis and adversity with half of the respondent noting that they became aware of their family strengths when they were faced with

serious challenges in their family. Other categories were, open and positive communication, togetherness, sharing activities, affection, support, acceptance and commitment (Geggie, Weston, Hayes, & Silberberg, 2007). Many studies of youth from culturally marginalised populations have affirmed the study of strengths and protective factors, showing that the families, communities and social supports interact to build competence in the developing child (Luthar, Chicchetti, & Becker, 2000; Luthar, 2000; Zimmerman, Bingenheimer, & Behrendt, 2005). Longitudinal research into mentoring programs supported strength-based approaches particularly in building on protective factors (Campbell & O'Neill, 1985; Greenberg, 2006). With reference to the emerging positive psychology movement, Seligman (1998) argued that:

> New research has discovered that there is a set of human strengths that are the most likely buffers against mental illness: courage, optimism, interpersonal skill, work ethic, hope, honesty and perseverance. Much of the task of prevention will be to create a science of human strength whose mission will be to foster these virtues in young people (p. 7).

The above quote suggests that future enquiry should be geared towards finding simple and practical ways that promote human strength. However, while there is a predominant focus on the internal strengths and characteristics of individuals who appear to be resilient in the face of adversity, there is a growing body of research that looks at the external or protective factors around individuals who appear resilient. Furthermore, there is the recognition that adversity or a degree of risk has a place in the development of resilience. While the strength research focuses on the positive factors in a child's life, there is an implication that these factors are tested and strengthened in the face of adversity. The adversity appears to strengthen both the internal characteristics of the individual and the contexts and protective factors in which they exist (Fergus & Zimmerman, 2005).

While previous research on resilience focused on the individual, it has found that the individual is nested within many contexts which interact and build resilience. However, the challenge for application of this research is the current western cultural belief in individualism, which undermines the efforts in promoting a culture of connectedness and belonging (Wright & Masten, 2005). Furthermore, through long-term developmental studies that examined young people in high-risk environments, it has been found that changing the life trajectories of children and youth from risk to resilience starts with changing the beliefs of the adults in their families, schools and communities (Benard, 2004).

Resilience and Mental Health

Resilience research has the potential to add substantially to the study of mental health by identifying the strengths of individuals and communities in order to replicate what is working with those who are going through adversity successfully (Liebenberg & Ungar, 2009). Studies have identified several important risk factors that influence levels of depressive symptoms such as adverse life events (Pine, Cohen, Johnson, & Brook, 2002), bullying (Seals & Young, 2003) and social anxiety (Chartier, Walker, & Stein, 2001). A study conducted by Hjemdal and

colleagues found that there was a strong negative correlation with each of the five resilience factors (personal and social competence, structured style, social resources and family cohesion) in the READ scale (Hjemdal, Friborg, Stiles, Rosenvinge, & Martinussen, 2006). A subsequent study found that anxiety and low social competence were also found to predict depressive symptoms (Hjemdal, Aune, Reinfjell, Stiles, & Friborg, 2007). A study examining the influence of resilience and anxiety on self-esteem found a significant negative correlation between resilience and trait anxiety, indicating that persons with anxiety disorders demonstrate decreased resilience (Benetti & Kambouropoulos, 2006). Conversely, Donnon and Hammond (2007) conducted a study based on strength research that examined the presence of protective factors and level of bullying behaviour, acts of aggression and vandalism. They found that there was a significant negative correlation with the number of self-reported protective factors or strengths and acting out behaviour. The results showed that the greater number of protective factors, the less likely were the youth to engage in acting out behaviour (Donnon & Hammond, 2007b). Furthermore, in a subsequent study it was found that the greater number of protective factors and strengths, the greater the engagement in constructive behaviours such as helping others, good health, volunteering, leadership, resisting danger and delaying gratification (Donnon, 2007). Thus, increasing the number of protective or strong positive interactions in a young person's life may help develop a more resilient mindset.

School Resilience Programs

Strengthening positive interactions with communities, families and peers can foster environments rich in the developmental supports and opportunities needed to develop resilience in young people. The place of educational facilities in helping to develop resilience in young people cannot be overestimated since a young person will develop friendships, skills and mentor relationships in their school. School is a place where children will be socialised to cope with future interactions and are the context where significant change can be implemented with community, families and peers. Benard & Slade (2009) noted that teachers and other support staff need to be encouraged to become "turnaround" people and schools "turnaround" places. Thus, "turnaround teachers" demonstrate and create nurturing and empowering climates that engage young people's innate resilience by developing their capacities for positive development and school connectedness (Benard & Slade, 2009).

There is a range of resilience-promoting programs used in schools and youth organizations. Some school programs focus on building internal coping skills and academic buoyancy (Frydenberg, 2007; Martin & Marsh, 2008), while others show change in the net effect of risk versus protective factors in building resilience (Fuller, 1998; McGrath, 2003). One study used the Penn Resilience Program (PRP), a cognitive behavioural program focusing on building optimism, (Gillham et al., 2007; Reivich, Gillham, Chaplin, & Seligman, 2005) to assess its effectiveness in reducing depression symptoms in youth over a 2-year period. Inconsistent results were found when implementing the program across three different schools, which appeared to

relate to the relative level of staff support of the program. Given the apparent success of the PRP (Reivich et al., 2005) with individuals as well as with larger groups (Seligman, 2008; Seligman, Schulman, & Tryon, 2007), further investigation was recommended in how to implement a process of developing adolescent resilience in schools using available resources such as teachers and parents. It was noted (Gillham et al., 2007) that using university students to implement programs was problematic and using teachers and staff who already connect with the students appeared to be more effective in promoting resilience in students.

Resiliency researchers (Masten, Herbers, Cutuli, & Lafavor, 2008) have developed a framework for resiliency research, policy and practice. They suggest three major strategies that resiliency programs can employ: (a) risk-based approaches which aim to reduce adversity, (b) asset-focused strategies which attempt to improve assets in the lives in children and (c) process-oriented designs which attempt to mobilise children's adaptive capacities such as improving attachment relationships with parents or providing social skills training (Masten et al., 2008).

An extensive evaluation of resilience programs conducted by Windle and Salisbury (2010) found that of the 21 interventions reported, very few had been subjected to evaluation or controlled trials. It was noted that programs were designed to be preventative and to better equip people and communities should adversities be experienced. Some were conducted in schools and others in communities with a public health approach. From their findings they concluded that more research has focused on identifying protective factors that underlie the resilience process but less on designing and testing interventions that might change negative outcomes (Windle & Salisbury, 2010). A comparative study of resilience comparing the World Health Organization (WHO) health-promoting schools (where trained teachers and staff focus on increasing connections with community organizations, families and parents) and other schools among a Chinese population found significant increase in students and teachers resilience scores in health-promoting schools (Wong et al., 2009). This study emphasized the potential for whole school programs that strengthen connections and build resilience to exert positive changes in students and staff. This research suggests that programs targeting resilience development should be evaluated for their overall community building effects as well as the mental health benefits. Furthermore, it seems that implementing programs in educational settings should use and support existing relationships with teachers and support staff within those schools.

The Resilience Doughnut Framework

The framework to be outlined in this chapter is named the Resilience Doughnut as it is in the shape of a doughnut, showing two circles, one smaller nested within the larger circle (Worsley, 2006). The inner circle represents the internal individual characteristics of an individual and the outer circle represents the external contexts within which an individual develops. The external contexts are divided into seven sections, each of which has been shown in the research to contribute to building individual resilience. The interactional nature of the internal and external worlds of

Fig. 11.1 The Resilience Doughnut framework (Worsley, 2006)

an individual is represented by the visual connection between the inner circle of the framework within the external circle. Thus, the two circles, an inner circle and an external circle divided into seven external contexts, represent the essence of the resilience framework (see Fig. 11.1).

The Internal Structure of the Resilience Doughnut

The inner circle of the framework, representing the internal characteristics of an individual showing resilience, gives expression to a number of concepts which repeatedly appear in research. These concepts contribute to raising self-esteem (Benard, 2004; Frydenberg, 2007; Grotberg, 1995; Werner, 1992), self-efficacy (Benard, 2004; Martin & Marsh, 2006; Seligman, 1992; Ungar, Toste, & Heath, 2005) and an individual's awareness of their available resources (Cameron, Ungar, & Liebenberg, 2007; Fuller et al., 1998; Masten et al., 2004; Ungar, 2004). In combination they contribute to resilience as noted by Grotberg's *I have*, *I am* and *I can* categories (1995). These categories are the basis of the internal individual concepts for the Resilience Doughnut which interact with the external contexts of the framework as shown in Table 11.1.

The External Structure of the Resilience Doughnut

The outer circle of the framework, divided into seven sections, supported by research shows the environmental contexts where resilience can be ignored, recognised or developed.

Table 11.1 Internal concepts of the Resilience Doughnut with construct and related external contexts

Concept	Constructs as noted by Grotberg (1995)	Interacting external contexts
Awareness of resources (I Have)	I have people around me I trust	Parent, family
	I have people who set limits for me so I know when to stop before there is danger or trouble	Parent, family
	I have people who show me how to do things right by the way they do things	Community, education
	I have people who want me to learn to do things on my own	Peer
	I have people who help me when I am sick	Parent, family
Self-concept, self-esteem (I am)	I am a person people can like and love	Parent, peers
	I am glad to do nice things for others and show my concern	Family, peer
	I am respectful of myself and others	Community
	I am willing to be responsible for what I do	Skill, peer
	I am sure things will be all right	Community
Self-efficacy (I can)	I can talk to others about things that frighten me or bother me	Peer, education, family
	I can find ways to solve problems that I face	Skill, money
	I can control myself when I feel like doing something not right or dangerous	Skill, peer, money
	I can figure out when it is a good time to talk to someone or take action	Peer, parent
	I can find someone to help me when I need it	Education, peer

These seven contexts are labelled *parent*, *skill*, *family*, *education*, *peer*, *community* and *money*. A number of research constructs make up each context with a number of common features between contexts (Worsley, 2006). These features appear to support the internal structure of the framework, which represent self-esteem or self-concept (*I am*), self-efficacy (*I can*) and awareness of resources (*I have*) as shown in Table 11.1. The following section will consider each part separately, outlining constructs from research which link to building resilience in an individual.

Parent

A number of factors were found within the context of the parent relationship and the development of resilience in children and young people. These were discipline styles (Baumrind, 1991), parental monitoring and control (Suchman, Rounsaville, DeCoste, & Luthar, 2007; Ungar, 2009), parent decision making (Baumrind, 1996; Suchman et al., 2007), parental communication (Ungar, 2009), parental warmth and affection (Fuller et al., 1998; Suchman et al., 2007), parental satisfaction (Dunst, Hamby, Trivette, Raab, & Bruder, 2000; Fuller et al., 1998), parental cooperation (Walsh, 2006), parental values of independence and self-control (Duckworth & Seligman, 2006) and parent's sense of purpose (Grant, 2004; Walsh, 2009).

Skills

A number of factors were directly related to the development of resilience through acquiring a skill. These were hardiness (Dolbier, Smith, & Steinhardt, 2007), optimistic thinking (Reivich & Gillham, 2003; Schueller & Seligman, 2008; Seligman et al., 2007), problem solving (Caldwell & Boyd, 2009; Reivich & Shatte, 2002), feelings of success and achievement (Martin, 2008; Masten & Coatsworth, 1998), being recognised for their skill (Brown, D'Emidio-Caston, & Benard, 2001), able to try new experiences (Garmezy et al., 1984; Ungar, Dumond, & McDonald, 2005), self-confidence (Benard, 2004; Masten & Coatsworth, 1998) and having people who encourage and admire the skill (Bottrell, 2009; Busuttil, Gillham, & Reivich, 2007). Furthermore, through difficulties associated with developing a skill, individuals are exposed to elements of adversity and challenges associated with failure and persistence (Griffin, Martinovich, Gawron, & Lyons, 2009; Hooper, Marotta, & Lanthier, 2008; Linley & Joseph, 2005). It was also found that deviant or antisocial skills are negatively related to the development of constructs associated with resilience such as perseverance, persistence, carefulness, caution and courage (Munford & Sanders, 2008; Ungar, 2001).

Family

There are many areas of research that consider family structure (Hetherington, 2003) and family systems (Bronfenbrenner, 1986; Furstenberg & Teitler, 1994) in developing resilience. Of significance is identity formation through belonging to a group of related people (Masten & Shaffer, 2006). Other aspects are connectedness (Geggie et al., 2007), feeling accepted (McGraw et al., 2008), showing respect (McGraw et al., 2008), having family traditions (Geggie et al., 2007), having an interested older adult (Furstenberg, 2005), wider family networks (Fuller, 2004; Oglesby-Pitts, 2000), going through difficult times (Geggie et al., 2007; Walsh, 2006), a family identity (Wiener, 2000), adults with high expectations (Dandy & Nettelbeck, 2002; Oglesby-Pitts, 2000), family holidays (Geggie et al., 2007), sibling connectedness (McGraw et al., 2008), strong spiritual values (Jonker & Greeff, 2009; Oglesby-Pitts, 2000), a positive world view (Whitten, 2010) and responsibility within the family (Geggie et al., 2007).

Education

There are a number of characteristics of education associated with building overall resilience as well as academic resilience. These are a sense of belonging and acceptance (Battistich, Schaps, & Wilson, 2004), a significant relationship with at least one teacher (Jennings, 2003), teachers with high expectations (Castro, Kelly, & Shih, 2010; Masten et al., 2008), a resilience-promoting curriculum (Stewart, Sun, Patterson, Lemerle, & Hardie, 2004), participation in extra activities, attribution (Stewart et al., 2004), engagement (Martin, 2008; Sharkey, You, & Schnoebelen,

2008), teachers with an optimistic and positive world view (McCusker, 2009; Parker & Martin, 2009), inclusive environment (Howard & Johnson, 2000; Johnson & Lazarus, 2008) and enjoyment of and participation in learning.

Peers

The development and maintenance of friendships is a major task during adolescence because social skills and a sense of belonging dominate their moral development (Horn, 2005; Schonert-Reichl, 1999). Research noting those young people who have developed resilience in the context of a strong peer group (Masten & Coatsworth, 1998) have groups that are characterised by a number of aspects. These are belonging and acceptance (Schonert-Reichl, 1999), conflict (Horn, 2005), cooperation and sharing (Daddis, 2008), closeness, group identity (Horn, 2005) and cohesion and peer support, conformity (Sanders & Munford, 2008), close friendships, forgiveness, care and concern, loyalty to the group (Schonert-Reichl, 1999; Wolseth, 2010), self-regulation (Noeker & Petermann, 2008) and social awareness (Pineda Mendoza, 2007).

Local Community

Having links to the local community and supportive social services has been shown to have a major impact on contributing to building resilience (Dunst et al., 2000). Common research themes are: connections to sporting clubs, religious or activities groups (Ungar et al., 2005), belonging to a local area (Bottrell, 2009), positive relationship with another adult (Fergus & Zimmerman, 2005), family friendships (Sanders & Munford, 2006), mentoring relationships (Beltman & MacCallum, 2006; Zimmerman et al., 2005), belonging to a faith group (Crawford et al., 2006; Grant, 2004; Oglesby-Pitts, 2000), being involved in a community that values children and a community that shares a purpose (Van Dyke & Elias, 2007).

Money

This aspect refers to the economic stability (McLoyd et al., 2009) and affluence of the individual's family (Pittman, 1985) as well as attitudes towards the acquisition of material possessions. Research shows there are a number of aspects related to money that contribute to building resilience. These are economic stability for basic needs (McLoyd et al., 2009), a sense of control over earning money (Peterson, Park, Hall, & Seligman, 2009), understanding the value of money (Fuller et al., 1998), ability to wait and think about spending (Duckworth & Seligman, 2006), ability to contribute to daily tasks (Munford & Sanders, 2008), self-discipline and self-efficacy with regard to spending (Masten & Coatsworth, 1998), budgeting and planning, a sense of gratefulness (Peterson, Ruch, Beermann, Park, & Seligman, 2007), care of material possessions, and a strong work ethic (Peterson et al., 2009).

Linking the External Factors in the Resilience Doughnut to Build Internal Resilience

In each of the seven environmental contexts the potential exists to enhance positive beliefs within the individual, helping to develop resilience (Benard, 2004; Fuller, 2004; Resnick et al., 1997). For example, strong parents, teachers or community mentors can provide positive intentional relationships where the individual develops a sense of self, enabling them to interact with peers and future employers in ways that continue to develop their life skills for future opportunities. It is also suggested that most resilient individuals have only some, and not all seven, contexts working well in their life (Dolbier et al., 2007; Eisenberg, Ackard, & Resnick, 2007; Fuller-Iglesias, Sellars, & Antonucci, 2008; Noeker & Petermann, 2008). The potential therefore of using the model would be to ascertain the number factors needed, the strengths of each factor and ways to use these strengths to enhance positive beliefs to change a life trajectory from one of risk to resilience.

The proportion of strengths versus weaknesses that can change a trajectory from one of the risk to resilience is supported by the positive/negative (P/N) ratio put forward by Macial Losada (Losada, 1999). (Losada & Heaphy, 2004) measured the instances of positive feedback versus negative feedback in teams. From a number of mathematical studies considering the complex dynamics of high performance teams, (Losada & Heaphy, 2004) examined the positive connectivity within the teams. A zone was established within which the teams would reach creativity and flexibility leading to high performance. Above or below the zone, the teams would be limited by routines, become inflexible and lead to low performance. The zone was later referred to as the Losada line (Losada & Heaphy, 2004). Further studies found that those individuals who flourish (those who do well despite their adversity) have a P/N ratio above the Losada line (ratio = 2.9013) and those who languish (those who get weaker and suffer more due to their adversity) have a P/N ratio below the line (Frederickson & Losada, 2005). It appears that the Losada line separated people who were able to reach a complex understanding of others from those who did not (Waugh & Frederickson, 2006).

When considering the ratio of positive, intentional relationships versus those which were negative or weaker as a distinguishing factor in developing resilience, a study by Donnon and Hammond (2007a) found there to be a proportion of the 31 potential strengths in young people exhibiting resilient behaviour. These strengths were both individual characteristics and social skills according to the relationships with peers, family and teachers. These 31 strengths were divided into 6 categories according to the number of strengths present. Analysis of a study with over 2,000 youth across a variety of schools revealed there to be a marked decrease in difficult behaviour and poor emotional regulation for those possessing strengths in the third category, that is, 10–15 of the 31 strengths (ratio above 1:3). Considering the interactional nature of the individual characteristics that show resilience, it is evident from this study that those with a certain degree of internal character strengths are able to evoke positive and pro-social experiences. In analysing the nature of the

changes observed with the young people it can be seen that the proportion of the strengths observed was able to tip the balance toward pro-social behaviours, which in turn develop resiliency (Donnon & Hammond, 2007a).

In applying the positive versus negative ratio, and the research by Donnon and Hammond (2007a) to the Resilience Doughnut framework, the number of stronger external factors would need to reach a P/N ratio that offset the weaker factors present at any one time. Considering each of the external contexts and their potential to influence all three internal concepts, it is possible that clusters of only a minimum number of external contexts may be helpful to build resilience. Interventions aimed at helping participants focus on a minimum of three strong contextual factors, use a ratio of positive versus negative experiences of 3.4 (i.e. above the Losada line) in order to evoke positive change. It would appear that by linking three strong factors together in an activity or event, these factors become even stronger and would encourage the subsequent strengthening of other factors in the framework. Thus, the key to using the Resilience Doughnut framework to develop resilience is to encourage the interaction of a minimum of three strong factors at any one time. The aims, therefore, of linking three strong factors use the principals of strength-based therapies in order to affect change, tipping the balance toward pro-social behaviour, which in turn develops resiliency.

The Resilience Doughnut Framework and Current Frameworks of Resilience

It appears that the Resilience Doughnut is possibly a combination of all three models proposed by (Fergus & Zimmerman, 2005), combining compensatory, protective and challenging effects with the presence, absence or interaction of three or more strong external contexts in affecting outcomes. The Resilience Doughnut appears compensatory by focusing on the strong contexts not associated with the risks. It appears protective by showing how the interaction of only some existing strengths in the system can neutralise the effects of weaker factors. It also shows a challenge effect when strong contexts are mobilised during adversity, preparing individuals for future challenges. Within each of the external contexts the child could be exposed to conflict and tensions, which in turn promote social skill development and mastery (parental control versus warmth, skill mastery, family identity and roles, educational expectations, peer belonging and acceptance versus conflict, community support and money management) (Griffin et al., 2009; Hooper et al., 2008; Linley & Joseph, 2005).

The Resilience Doughnut framework appears to be different from the present models of resilience in three main ways. Firstly, it is based on the strength of the external factors in an individual's life. Secondly, it has seven external contextual factors. Thirdly, the framework proposes that the turning point, evoking changes in the trajectories of individuals, is based on the presence or absence of a number of contextual factors. This framework is suggestive of a more practical application in how to enhance resilience development.

Practical Application of the Resilience Doughnut Framework in Three Secondary Schools

The application of the Resilience Doughnut framework has been trialled in numerous schools across Australia. The following case studies show the application and results of three schools in Victoria and NSW, Australia. Each school has used the concepts of building on the available strengths for each child's external protective factors. Furthermore, each of the environmental contexts of the schools has differing community strengths, socio economic factors and organisational structures. Case Study 1 is a Catholic girls high school (ages 12–18 years), with low to medium private tuition fees, in a middle class suburb south west of Melbourne, Victoria. Case study 2 is a Catholic boys high school with medium to high private tuition fees in a middle class suburb of Sydney, NSW. Case study 3 is a NSW state High school (part of a larger college with four campus ages 12–16) attracting 90 % migrant boys with no private fee tuition.

Each school had differing motivations for using the Resilience Doughnut framework in establishing their intervention programs, and each school contacted the director of the Resilience Doughnut independently after anecdotal and observational reports by staff. Case Study 1, the head-teacher welfare, and the years 8, 9 and 10 advisors in the school, reported a high proportion of girls experiencing anxiety with regard to school achievement. From discussions with the school staff and principal, it was suggested that the students were nested within a culture of over-protectiveness, which appeared to support the girls giving up easily under adverse situations. The head teacher welfare contacted the Resilience Doughnut director to implement a resilience intervention program in year 8. Case Study 2, the counselling staff reported that there was a proportion of boys attending the large boys school who were not connecting to peers and teachers, due to behavioural and mental health difficulties, which resulted in low school attendance. The counselling staff were prompted to run an intervention program for the younger students after four boys, who were in year 10 at the time, reported the lack of support in the early years had subsequently affected their performance in the middle years of high school. Case Study 3, senior high school staff had noted that there was a performance drop with the boys from the junior campus as they entered the senior co-educational campus, which appeared to be due to high anxiety around social skills, as reported by the counselling staff, resulting in a higher drop out rate in the senior years.

There were no preliminary data collected to establish the validity of the concerns of each of the schools, however, each school trained key staff in the use of the Resilience Doughnut framework and, in consultation with the author, adapted an intervention program to suit the needs of the school and the desired outcomes. The intervention program was based on teaching key people the concept of the Resilience Doughnut and adapting the intervention to suit the needs of the school to help them find ways to strengthen the strong factors in each child's life. The programs used parent and teacher forums to teach the concept and to apply it practically. The in-class program sought to teach each child the concept and facilitate them to apply it

to others and themselves. The aim of the programs in each school was to help the students to identify and activate their strengths to build their resilience. Furthermore, it was hoped that the students and school communities would be more connected and active in supporting one another.

The Resilience Doughnut Intervention Basic Program

The resources that are used to deliver the basic program are as follows:

- The floor model (a large jigsaw floor model of the Resilience Doughnut).
- Small jigsaw pieces and case studies of students from various ages and stages.
- A set of A4 worksheets to use in class for individual assessment of strengths.
- An On-line Resilience Doughnut game (students allocated log in details to their strengths and journal the resilience building process).
- Practitioner pack, downloadable worksheets and class teaching instructions.

The basic program consists of a teaching component of the framework, where parents, staff and students are taught about the seven factors of the Resilience Doughnut by an accredited trainer. Accredited trainers hold a licence to teach the model by completing a certificate with the Resilience Doughnut Pty Ltd. Various tools are used to teach the model. This begins with the introduction of a floor model where participants gather around the model in a circle and are presented with a story about a young boy or girl and the factors that helped him or her to cope with adversity. Participants are then divided into small groups to discuss case studies, using small puzzles to conceptualise the framework for each case. For example, a 14-year-old boy, named Sam, is presented giving some details of the strengths and weaknesses in each of his factors. Each group gives a score from 0 to 10 as to the strengths of each factor in his Resilience Doughnut. The final scores for Sam's doughnut reveal his highest three strengths. The group then discuss a project or event that can be arranged to link Sam's three strengths together to help build his resilience. Participants are then invited to reflect on the effect of linking his three strengths on the other areas of his life.

After the teaching component, students are then invited to guess their own strengths in their own lives using a worksheet to help them to self-reflect. They then can log into the on-line version of the Resilience Doughnut computer game. The on-line game consists of ten statements about each of the seven factors in the Resilience Doughnut framework. Using a 6-point likert scale, students scale each of the 70 statements, giving a total score for each factor. Space is made, on each on-line game, for students to journal the aspects of the factors that they enjoy or like. At the completion of the on-line game, three strengths are highlighted and suggested ways to build these strengths for each student is recorded. Students are able to revisit and resubmit the on-line game at any time to compare their progress.

In implementing the basic program into the schools and various organisations, each school is encouraged to adapt the theoretical model to the context of the school,

encouraging contacts in the parent, education, community, peer, family, skill and money factors to interact in different ways. Each school is therefore encouraged to use the results of the basic program in various ways with the main aim to strengthen each individual student's three Resilience Doughnut strengths as established from either the on-line game or from discussion with each student. Since parents and teachers are taught the concept of the Resilience Doughnut, they are invited to be involved in helping students to link their strengths together in either a project or an event. Suggested ways of creating "doughnut moments" are given, where three strengths are linked together at the one time. The aim of this exercise is to have a common language used by parents, teachers and students while linking their strengths to increase the intentional, positive situations that build resilience.

Case Studies

For the three case studies, measures were used to tailor to the desired outcomes for each school, and the students were tested prior to and each year post-intervention. The basic intervention program was implemented in school years 7 and 8 (ages 12–13) in Case Studies 1 and 2, and in school years 7–10 (ages 12–16) in Case Study 3. The following will outline the methods of implementing the programs and measures used in each of the schools.

Case Study 1

Case Study 1 is a Catholic girls school (low fee) in middle class area. Subjects were 203 girls, aged 13 years from year 8 (second year of high school). The all-girl school has a good academic reputation and attracts students from a wide area on the outskirts of Melbourne. The focus in the school is based on social justice and compassionate care for others.

Method

Two teachers (year 8 advisor, and physical education teacher) were selected by the Principal of the school to attend a 2-day accredited training program on the Resilience Doughnut, where they learnt how to implement the Resilience Doughnut framework into a school environment. Two further external accredited trainers attended the school to assist the trained teachers in implementing the Resilience Program within the school and parent community by,

1. Conducting a staff development day in the use of the Resilience Doughnut framework in welfare, discipline and resilience building programs in the school. The teaching component was delivered using the steps outlined above for the basic program and by applying the framework to a number of case studies relevant to the school community.

2. Conducting a parent training evening on the use of the Resilience Doughnut framework in parent, family and community environments, and preparing parents for the year 8 resilience programs to be implemented in term 4. The basic program was delivered using case studies relevant to parents and community members.
3. Teaching all students in year 8 how to apply the Resilience Doughnut framework using teaching tools and the on-line Resilience Doughnut game. The format of the basic program was delivered in class, using case studies and helping each student assess their individual strengths as mentioned above.
4. Following the 2 days of intense teaching, the students participated in an interdisciplinary program designed to build resilience during term four of the school year. The program consisted of 6 weeks of independent learning culminating in a challenge experience linking their three strengths over 3 days and two nights. The independent learning curriculum, supported by the teaching staff, focused on optimistic thinking, discovering individual strengths and finding opportunities to learn. During the program each student set a goal for each of the three strengths and were asked to design and undertake a strategy in order to link and further develop their strengths both in the challenge experience and in their independent learning curriculum.
5. Teaching staff worked in mentor roles initiated by the students and each students challenge experience involved her three strong factors as indicated by the Resilience Doughnut on-line game.
6. Each student reported on their challenge experience via presentations or visual displays to parents, community, school staff and peers at the graduation evening for all year 8 students.

Measures

The measures used were:

1. Multidimensional Anxiety Scale for Children, shortened version (MASC-10), (March, 1997). The Masc-10 (10 items) is designed as a screening tool to explore symptoms of anxiety in children aged 8–19 years, taking approximately 5 min to administer giving a total score.
2. The Children Depression Index, shortened version (CDI-10), (Kovacs, 2003). The CDI (ten items) is designed as a screening tool to explore symptoms of depression in children aged 7–17 taking 5–10 min to administer giving a total score.
3. The Child, Youth Resilience Measure (CYRM) (Ungar, 2008). The CYRM (28 items) is a screening tool designed to explore resources (individual, relational, communal and cultural) available to youth aged 11–15 years that develop resilience.
4. The Resilience Scale (RS-14) (Wagnild & Young, 1993) The RS-14, (14 items) a short measure of individual resilience with high reliability and validity, taking approximately 5 min.

Measures were selected based on the length and specific aspects of mental health difficulties experienced by the students. The Resilience scales selected were to measure the child's individual characteristics and the ecological aspects of resilience, and two were used to provide reliability and validity. Parents and students granted permission to collect data prior to the program being implemented with the students and an application to conduct ethical research in Catholic schools was granted from the Catholic education office of Victoria. Written permission was also granted from both parents and students to collate the data. Students were assigned a research code and no identifying information was retained in the data collation. The four measures were distributed to students 1 week prior to the commencement of the program, and again 6 and 12 months after the program was completed.

Case Study 2

Case Study 2 is a large Catholic Boys school (years 7–10) and coeducational senior school (years 11–12) in a middle class suburb west of Sydney. Subjects were 230 boys, aged 13 years from year 8 (second year of high school). Due to the size and popularity of the school it was the concern of the welfare staff that some boys appeared to be disconnected from learning in the early years, with some refusing to attend school due to social anxiety and behaviour problems. The focus on the school was to enhance a sense of belonging to the school community through various activities during their school life. The aim of the resilience program was to connect the students most at risk, to areas in their lives where there is the most potential for positive intentional relationships that build their resilience during the early high school years. As this was within the school context, relationships with teachers, peers and family as well as enhancing skill development in areas of strength was encouraged.

Method

1. The school counsellor in the school trained as an accredited trainer in the Resilience Doughnut. Accredited training involved attendance at a 2-day workshop and the assessment of teaching the Resilience Doughnut to three diverse groups of people.
2. The school counsellor conducted a staff development day to train the whole staff in the application of the framework within the school using the basic Resilience doughnut program as mentioned above.
3. At the beginning of the school year, the school counsellor and colleagues in the counselling department taught the Resilience Doughnut framework to all year 7 (12–13 years) students in their regular personal development classes over a 4-week period using the basic Resilience Doughnut program.
4. Students learnt to apply the framework to others using the case studies provided before completing an assessment of their own strengths using the Resilience

Doughnut on-line game. They were then encouraged to plan some activities linking their three strengths as suggested by the on-line game. At the end of the program they were treated to hot doughnuts from the local doughnut shop.

5. Parents were also invited to attend a parent information evening outlining the Resilience Doughnut framework using the basic program. The well-attended parent evening was facilitated by the school counsellor and staff in the counselling department.
6. At the beginning of subsequent years, the students were encouraged to log into their on-line Resilience Doughnut game and see if their strengths had changed from the previous year. During subsequent personal development classes the Resilience Doughnut framework was consistently referred to as a means to helping students through adversity.

Measures

The measures used were:

1. The Strength and Difficulties Questionnaire (SDQ), (Goodman, 1997) has 33 items with five subscales of emotional, conduct, hyperactivity and peer difficulties, and pro-social behaviours.
2. Multidimensional Anxiety Scale for Children, shortened version (MASC-10), (March, 1997).
3. The Children Depression Index, shortened version (CDI-10), (Kovacs, 2003).
4. The CYRM (Ungar, 2008).
5. The Resilience Scale (RS-14) (Wagnild & Young, 1993).

Parents and students granted permission to collect data prior to the program being implemented with the students and an application to conduct ethical research in Catholic schools was granted from the Catholic Education Office of New South Wales. Written permission was also granted from both parents and students to collate the data. Students were assigned a research code and no identifying information was retained in the data collation. The five measures were distributed to students 1 week prior to the commencement of the program, and again 12 and 24 months after the program was completed.

Case Study 3

Case Study 3 is a small state (NSW) high school with a high population of migrant families (90 %). Subjects were 325 boys aged 12–15 years (years 7–10). The school is part of a college with 4 campuses in Sydney of which one is a large senior campus. The focus on the school was to build literacy skills and confidence to achieve in the senior campus of the college.

Method

1. Two teachers attended an accredited training course in the use of the Resilience Doughnut framework in schools. A further staff member already trained in the use of the Resilience Doughnut in schools was assigned to the task of implementing the framework with staff, and students across the campus.
2. Staff from an external camping facility also attended a whole day of training in the use of the Resilience Doughnut framework in camp activities and wider communities. The external Camp facility was engaged to run camping programs across the year groups of the school.
3. The staff trained in the use of the Resilience Doughnut framework conducted teacher training for staff on a staff development day (a pupil-free day) using the basic Resilience Doughnut program. As the staff development day was held at the external camping facility the school staff were then able to practically demonstrate how to link their own strengths to raise their own resilience. For example, some staff selected close friends within their own faculty to join them in building a raft to race against other faculties, linking their education, peer and skill factors together. There was an emphasis on helping teachers and camping staff to use a common language that encouraged optimistic thinking (for example, positive encouragement when success was noted) and to plan future activities that connected individual strengths in the Resilience Doughnut referred to as "doughnut moments".
4. Students were then taught the Resilience Doughnut framework in regular personal development classes over a 4-week period where they learnt to apply the framework to students both similar and different to themselves. The format of these lessons followed the basic Resilience Doughnut program as outlined earlier. Students also completed their own assessment of their strengths using the Resilience Doughnut on-line game, and were encouraged to plan some activities that linked their three strengths.
5. Upon completion of the class teaching, each year group were engaged in a camping program using the external camping provider. Students were encouraged to undertake various challenges during the camp, which drew on their existing strengths of peers, teachers and family in order to build on their skills. Some of the younger students involved their fathers and older brothers in attempting their challenge during the camp. For example, one student invited his brother and father to help him attempt an abseiling exercise, linking his parent, family and skill factors. Another student invited two friends, and geography teacher to help build a grass cart to participate in the grass skiing exercise, linking his peer, education and skill factors.
6. After the camp, parents of the students attended a short presentation given by the principal of the school outlining the Resilience Doughnut framework, showing photos of the students using their three strengths to attempt their challenge activity at the camp. A smaller number of parents also attended an evening presentation at the school where the basic Resilience Doughnut program was presented using photo examples of the students linking their strengths at the camp. Parents

were then encouraged to think of ways of linking their children's strengths at home to create more positive intentional interactions that build resilience. For example, some parents suggested ways they could link their community, family and parent factors together by attending community events as a whole family and linking with other families. For example, planning a cricket match in the local park with other families in the neighbourhood, linking the parent, family and community factors.

Measures

The measures used were:

1. The SDQ (Goodman, 1997)
2. The Resilience Scale for Adolescents (READ), (Hjemdal, Friborg, Stiles, Martinussen, & Rosenvinge, 2006) has 28 items with five subscales of personal and social competence, structured style, awareness of social resources and family cohesion.

Due to the students' poor literacy skills and high rate of attention difficulties, only two measures were chosen as they were relatively easy to administer, used less complicated language and their subscale qualities or behavioural, emotional difficulties, pro-social behaviours, and internal and external aspects of resilience gave a comprehensive view of each students experience. Permission was granted through the State Education Research Approval Process (SERAP) within the Department of Education and Training NSW. Written permission was also granted from both parents and students to collate the data. Both measures were collected on-line and collated with the data from each student's on-line Resilience Doughnut game. Students were assigned a research code and no identifying information was retained in the data collation. The two measures were collected from students 1 week prior to the commencement of the program, and again 12 months after the program was completed.

Results

From the pre-test results, each measure was tested for internal consistency with the following Cronbach alpha coefficients (CYRM .89; SDQ .70; MASC-10 .72; CDI-S .75; RS .86; READ .93). The relationship between the Resilience measures was investigated using the Pearson's product–moment correlation coefficient. As expected the resilience measures CYRM and RS-14 were highly correlated in Case Study 1 .694, $p < .0005$ and Case Study 2 .696, $p < .0005$. There was a strong negative correlation for the measures of anxiety, and depression with the measures of resilience CYRM and CDI = −.536 $p < .0005$; CYRM and MASC-10 −.361 $p < .0005$; RS-14 and CDI −.490 $p < .0005$; RS-14 and MASC-10 −410 $p < .0005$. There was also a strong negative correlation for total difficulties (SDQ) and both measures of

Table 11.2 Correlation of subscales from measures Strength and Difficulties Questionnaire (SDQ) and the Resilience Scale for Adolescents (READ) Study 3

		Emotional symptoms	Conduct problems	Hyperactive Inattention	Peer problems	Pro-social	Total difficulties
Personal competence	Correlation	−0.309	−0.274	−0.315	−0.22	−0.367	−0.38
	Sig.	.000**	.000**	.000**	.000**	.000**	.000**
	N	316	310	309	310	311	309
Social competence	Correlation	−0.195	−0.134	−0.197	−0.21	0.461	−0.246
	Sig.	.001**	.019**	.000**	.000**	.000**	.000**
	N	310	310	309	309	311	308
Structured style	Correlation	−0.217	−0.2	−0.322	−0.113	0.368	−0.299
	Sig.	.000**	.000**	.000**	.047**	.000**	.000**
	N	313	313	312	312	314	311
Social resources	Correlation	−0.238	−0.24	−0.293	−0.322	0.458	−0.366
	Sig.	.000**	.000**	.000**	.000**	.000**	.000**
	N	315	315	314	314	316	313
Family cohesion	Correlation	−0.272	−0.281	−0.338	−0.224	0.37	−0.379
	Sig.	.000**	.000**	.000**	.000**	.000**	.000**
	N	313	313	312	312	314	311

**Correlation is significant at 0.01 level (two-tailed significance)

resilience CYRM −.607 $p<.0005$; RS-14 −.508 $p<.0005$. In Case Study 3, the Strength and Difficulty subscales (SDQ) showed a highly significant negative correlation between the Resilience for Adolescents (READ) subscales and positive correlations with the pro-social subscale (Table 11.2).

In each of the case studies the resilience measures (CYRM, RS14 and READ) were tested for main effects and one way repeated measures (ANOVA) were conducted to compare results from each of the times measured. Three groups were formed using 33 % cut points to divide the samples according to anxiety and depression scores (Study 1) and total difficulties experienced (SDQ; Studies 2 and 3). A one way between groups multivariate analysis of variance was performed to investigate differences between those students who reported low, average or high anxiety, depression or total difficulties in each of the studies.

Results Case Study 1

A one way repeated measures ANOVA was conducted to compare scores on the Resilience scale 14 (RS14) at time 1 (prior to the intervention), time 2 (6 months post-intervention) and time 3 (12 months follow up). There was no significant effect for time, Wilks Lambda = .97, $F(2, 150) = 1.86$, indicating non-significance. A one way repeated measures ANOVA was conducted to compare scores on the CYRM scale at times 1, 2 and 3. The means and standard deviations are presented in the Table 11.3.

Table 11.3 Study 1, descriptive statistics for CYRM scores at time 1, time 2 and time 3

Time period	*N*	Mean	SD
Time 1 (pre-intervention)	115	4.08	.431
Time 2 (6 month post-intervention)	115	4.16	.507
Time 3 (12 month follow up)	115	4.09	.450

Significant main effect for time: Wilks Lambda = .94, $F(2, 115) = 3.82$, $p < .05$, $\eta^2 = .063$
Pairwise comparisons from time 1 to time 2, $p < .05$, time 2 to time 3, $p = .145$

Table 11.4 Descriptive statistics of means for resilience scores (RS-14) for groups according to anxiety over time 1, time 2, and time 3

Time	Groups	Mean	SD	*N*
RS-14 pre-test	Low anxiety	5.67	.666	65
	Normal	5.31	.811	45
	High anxiety	5.11	.818	40
RA-14 post-test	Low anxiety	5.74	.624	65
	Normal	5.35	.911	45
	High anxiety	5.31	.799	40
RS-14 12 month	Low anxiety	5.59	.858	65
	Normal	5.46	.741	45
	High anxiety	5.41	.738	40

$F(3, 290) = 2.96$, $p < .01$; Wilks' Lambda = .888; partial $\eta^2 = .058$

There was a moderate significant result for time, Wilks Lambda = .94, $F(2, 115) = 3.82$, indicating significance at $p < .05$, multivariate partial $\eta^2 = .063$.

By dividing the sample according to their anxiety scores (MASC-10), three groups were formed. A one way between groups multivariate analysis of variance was performed to investigate differences in resilience (RS-14) between those students who initially reported low, average or high anxiety, and their resilience scores over time. Three dependent variables were used, resilience scores at time 1 (pre-test), time 2 (6 month post-test) and time 3 (12 month post-test). The independent variable was anxiety groups (low, average and high). Preliminary assumption testing was conducted to check for normality linearity, univariate and multivariate outliers, homogeneity of variance–covariance matrices and multi-collinearity, with no serious violations noted. There was a statistically significant difference between anxiety groups on the combined dependent variables, $F(3, 290) = 2.96$, $p < .01$; Wilks' Lambda = .888; partial $\eta^2 = .058$. When the results were considered separately, the only differences to reach statistical significance using a Bonferoni adjusted alpha level of .017 was the pre-test resilience scores (RS14), $F(2, 147) = 7.42$, $p = .001$, partial $\eta^2 = .092$; and the 6 month post-test resilience scores, $F(2, 147) = 5.27$, $p = .006$, partial $\eta^2 = .067$ (Table 11.4, Fig. 11.2). There was a similar result using the CYRM measure of resilience with pre-test scores $F(2, 111) = 4.49$, $p < .01$, partial $\eta^2 = .075$; and the 6 month post-test CYRM scores $F(2, 111) = 3.004$, $p < .05$, partial $\eta^2 = .051$. An inspection of the mean CYRM scores indicated that the low anxiety group increased their resilience scores from pre- to 6-month post-intervention but decreased at 12-month follow up. The normal and high anxiety

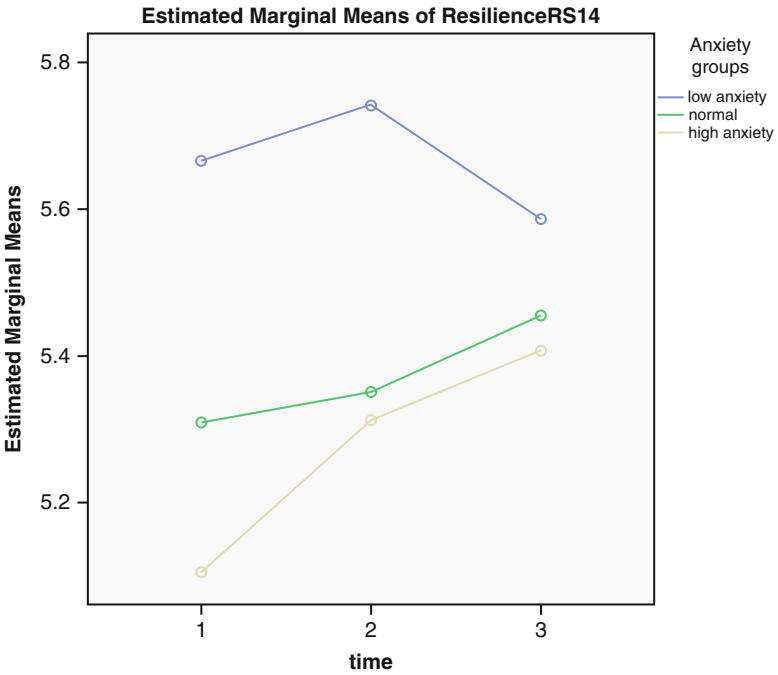

Fig. 11.2 Study 1, average scores of resilience (RS-14) for groups divided by level of anxiety pre, 6 months and 12 months post-intervention

groups both increased their resilience scores from pre- to 6 month and 12 month post-intervention, with the most change noted from pre- to 6 month post-test. The group that showed the most positive effect was the high anxiety group. Thus, in Case Study 1 ($N=40$) girls with anxiety levels above 33 % of the sample, showed an increase in their resilience scores (CYRM) 6 months post-intervention, which was again slightly increased in the following 12 months post-intervention (Table 11.5, Fig. 11.3).

Qualitative analysis gathered regarding the Resilience Doughnut factors was in the form of comments posted on each of the factors when the students were completing his or her on-line game and journal entries. Considering each student had goals of enhancing each of their three strengths in the Resilience Doughnut, the girls were asked to rank each separately and comment on the changes they had noticed. From the students different combinations of strength factors (there are 7 in total) 68.35 % of students reported 1, 2 or 3 factors had improved, 25.04 % reported they remained the same, while only 4.14 % reported they did not feel they were as strong as before the program. Considering during the program they had set a goal for each of the three strengths and were asked to design and undertake a strategy in order to link and further develop their strengths students individual comments are used to gather the general feel of the effectiveness of their strategy. The following codes indicate that each of the seven factors and comments are recorded following the codes, for some of the comments collected (Table 11.6).

Table 11.5 Descriptive statistics of means for resilience scores (CYRM) for groups according to Anxiety over time 1, time 2 and time 3

Time	Groups	Mean	SD	*N*
CYRM pre-test	Low anxiety	4.21	.354	50
	Normal	4.00	.498	38
	High anxiety	3.94	.413	26
CYRM post-test	Low anxiety	4.28	.416	50
	Normal	4.12	.490	38
	High anxiety	3.99	.645	26
CYRM 12 month	Low anxiety	4.09	.473	50
	Normal	4.13	.426	38
	High anxiety	4.03	.457	26

$F(2, 110) = 2.67$, $p < .073$; Wilks' Lambda = .954; partial $\eta^2 = .046$

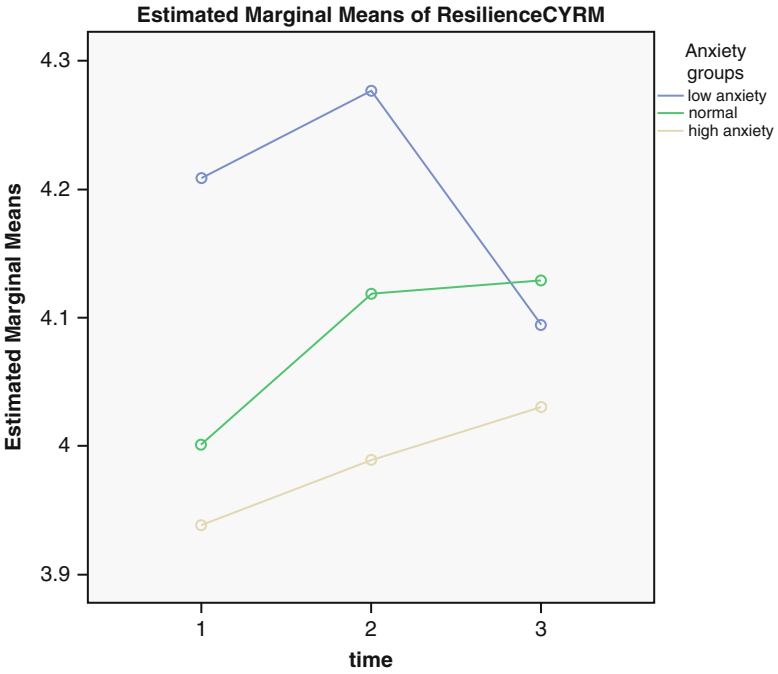

Fig. 11.3 Study 1, average scores of resilience (CYRM) for groups divided by level of anxiety pre, 6 months and 12 months post-intervention

Furthermore, in Study 1 the teachers introduced self-evaluations in the form of regular journaling and self-reflection to correspond with the independent learning program for term 4. Using a subjective scale (0–5) for self-evaluation, designed by the teachers, students were required to scale their perceived progress in a number of areas. Time management, task management, optimistic thinking, responsibility, catastrophic thinking, perseverance, help seeking, resilience doughnut strengths, self-confidence, parent relationships, school engagement, meeting new people, school connectedness. Students rated on a scale from 0 to 5 where 0 indicated they did not

Table 11.6 Study 1, self reports regarding their changes in Resilience Doughnut strengths

F—I have always been close to my family but we have become closer in ways I would never have imagined
P—I think the relationship with my dad and I has grow more. I feel I can tell him the problems I have.
S—I practiced, practiced and practiced
PE—I have become so much more confident in my friendship group
F—I have become so much closer to my older sister
P—I talk more positively with my mum and dad
F—Family gathering more often
C—I have worked more in my Community and become more proud
F—Got to know myself and my family better
PE—This term has really expanded my friendship groups
P—I really appreciate all they have done for me and I'm so grateful
S—I enjoyed having my own garden and having goals
E—I am now more aware that my education is a huge part of my life
E—I am starting to appreciate school more
M—I have learnt how to save and value my money and how to earn it, not just receive it
P—Learning how to push aside phones and ipods and talk to your parents
P—I strengthened this factor by doing more things with my parents
E—I learnt a lot of life skills but not a lot of educational skills
E—I learnt a new way of learning
PE—I have done more things with my friends now out of school
F—I see my Grandma more

F Family and Identity, *S* Skill, *C* Community, *P* Parents, *M* Money, *PE* Peers, *E* Education

Table 11.7 Perceived changes in areas of competence as rated by students

Area of competence	*N*	% No change	% Improved	% Decreased
Time management	217	13.82	78.34	7.38
Task management	217	25.34	65.43	7.37
Optimistic thinking	217	24.42	59.90	11.05
Responsibility	217	31.79	60.36	7.37
Catastrophic thinking	217	21.19	64.05	8.75
Perseverance	217	21.65	70.04	4.06
Help seeking	217	28.11	63.13	7.83
Develop three strengths in Resilience Doughnut	217	25.03	68.35	4.14
Self-confidence	217	21.19	76.49	2.30
Parent relationships	217	35.56	59.90	5.52
School engagement	217	33.17	62.21	4.14
Meeting new people	217	21.65	77.88	0
School connectedness	217	34.10	56.68	6.19
Overall changes	217	23.8	68.5	5.66

have competence in this area and 5 were they were extremely good in this area. Results of these scores were collated according to the percentage of students who did not report a change in the area of competence (% no change), reported a change (% improved) and reported a decrease in competence (% decreased) (Table 11.7).

Table 11.8 Study 2: descriptive statistics for CYRM scores at time 1, time 2 and time 3

Time period	*N*	Mean	SD
Time 1 (pre-intervention)	135	4.06	.446
Time 2 (12 month post-intervention)	135	4.20	.528
Time 3 (24 month follow up)	135	4.14	.422

Wilks Lambda = .88, $F(2, 133) = 11.17$, $p < .0005$, multivariate partial $\eta^2 = .146$
Pairwise comparisons time 1 to time 2, $p < .0005$, time 2 to time 3, $p = .08$, time 1 to time 3, $p < .05$

Overall the results of the perceived changes in competence, 68.5 % of year 8 students rated themselves more highly in the aspects of the program. The scores moved up the 6-point scale, on an average of +1.55 points. 5.66 % of the year 8 students thought their performance after the program was not as good as it was before the program, and their scores moved down the 6-point scale, on an average by −.87 points. 23.8 % of the year 8 students rated themselves at the same level before and after the program in the areas of competence. The area of competence recording the largest number of students reporting improvement was "meeting new people" where 77.8 % of the girls said they had improved by an average of 1.67 points on the scale.

Results Case Study 2

A one way repeated measures ANOVA was conducted to compare scores on the CYRM at time 1 (prior to the intervention), time 2 (12 months post-intervention) and time 3 (24 months follow up). The means and standard deviations are presented in Table 11.8. There was a significant effect for time, Wilks Lambda = .88, $F(2, 133) = 11.17$, $p < .0005$, multivariate partial $\eta^2 = .146$ indicating significance.

By dividing the sample according to their anxiety scores (MASC-10), three groups were formed. A one way between groups multivariate analysis of variance was performed to investigate differences between those students who initially reported low, average or high anxiety, and their resilience scores over time. Three dependent variables were used, resilience scores using the CYRM at time 1 (pre-test), time 2 (12 month post-test) and time 3 (24 month post-test). The independent variable was anxiety groups (low, average and high). Preliminary assumption testing was conducted with no serious violations noted. There was no statistically significant difference between anxiety groups on the combined dependent variables, $F(4, 260) = 2.03$, $p < .091$; Wilks' Lambda = .940; partial $\eta^2 = .03$. However, an inspection of the mean scores for each group according to the level of anxiety indicated that the low anxiety group increased their resilience scores from pre- to 12 month post-intervention but decreased at 24 month follow up. The normal and high anxiety groups both increased their resilience scores from pre- to 6 month and 12 month post-intervention, with the most change noted from pre- to 6 month post-test.

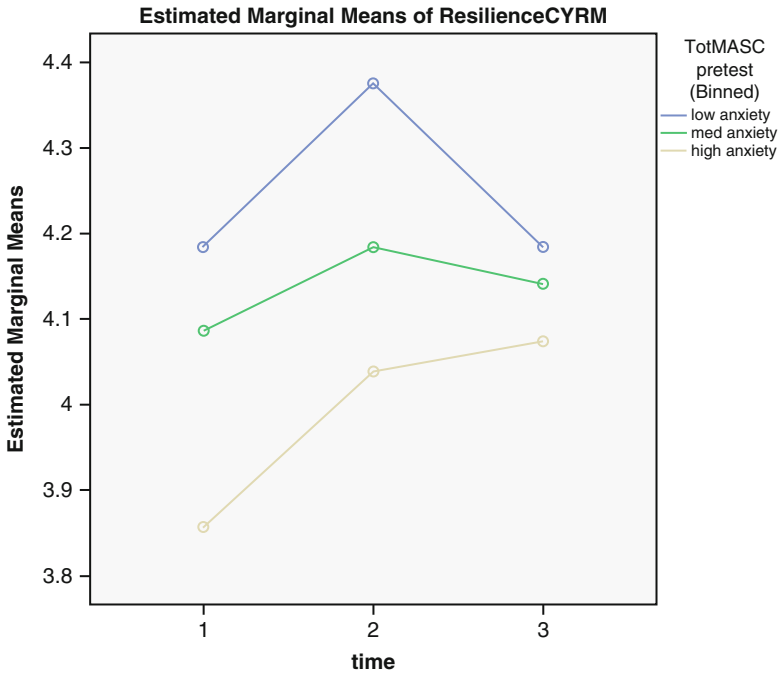

Fig. 11.4 Study 2, average scores of resilience (CYRM) for groups divided by level of anxiety pre, 12 months and 24 months post-intervention

Table 11.9 Study 2 descriptive statistics of means for resilience scores (CYRM) for groups according to anxiety over time 1, time 2 and time 3

Time	Groups	Mean	SD	*N*
CYRM pre-test	Low anxiety	4.18	.424	40
	Normal	4.09	.388	61
	High anxiety	3.86	.517	33
CYRM 12 months	Low anxiety	4.38	.503	40
	Normal	4.18	.448	61
	High anxiety	4.04	.643	33
CYRM 24 months	Low anxiety	4.18	.527	40
	Normal	4.14	.347	61
	High anxiety	4.07	.418	33

$F(4, 260) = 2.03$, $p < .091$; Wilks' Lambda = .940; partial $\eta^2 = .03$

The group that showed the most positive effect was the high anxiety group which was consistent with the findings from Case Study 1 (Fig. 11.4, Table 11.9).

The sample was then divided into three groups according to their total difficulties scores as determined by the SDQ. A one way between groups multivariate analysis of variance was performed to investigate differences between those students who initially reported low, average or high difficulties, and their resilience scores over time. Three dependent variables were used, resilience scores using the CYRM

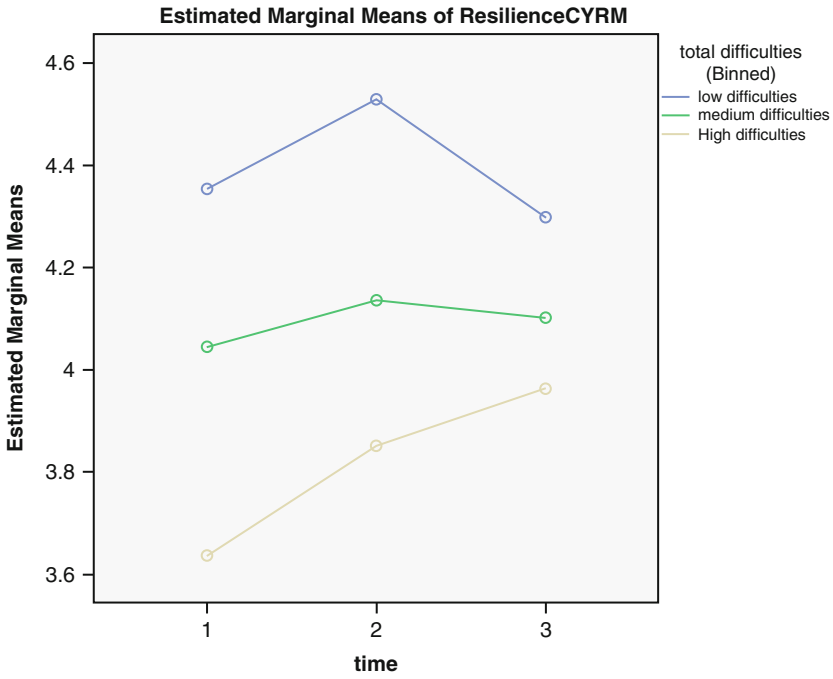

Fig. 11.5 Study 2, average scores of resilience (CYRM) for groups divided by levels of difficulties experienced pre, 6 months and 12 months post-intervention

at time 1 (pre-test), time 2 (12 month post-test) and time 3 (24 month post-test). The independent variable was difficulties (low, average and high). Preliminary assumption testing was conducted with no serious violations noted. There was a statistically significant difference between difficulty groups on the combined dependent variables, $F(4, 264) = 5.33$, $p < .0005$; Wilks' Lambda = .855; partial $\eta^2 = .075$. An inspection of the mean scores for each group according to the level of difficulties' indicated that the low difficulties group increased their resilience scores from pre- to 12-month post-intervention but decreased at 24 month follow up. The normal difficulties group did not show any change, however, the high difficulties group increased their resilience scores from pre- to 12 months and 24 month post-intervention, with the most change noted from pre- to 24 month post-test. This was again consistent with Case Study 1 where those experiencing the most difficulties had the most to gain, which was sustained 12 months later (Fig. 11.5, Table 11.10).

Qualitative data was collected on the Resilience Doughnut on-line game. The game collates the answers to the questions for each factor and gives the students an average of these scores. They are also given the opportunity to make comments on each of the factors. These comments are then collated in the form of a brief report back to the student outlining their strengths with suggestions of how to strengthen their factors even further. Some of the student comments are listed in Table 11.11.

Table 11.10 Study 2 descriptive statistics of means for resilience scores (CYRM) for groups according to difficulties experienced over time 1, time 2 and time 3

Time	Groups	Mean	SD	*N*
CYRM pre-test	Low difficulties	4.35	.424	45
	Normal	4.04	.388	60
	High difficulties	3.64	.517	30
CYRM 12 months	Low difficulties	4.53	.503	45
	Normal	4.14	.448	60
	High difficulties	3.85	.643	30
CYRM 24 months	Low difficulties	4.30	.527	45
	Normal	4.10	.347	60
	High difficulties	3.96	.418	30

$F(4, 264) = 5.33$, $p < .0005$; Wilks' Lambda = .855; partial $\eta^2 = .075$

Table 11.11 Selected comments from students in Case Study 2 on each of the factors on the Resilience Doughnut on-line game

Factor	Comments from the on-line Resilience Doughnut game
Family	*We look out for each other*; *We play sport*, *We are all connected*; *I like playing with my cousin*, *We always celebrate events together*; *I can be myself*; *my grandparents live close and we always meet up*.
Friends	*They are cool*; *We care for each other*; *they treat me like family*; *they are good company*; *they have a good sense of humour*
Skill	*I am good at motor bike riding*, *rugby*; *Swimming*; *Music*; *EVERYTHING*; *Cricket*.
Community	*We have nice neighbours and we have a pool*; *There are lots of kids in my street*; *It is safe for me to ride my bike*; *there is lots of space*; *I know everyone around me*
Money	*I can buy lots of stuff*; *I do chores to get money*, *I can help people with it*
Parents	*They love me*; *They understand everything I say and listen to me whenever I need them*; *My Dad is cool*; *They love me even though I waste their money*; *They are always there for me*; *They care for us*.
Education	*They are good and stuff*; *the teachers*; *I have lots of opportunities*; *It is a good learning environment*; *it is big*

In Case Study 2 a series of interviews were arranged with five parents from the cohort of students involved. Discussion questions were asked regarding the program. From the parents interviewed it appeared that parental involvement was encouraged in helping students to work out each student's three strong factors. One parent noted that their son explained the doughnut concept to the family over dinner one night, and this prompted her to seek further information. Another parent expressed her delight in the program in the school and referred to "doughnut-moments at home with the family, as times of great fun". These were times when the child's three areas of strength were linked during an event. The family had planned events on a regular basis that linked their children's three strengths. One parent noted she didn't know about the program until her son was explaining the "doughnut" to his brother in the car. Four of the five parents made comments regarding how they felt respected by the program because it highlighted the strengths in the parents, family and community factors. Each parent interviewed made the assumption that this was a regular program in the school and wanted it to continue.

Results Case study 3

Pre-test sample consisted of 350 students in school years 7–10 (aged 12–15 year old boys) in an all-boys high school in southern Sydney. Six months post-test sample consisted of 174 students from years 7 and 8 only (aged 12–13 years). So analysis was completed on students from years 7 and 8. A paired *T*-Test was conducted to assess the impact of the resilience intervention program on each of the READ subscales (personal competence, social resources, structured style, social competence and family cohesion) across two time periods.

There was no main effect over time. The sample was divided into three groups according to the levels of total difficulties scored from the SDQ (low, medium, and high difficulties). A one way repeated measure ANOVA indicated was a significant main effect between groups ($F = 16.956$, Sig. $< .0005$, $\eta = .200$) on their pre- and post-personal competence scores. Post hoc tests revealed a significant difference in personal competence between group scores over time (low to medium difficulties $p < .0005$, low to high difficulties $p < .0005$) and a non-significant difference in personal competence between the groups with medium to high difficulties over time. Further analysis of effect of intervention on personal competence for group 3($N = 24$) only, revealed a non-significant result ($p = .069$). However, inspection of the means revealed that 24 boys scoring higher levels of difficulties before the intervention experienced the most significant changes in personal competence, which was sustained after 12 months. The changes in this group took the high difficulties group to resemble personal competence scores of those within the middle range of difficulties. This was a similar finding to that of both studies 1 and 2, where the program has significant impact on those who were most needy (Fig. 11.6. Table 11.12).

Qualitative Data in Case Study 3 was restricted to the comments listed on the on-line Resilience Doughnut game with no further analysis of changes in these comment. Ninety per cent of the boys from this study were from Arabic or Chinese communities with English as a second language. The majority of the students were not born in Australia and their comments are reflective of their experience in their country of origin (Table 11.13).

In Study 3, the program used an external camping organisation trained in the use of the Resilience Doughnut. It was particularly evident that the boys had no experience in outdoor recreation and therefore needed to build their camping skills. The program was therefore tailored to each year group with graduated skill development over the 4 years. As this was a state public school with the least funding, collection of data was problematic as staff changed over the 2-year period. The funding for the Resilience Coach fell through and staff running the program did so in their own time. Consequently, the data collected only reflected the 12-month post-intervention with limited qualitative data collected. However, in observing the process of implementing the resilience Doughnut framework within the school, a number of factors appeared to be strengthened. Seven teachers were interviewed who were involved in the camping program. They reported feeling more connected to the parents of their students as a result of implementing the program. As parents were encouraged to

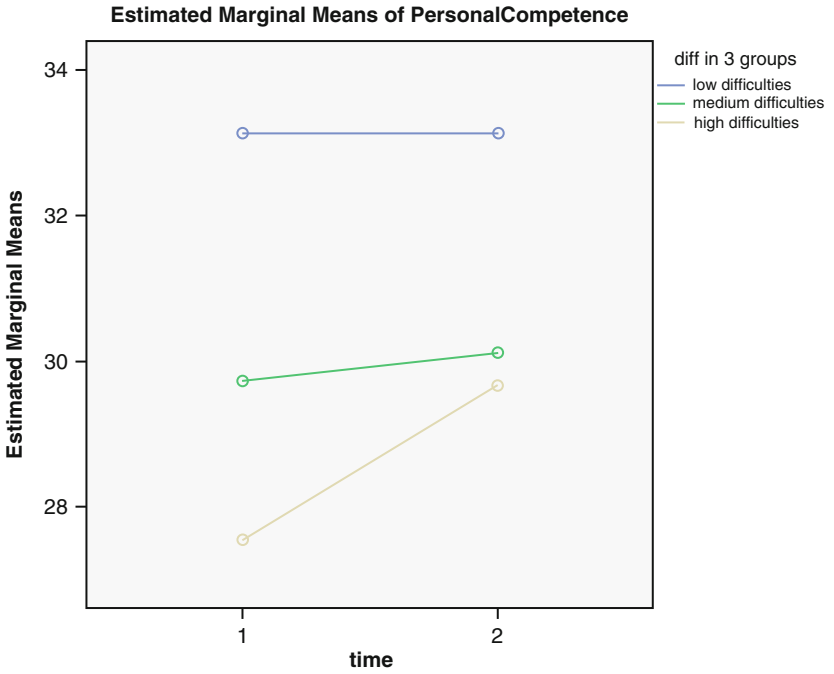

Fig. 11.6 Study 3 graph of the means for personal competence pre- (time 1) and post- (time 2) intervention for groups divided according to the difficulties experienced

Table 11.12 Study 3 Means for personal competence for groups according to difficulties experienced over time 1 (pre-intervention) and time 2 (post-intervention)

Time	Groups	Mean	SD	*N*
Personal competence pre-test	Low difficulties	33.13	3.85	71
	Normal	29.73	4.47	44
	High difficulties	27.54	5.95	24
Personal competence 12 months	Low difficulties	33.10	4.34	71
	Normal	30.11	5.13	44
	High difficulties	29.67	4.92	24

$F = 16.956$, Sig. $< .0005$, $\eta = .200$

attend activities in the school and the camping program, the parent teacher relationships appeared to be stronger. Some teachers noted the positive experience of tackling a challenging experience with their students and families. The camping skills acquired in the outdoor education program generated future possibilities for students to progress to more challenging tasks.

From the discussions with staff, suggestions arose to help implement the Resilience Doughnut framework into the school in the future. These suggestions included; 1. implementing an outdoor education program for all students within the

Table 11.13 Selected comments from students in Case Study 3 on each of the factors on the Resilience Doughnut on-line game

Factor	Comments from the on-line Resilience Doughnut game
Family	*We all cooperate together*; *We love each other*, *we fart*; *We fight but we still love each other*; *They are caring and fun*; *We always celebrate events together*; *They enjoy my company*; *I can talk to them about face-book problems*.
Friends	*We can keep friends*; *We watch each other's back we stick together*; *We play x-box*; *they stop me from being lonely*; *We laugh a lot*.
Skill	*I am good at playing sport*, *face-booking*; *Maths and English*; *Music*; *Athletics*; *Computer games*.
Community	*I live next to a park and pool and bus stop*; *The people here are good*; *I have friendly neighbours*; *The people are happy*; *The people around me care for me and my family*; *It is a safe place*.
Money	*I can save my money for things so my family doesn't have to buy them*; *I can work hard*; *I can buy things that I want*.
Parents	*They listen to me*; *They buy me stuff*; *They are loving and kind*; *My mum has really helped me*; *They love me*; *They let me do anything within reason*; *They care for us*.
Education	*It's a good school*; *It give me a good education*; *I have lots of friends and like the teachers*; *My school work and projects are fun*; *Everyone is kind*; *The library*; *It is a safe environment*.

school curriculum with graduated, skill based, challenge outdoor activities; 2. Integrating the Resilience Doughnut factors such as parents, teachers, community and family into the program and; 3. having a common language and approach to building resilience with parents, teachers, staff, camping staff, and students.

Discussion

Applying an intervention in a whole school aimed at raising resilience comes with a number of difficulties. One of these difficulties is in training willing staff to implement and sustain the programs while at the same time measuring the desired outcomes associated with resilience. In high schools, teachers are pressured to meet teaching and learning targets and the matter of student welfare is delegated to particular teachers who are given a 1–2 h allowance per week. This limited time results in a higher turnover of staff involved in programs resulting in poor sustainability and motivation by relieving staff that continue with the interventions. Furthermore, teaching staff often present with their own agenda's for intervention programs that are based on their subjective experiences with past and present students. While having measures to objectively evaluate the needs of the students is helpful, the time this takes can often be a de-motivating factor in engaging the staff to implement the programs. Data collection is often time taken away from classroom activities and as teaching staff often do not see the outcomes, their motivation is not sustained. These difficulties are invariably the reason behind many failed attempts at collecting evidence of the many interventions aimed at building resilience in high schools.

It is therefore important to seek out those teachers who are most enthusiastic and motivated to run the intervention program, and to work with them in helping them to own the process and the desired outcomes. The Case Studies used in this chapter each had different approaches to the resilience programs implemented in their schools, generated by the staff, which appeared to help motivate the people involved in the process. Each school used different measures, generated by the desired outcomes of the staff, which appeared to contribute to the cooperation of data collection.

A second difficulty lies in the relationships and communication between staff and parents during the high school years (Usrey, 2010). During high school years parent information evenings are often poorly attended thus limiting interventions that involve parents as well as teachers and students. As is evident in the programs run in primary schools, parent teacher communication is vital in supporting the development of resilience (Stewart & Sun, 2004). It is therefore important to consider alternative ways that intervention programs may build these relationships during the high school years. As apparent in each of the case studies, the involvement of parents in the programs, through camp attendance, parent information evenings and training events encouraged the partnership of teachers and parents in building resilience.

Luthar and Cicchetti (2000) give a number of recommendations when applying resilience interventions (Luthar & Cicchetti, 2000). It appears that the interventions based on the Resilience Doughnut framework in the three Case Studies apply each of these recommendations. Firstly they recommend that interventions must have a strong base in theory with a developmental focus, and research on the particular group being targeted should guide this intervention. The Resilience Doughnut is a model that has a strong developmental and ecological focus based on past research with populations that have coped well despite adversity. The population targeted in the three Case Studies were from normal populations of youth ages 12–16 years with varying needs and challenges according to each of the school environments. Research into these groups was generated by the schools requesting the intervention and was based on teacher's subjective observations of the developmental difficulties faced by the students. These difficulties were unique to each school and thus generated a different type of intervention program based on the Resilience Doughnut model.

Secondly, Luthar and Cicchetti (2000) recommend that intervention should be designed to capitalise on specific resources within particular populations, targeting the protective processes that operate across multiple levels of influence. Again, the Resilience Doughnut framework is a strength-based model where areas of strength are identified and intervention involves enhancing these strengths. Enhancing the existing strengths subsequently affects weaker contexts by either changing the individual's perspective or strengthening them. For example, a young person with low engagement in school may find that by playing soccer with their friends at the local park after school enhances their strengths of skill, peers and community. The subsequent affect of attending school more regularly to see their friends and practice playing soccer during lunch breaks strengthens their school engagement. Thus, the structured intervention of linking three areas of strength in the Resilience Doughnut framework seeks to have a purposeful positive injection of self-efficacy, self-esteem and awareness of support networks. This resiliency building activity sets in motion

the interaction of further resilience building opportunities by engaging additional external protective factors.

Thirdly, Luthar and Cicchetti (2000) note the need to be contextually relevant to the overall intervention aims as well as to the specific intervention strategies. Resilience building programs can be designed according to skill development and delivered in classroom situations; however, it is evident that the process of building resilience is in the context of relationships (Martin & Dowson, 2009). Thus, program implementation needs to be flexible enough to allow for the individuals involved to be able to interact using their own strengths, connections and styles of relating (Masten et al., 2008; Munford & Sanders, 2008). The Resilience Doughnut framework in guiding the delivery of resilience building programs used the strengths in each of the three schools. It was clear that the staff needed to have an understanding of the framework and the concepts behind activating the process of building resilience. Each school therefore trained staff in the use of the model and this training enabled the staff to implement a program tailored to fit the students' desired outcomes, in the contexts of relationships. For example, Case Study 1 used the cooperation of the whole school staff to mentor individual girls as they completed their challenge projects. Case Study 2 used the strengths of the counsellors in the school to teach staff, parents and students how to link Doughnut strengths. Case Study 3 used the strengths of family and community to run a camping program.

A fourth recommendation by Luthar and Cicchetti (2000) is that intervention efforts should aim at fostering services that eventually become self-sustaining. The ecological framework in the Resilience Doughnut, promotes sustainability by involving the contexts external to the school such as parents, community and family. While the initial set up of the program may be onerous, the flow on effect of empowering factors outside of the school context in the early stages of high school years can ensure a greater support network for the students and parents combined. Consequently, this greater support network promotes more opportunities for a flow on effect of strengths in areas other than the school. This was evident in Case Study 3, where involving the parents and an external camping program set up a system which was independent of the staff in the school. It was also evident in Case Study 1, where the teaching staff engaged in a full term of changes in their teaching style to include more interactive engagement with the students and Case Study 3, where the students engaged their parents in the process of building on their strengths. People must be engaged in the intervention for it to be sustainable and this means there must be some degree of flexibility for the participants involved in any programs or interventions used within any school system (Mallin, Walker, & Levin, 2013).

The final recommendations for intervention programs by Luthar and Cicchetti (2000) were for measuring the change using appropriate comparison groups with careful documentation and evaluation. As the intervention in each of the case studies involved a whole school or year group, it was predicted there would be a confounding or flow on effect on other factors in the student's lives, subsequently causing further changes. This whole school approach made it difficult to use a control group within the one school. Thus as each of the case studies used only pre- and post-intervention measures with no control group, the results need to be interpreted lightly.

As with all longitudinal research, changes can be due to a number of factors occurring in the lives of the subjects and not necessarily the intervention used. Therefore, it is hoped in future studies to use comparison groups from schools without the intervention. A comparison group with no intervention would determine the normal developmental pathways of those with high levels of anxiety and difficulties. From this we could establish the extent of the shift in resilience of these groups. It is therefore recommended that future enquiry be with a comparison group without intervention.

However, in the light of the restrictions of research, it is interesting to note the observed trends. From each of the studies it was evident that there was an increased benefit for those experiencing anxiety as measured by the MASC-10 and difficulties in emotional and social contexts as measured by the SDQ. As the groups were small and selected according to the higher 33 % of scores of anxiety and difficulties for the total sample, it is unlikely that all students in the high anxiety and high difficulty groups would fall in the clinical range of disorders in these categories. It is more likely that these students fall in the group described as the languishing group, who are two times more likely to develop episodes of major depressive episodes than those in the middle group and six times greater than those in the low anxiety and difficulties group (Keyes, 2002). In Study 1, and 2 there was a trend for students in the high anxiety and difficulties groups reaching the same level of resilience as those with low to average difficulties, which was sustained and slightly improved again 12 and 24 months later. As with Study 3 there were positive changes in personal competence for those students experiencing high levels of difficulties, while not statistical significance, there was a shift towards those within the normal range of difficulties.

It has been noted that individuals with symptoms of anxiety, depression and other mental health challenges, focusing on the protective factors that can enhance the individual's ability to thrive is of paramount importance. Many programs are designed to target students at risk and use skill based interventions to help increase resilience for those individual students, however, they dismiss the importance of building these skills while in the company of peers, teachers and family members who may be coping well (Mallin et al., 2013). The Resilience Doughnut framework delivered in the context of a whole school intervention appears to normalise the concept of building on the strengths, and creates a common language for teachers, peers, family, parents and students as they cope with adversity. This was evident in the reported experience of parents interviewed in Study 2 when they shared their experience of finding out about the Resilience Doughnut, and the teachers in Study 3 as they considered using a common language around strengths in the school and the camping program. The focus on linking each student's strongest factors also enables an individual to shift their focus away from their problems and deficits, towards their individual experiences, achievements and personal and environmental strengths (Climie, Mastoras, McCrimmon, & Schwean, 2013). For those suffering from depression and anxiety in particular, the positive experience has the potential to shift the adolescents emerging identity from one of helplessness to resourcefulness. Furthermore, the programs implemented in all three schools, targeted whole school groups, rather than focusing on the small groups at risk. It is highly probable that by having shared positive experiences aimed at connecting with others in the whole group potentiated a

positive flow-on effect with those experiencing anxiety and social difficulties. That is, students experiencing social and emotional difficulties may have benefitted by going through a program with those who manage well socially.

The use of multiple measures in these Case Studies gave further validity to the groups analysed. As programs based on the Resilience Doughnut framework aim at raising resilience by increasing self-efficacy (I can), self-esteem (I am), and knowledge of available resources (I have), the READ, with five subscales each related to aspects of resiliency was the most useful measure. The SDQ subscales gave a set of comprehensive profiles for each student, which enabled those students to be divided into groups according to difficulties experienced. Both measures were used on-line with the Resilience Doughnut computer program, took a minimal amount of time, and were relatively easy to collate the data. Thus, future enquiry could be used to track the changes of the students experiencing the most difficulties over time using just these two measures.

Each of the Case Studies therefore give valuable insight into the implementation of interventions based on the Resilience Doughnut framework. Future enquiry with comparison groups would benefit these studies further, alongside repeated measures of the longitudinal effect on the students, with particular focus on those falling in the languishing group (i.e. 33 % of sample with higher difficulties and anxiety scores). The aim therefore would be to establish the degree of change in the trajectory for these particular students from risk to resilience.

In conclusion, the interventions based on the Resilience Doughnut were able to be adapted to the culture within each school, which helped to motivate the staff involved, enabling a more sustainable system of change. The interventions also involved the wider network of supports around each student enabling a process of building resilience using multiple pathways. Further enquiry as to how these programs were implemented within the schools would be useful in replicating the process with other schools. As to the effectiveness of the interventions, a comparison group would establish the short-term effect, and longitudinal qualitative and quantitative measures would determine the full effect of a trajectory change with the highly anxious and difficult students. It is therefore hoped that measures will continue to be collected for each of these schools and a comparison group be established.

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