The Resilience Doughnut Model

A model showing the interaction of external resources that build individual resilience

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Introduction

The ability to bounce back after adversity and to cope under pressure is of interest to clinical and developmental psychologists. Developing a resilient attitude and behaviour is helpful in maintaining mental health and helping people to transition through the many life stages. The Resilience Doughnut model brings together research that focuses on the interaction of internal and external resources of an individual. It is a timely model indicating pathways to change the developmental trajectories of young people towards a more resilient outcome. The model appears useful in educational and therapeutic settings.

Defining Resilience

There have been a number of definitions of resilience used in relation to individuals as they negotiate adversity over the last 30 years. An international resilience project defined resilience as “the universal capacity which allows a person, group or community to prevent, minimize or overcome damaging effects of adversity” (Grotberg, 1995, p. 6). A more recent definition from a project in Canada 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). Using the above definitions, it is apparent there are several lines of thought. Firstly, where resilience is a personal or group capacity that has been developed and achieved. Secondly, where resilience is a dynamic process, affected by resources, adversity and the capacity of individuals, and thirdly, where an individual’s response to adversity is a practice and strengthening effect in building resilience. Therefore resilience may be defined as an individual or group’s process of continual development of personal competence while negotiating available resources in the face of adversity.

Research on Resilience

The study of resilience in childhood was launched by several investigations that revolved around children living under adverse conditions. A ten-year study, focused on children whose parents were diagnosed as mentally ill, found that many of these children did not become mentally ill or exhibit maladaptive behaviours (Rutter 1985, 1987; Rutter, Maughan, Mortimore, & Ouston, 1979). Another study followed children from low socioeconomic backgrounds who lived in negative family environments (Garmezy, Masten, & Tellegen, 1984). Again, although some showed disruptive profiles, others appeared competent and did not display behaviour problems. Studies of the children of schizophrenic mothers found many of these children thrived despite their high-risk status (Garmezy, 1974; Garmezy and Streitman, 1974; Masten et al., 1990). A 40-year longitudinal study of 700 “high-risk” children, revealed as the cohort of children aged they grew increasingly more like their peers without maladaptive behaviours. A striking finding at ages thirty-two and forty, was most of the high risk youths who did develop serious coping problems in adolescence had staged a recovery by the time they reached midlife (Werner, 2001). These findings confounded the core belief of many risk-focused social scientists – that risk factors for the most part predict negative outcomes. Instead, Werner noted that resilience research suggested risk factors were predictive for only 20 to 49 percent of a given high-risk population (Werner, 2001).

Several other longitudinal studies have also been conducted. Clausen (1993) studied the effects of 300 young men as they negotiated the Great Depression during the 1930s, concluding that strength through adversity prevailed in a number of individuals seen as at risk. Grotberg (1995) noted, with children who had faced extreme hardship and adversity, many had strong internal factors that were influenced by their experiences of competence, belonging and identity. One study (Furstenberg, Cook, Eccles, Elder, & Sameroff, 1998) showed how communities and neighbourhoods affect the process of human development, concluding that the capacity of individuals to draw on their connections was influenced by both their internal factors as well as the capacity of their neighbourhood. Three studies were conducted on both child and adult adjustment to divorce (Hetherington, 2003) suggesting that it is the diversity, not the inevitability of any one pattern of adjustment following divorce and remarriage that is striking.

During the last two decades of the twentieth century, behavioural scientists interested in developmental psychopathology shifted their focus from negative developmental outcomes to successful adaptation despite adversity. A rapidly growing body of literature has now accumulated that deals with the phenomenon of resilience, which Werner describes as the dynamic process that leads to positive adaptation within the context of significant adversity (Werner, 2001). Luthar (2000) notes that early efforts were primarily focused on personal qualities of “resilient children” such as autonomy and high self-esteem. However as work in the area evolved, researchers increasingly acknowledged that resilience might derive from factors external to the child. 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 (Fuller, McGraw, & Goodyear, 1998) investigated protective factors that promote resilience in young Australians. A project focussing on strengths (Geggie, Weston, Hayes, & Silberberg, 2007) studied families living in caravan parks revealing eight categories of strengths that were evident in families that survived and thrived. Many studies of youth from culturally marginalised populations have affirmed the study of strengths and protective factors (Luthar, Chicchetti, & Becker, 2000; Luthar S, 2000; Zimmerman, Bingenheimer, & Behrendt, 2005). Program evaluations such as that of the "Big Brothers, Big Sisters" mentoring program and the longitudinal follow up supported strength-based approaches particularly in building on protective factors (Campbell & O'Neill, 1985; Greenberg, 2006).

In examining the past research there appears to have been three waves of resilience research with an emerging fourth wave (Wright & Masten, 2005).

1. The first wave focused on the individual factors that made a difference, focusing on personal traits and characteristics.
2. The second wave noted individuals develop in the context of the systems around them with a focus on interaction and the process of building resilience.
3. The third wave focused on creating resilience when it was not likely to occur naturally.
4. The fourth wave and beyond is likely to grapple with the current western cultural beliefs in individualism, which undermines the efforts in promoting a culture of connectedness and belonging (Wright & Masten, 2005).

In reference to the emerging positive psychology movement, Seligman (1998) argues 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).

This suggests future enquiry should be geared towards finding simple and practical ways that promote human strength. 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 (Fergus & Zimmerman, 2005). Thus the key findings from long-term developmental studies examining young people in high-risk environments are:

1. Resilience is a capacity all youth have for healthy development and successful learning.
2. Certain personal strengths are associated with healthy development and successful learning.
3. Certain characteristics of families, schools, and communities are associated with the development of personal strengths, and in turn with healthy development and successful learning.
4. 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).

Current Models of Resilience

Several models of resilience are currently being used to generate measures and resilience building interventions. An ecological model, with the child nested in the many contexts of family, community, cultural external systems (Bronfenbrenner, 1986, 2005a, 2005b; Bronfenbrenner & Morris, 2006), is the basis for these models of resilience. The differences appear to be in the effects of protective versus risk factors on the child in their varying contexts of development (Ungar, 2004). Three types of models, summarised by Fergus and Zimmerman (2005) note the developmental trajectories of adolescents in the presence of risk factors. These are the compensatory, protective and challenge models. The key requirements of the models are the presence of risks and promotive factors, made up of assets, internal positive factors, and resources, which are external to the individual. Compensatory models describe how a promotive factor counteracts or operates in the opposite direction to a risk factor. Protective factor models describe how assets or resources moderate or reduce the effects of a risk on a negative outcome. Challenge models note that moderate levels of risk are associated with less negative or more positive outcomes.

While each of these models depicts different pathways of resilience it would seem that a model that can explain the combination of protective, challenge and compensatory effects of promotive and risk factors on the individual would be beneficial.

A theoretical model put forward by Constantine and Benard (2001) notes that external assets such as the school, home, community and peers contribute to the development of internal assets such as cooperation, empathy, problem solving, self-awareness, efficacy, goals and aspirations. These in turn affect improved health, social interactions and academic outcomes. This model appears to be a compensatory, and protective model of resilience (Benard & Slade, 2009).

A youth resiliency framework put forward by Donnan and Hammond (2007) presents a strength based, ecological model with 11 internal and 19 external factors that contribute to resilience. The model proposes that a cumulative effect of an individual's strengths promotes resilience and helps a person adapt to adversity, supporting both a compensatory and protective model.

Ungar's (2008) ecological model of the child navigating and negotiating with their environment implies that the interaction of the social ecology and the developing child affects overall resilience (Ungar, et al., 2008). This model shows there are seven tensions that a child navigates, including cultural adherence, relationships and personal efficacy. These tensions affect the balance and the resources seen to be available at any given time. This model appears to be both a protective and challenge model and is helpful in understanding the dynamics and the process of developing resilience.

Current Youth Resilience Measures

A number of tools have been generated to measure resilience in youth and adults. Many of these are based on adult questionnaires, modified for youth and represent the research of protective and risk factors with an overall net effect score of resilience. Most of the scales are in the format of a questionnaire, and have between 7 and 30 factors. Two measures of resilience will be used for the purpose of this study. They have been chosen for their validity with the Australian adolescent population and ease of administration.

The Resilience Scale and subsequent shortened version RS-14 (Wagnild & Young, 1993) was based on 24 elderly women who had adapted successfully to the losses typical of old age. The full scale has 25 items, with two factors: personal competence and acceptance of self and life, and was found to be highly reliable with an elderly sample with initial construct validity. The resilience scale has been validated with adolescents (Hunter & Chandler 1999) and shortened to 14 items (RS-14).

Ungar and colleagues (Ungar & Liebenberg, 2009) developed a culturally and contextually relevant measure of youth resilience, the Child and Youth Resilience Measure (CYRM). It is focussed on marginalised youth in differing cultural contexts. The 28 item CYRM appears to be a reliable representation of the common factors related to resilience giving a more specific understanding of which resources are associated with resilience in different contexts (Ungar, 2008b).

It seems that the development of resilience is a process and the interaction with various social contexts can affect the resilience of an individual at any one time. As Glantz and Slobada (1999) observed, "the concept of resilience is heavily laden with subjective, often unarticulated assumptions and it is fraught with major logical, measurement and pragmatic problems" (p110). It is therefore important to use more than one measure of resilience, and to be aware of the variability of the construct under measurement.

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 (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 in the READ scale (Hjemdal, Friborg, Stiles, Rosenvinge, & Martinussen, 2006) with depression and anxiety symptoms. The fact that poor family cohesion and limited social resources predicted depressive symptoms emphasises the protective elements of an adolescent's social environment. Furthermore the study revealed low social competence was the most important predictor of 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 persons with anxiety disorders demonstrate decreased resilience (Benetti & Kambouropoulos, 2006). This opens further discussion regarding the social competence of an individual and his or her experience with socially competent environments; that is people with limited or negative social experiences may not have the opportunity to develop social competence, thereby affecting their potential relationships and mental health.

Donnon and Hammond (2007) conducted research examining the presence of protective factors and level of bullying behaviour, acts of aggression and vandalism. They found there to be a significant negative correlation with the number of self reported developmental strengths and acting out behaviour. The results showed that the greater number of reported strengths the less likely for the youth to engage in acting out behaviour (Donnon & Hammond, 2007). Furthermore, in a subsequent study it was found that the greater number of developmental strengths, the greater the engagement in constructive behaviours such as helping others, good health, volunteering, leadership, resist danger and delaying gratification (Donnon, 2007).

Functional Behaviours Indicating Resilience

Gathering information regarding individuals' behavioural indicators such as school involvement, peer relationships, and family functioning can indicate their level of resilience. One study (Dishion & Connell, 2006) noted that adolescent self-regulation, via a self report, is a promising index of adolescent resilience through its moderating effect on peer deviance, adolescent antisocial behaviour, stress management and depression. Other functional behavioural indicators of resilience may be regular school attendance, involvement in extra curricula activities, school performance, achievement and motivation (Ben-Arieh & Frones, 2007; Fernandez, 2008; Zimmerman, Phelps, & Lerner, 2008). Functional indicators of low resilience also appear to be clustered in the disruptive behaviour disorders (DBD), such as Attention Deficit Hyperactivity Disorder (ADHD), conduct disorder (CD), Oppositional Defiant Disorder (ODD). These disruptive disorders appear to reduce the effect of protective influences, decrease the opportunity to develop a resilient mindset and a resilient outcome into adulthood (Goldstein & Rider, 2005).

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, mentor relationships and be socialised to cope with future interactions in their school. Schools are also the context where significant change can be implemented with community, families and peers. Benard (2009) notes that teachers and other support staff need to be encouraged to become “turnaround” people and schools “turnaround” places. She notes turnaround teachers model and create the nurturing and empowering climates that in turn 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 using the Penn Resilience Program, (PRP), a cognitive behavioural program focusing on building optimism, (Gillham, et al., 2007; Reivich, Gillham, Chaplin, & Seligman, 2005) assessed its effectiveness in reducing depression symptoms in youth over a two year period. Inconsistent results were found when implementing the program across three different schools, which appeared to relate to the 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 counsellors, 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 which 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 mobilize 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 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, 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 between the World Health Organisation (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.

Thus, programs targeting resilience development should be evaluated for their overall effects as well as with those experiencing adversity. Furthermore it seems that implementing programs into educational settings should use and support existing relationships with teachers and support staff within those schools.

The Resilience Doughnut

In order to help vulnerable young adults to develop resilience it is more relevant to measure the potential pathways and contexts where resilience can develop, than to measure the quantity of resilience at any one time. The Resilience Doughnut model accounts for pathways towards coping successfully based on available contexts and how they interact with the individual. This model has the potential to promote future planning, programming and policy development effecting positive changes in young people as a possible inoculation against mental health difficulties.

The resilience doughnut model accounts for an individual’s capacity, the availability of resources and the presence of adversity and theories influencing the model, consider the internal qualities and the environmental contexts in which an individual develops. The model shows multiple pathways in the process of developing resilience and if shown to be valid, has the potential to be a resilience-building tool, enabling programs, measures and therapeutic interventions to be underpinned by sound research.

Research Influencing the Resilience Doughnut

Key research influencing the model is an international resilience project, (Grotberg, 1995) already cited, which found 36 internal characteristics, divided into three categories, children, and caregiver behaviour that contributed to building resilience (Grotberg, 1995). The three categories titled, *I have, I am* and *I can,* show a number of patterns in combination. *I am,* refers to children's internal, personal strengths. *I can,* refers to children's social and interpersonal skills. *I have,* refers to external resources promoting resilience. Grotberg (1995) notes that before the child is aware of who he or she is (*I am)* or what he or she can do (*I can)* he or she needs external resources (*I have)* to develop feelings of safety and security. The larger the pool of external resources, the more options children, parents, and care givers have and the more flexible they can be in selecting appropriate responses to a given situation, thereby developing individual resilience (Grotberg, 1995).

A second area of research that has influenced the development of the MFIM focuses on internal strengths. Benard (2004) found four categories of internal strengths or manifestations of resilience, which were *social competence, problem solving, autonomy* and *a sense of purpose.* These strengths appear to transcend culture, ethnicity, gender, geography and time and are seen as developmental possibilities that can be engaged in all individuals through the provision of external supports and opportunities (Benard, 2004). Individual programs have also been developed based on these findings (Benard & Slade, 2009).

Fuller (1998) conducted research with youth, asking what helped them cope with adversity. Comments were placed into four categories of protective factors; *community, school, family* and *peers,* noting building resilience depends largely on a sense of connectedness, belonging and empathy with others. Belonging implies being part of a group, which in turn requires the development of moral actions such as honesty, altruism and caring (Fuller, 1998). Fuller notes that protective factors in each level lead to a different set of socialised behaviours, which in turn enable autonomy and sense of control and success (Fuller, 1998).

Ungar (2008) as cited earlier, noted the ability to access and negotiate the resources to survive and thrive was related to seven tensions both within and around the individual. The seven tensions were a) material resources, b) relationships, c) identity, d) power and control, e) culture, f) social justice, and g) cohesion. The balance of the tensions determined the resilience of the individual. Ungar (2008) argues that it is the fit between the solutions youth try and how well these solutions resolve the challenges posed by each tension that contributes to a young person's experience of resilience. In this model, resolving the seven tensions is governed by four principles. First, children can only select from resources they have available (navigation). Second, they will choose resources from those that are available and most likely to influence positively mental and physical health-related outcomes as determined by their culture and context (negotiation). Third, the way they relate one aspect of resilience to another will reflect convergence in how children behave across cultures (homogeneity). Fourthly, relationships between aspects of resilience will express diversity within and between populations (heterogeneity).

Another influence is Rutter (2006), who recommended that future research on resilience needed to focus on the processes underlying individual differences in response to environmental hazards, rather than resilience as an abstract entity. He suggested that protection might derive from what people do to deal with stress or adversity (Rutter, 2006): such as coping mechanisms, mental sets and the operation of personal agency, similar to Grotberg's (1995) *I have, I am* and *I can* factors (Rutter, 1979). Rutter (2006) notes that studying resilience requires a move from a focus on risks to a focus on how these risks are dealt with by the individual. More generally, this means that resilience, unlike risk and protective factor approaches, forces attention on dynamic processes, rather than static factors that act in summative fashion. It is for this reason an accurate and reliable model of resilience needs to show the dynamic processes between the internal and external factors, which also allows for individual differences.

Building the Resilience Doughnut

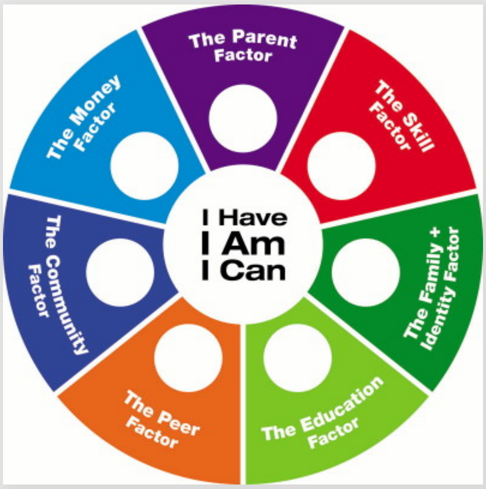
When considering these key theories of resilience, as well as research from the many practitioners (Benard, 2004; Grotberg, 1995; McGraw, Moore, Fuller, & Bates, 2008; Rutter, 2006; Ungar, et al., 2008) working to build resilience in young people, it seems that there are three forces that are at play.

1. The development of internal or personal characteristics that enable a person to bounce back from adversity (Benard, 2004; Grotberg, 1995).
2. The external or environmental influences that contribute to the building of these internal assets or personal competencies (Fuller, 1998; Ungar, 2008; Ungar, et al., 2008; Werner, 2001).

3. The interaction of the internal characteristics with the external available resources, which hinder or enhance a resilience mindset ultimately affecting an individual's reaction to adversity (Rutter, 2008; Sun & Stewart, 2008).

These concepts support a multifaceted definition of resilience, indicating resilience is the process of continual development of personal competence while negotiating available resources in the face of adversity. In order to address this definition, the model would need to have a number of factors, be interactional and allow for individual differences in reacting to adversity. The structure of the model shows the interaction of internal and external factors in developing resilience and is represented by an internal and external circle. The inner circle representing the internal individual characteristics and the outer circle representing the external contexts within which an individual develops. The external contexts are divided into seven sections each of which has been shown to contribute to building individual resilience. The interactional component of the model denotes the dynamic relationship between the internal characteristics and the external contexts as an individual develops, and in particular when faced with new challenges and adversity. Structuring the inner circle of the model within the external circle shows this. Two circles, an inner circle and an external circle divided into seven external contexts, represent the model (see figure 1).

Figure 1. The Resilience Doughnut model.



The internal structure of the Resilience Doughnut

The inner circle of the model, representing the internal characteristics of an individual showing resilience, supports a number of concepts, which repeatedly appear in research. These concepts contribute to raising self-esteem (Benard, 2004; Frydenberg, 2007; Grotberg, 1995a; Werner, 1992), self-efficacy (Benard, 2004; Martin & Marsh, 2006; Seligman, 1992; Ungar, Toste, & Heath,2005), and an individuals awareness of their available resources (Cameron, Ungar, & Liebenberg, 2007; Fuller, et al., 1998; Masten, et al., 2004; Ungar, 2004) and in combination 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 model as shown in Table 1.

Table 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

The external structure of the Resilience Doughnut.

The outer circle of the model, divided into seven sections, addresses research, which shows the environmental contexts where resilience can be developed. 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. These features appear to correlate with the internal structure of the model, which show, self esteem (*I am*), self-efficacy (*I can*), and awareness of resources (*I have*) as shown in Table 1. The following will consider each section separately, outlining constructs from research, which link to building resilience in an individual. It is possible that in constructing the Resilience Doughnut that each of the seven sections of the model are separate subscales, rather than factors with each subscale having its own factor loading representative of the research constructs.

Parent.

A number of aspects 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, 2009a), 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), parent's sense of purpose (Grant, 2004; Walsh, 2009).

Skills.

A number of aspects 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, Schulman, & Tryon, 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), 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). Of note it was found that deviant or antisocial skills are also related to the development of constructs associated with resilience such as perseverance, persistence, carefulness, caution and courage (Munford & Sanders, 2008; Ungar, 2001b).

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 (A. 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; DePaul, 2009), a significant relationship with at least one teacher (Jennings, 2003), teachers with high expectations (Castro, Kelly, & Shih, 2010; Masten, Herbers, Cutuli, & Lafavor, 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 since social skills and a sense of belonging is dominant for 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).

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, Hamby, Trivette, Raab, & Bruder, 2000). Common research themes are; connections to sporting clubs, religious or activities groups (Ungar, Dumond, & McDonald, 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), 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, McGraw, & Goodyear, 1998), able to wait and think about spending (Duckworth & Seligman, 2006), able 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).

The concepts collected from the research form a number of constructs within each context and are represented by items suggested in the preliminary constructed resilience doughnut tool (Worsley, 2006). The tool divides the external section into seven subscales with ten items within each subscale. The items are simple statements, beginning with *I have, I am,* or *I can*, requiring either a dichotomous response on the worksheets in the teacher practitioner pack (see appendix) or a 6 point Likert Scale on the on-line resilience doughnut (ORD) computer game (see table 2).

Table 2. External contexts of the MFIM with construct and associated items from the resilience doughnut tool.

Factor	Research Constructs	Items in Resilience doughnut tool
Parent	Discipline style and Decision-making, warmth/affection	1, 2, 3, 6, 7. (Parent items)
	Monitoring/control/Independence	4, 5
	Parent satisfaction and purpose	9
	Parent reliability and adaptability	8, 10
Skill	Optimistic thinking, Success, achievement, persistence	2, 3, 4, 5, 6, 7, (skill items)
	Organisation, self-discipline, confidence	8, 9, 10
Family	Connectedness, Traditions and events, Family networks	3, 4, 5, 7 (family items)
	Belonging and valued	1, 2, 6
	Tough times	8, 9, 10
Education	Belonging, Inclusive and respectful environment	4, 5, 6, 7, 9(education items)
	Teacher expectations, optimism, relationship	1, 2
	School organisation and Extra activities, Engagement	3, 8
Peer	Belonging	1, 3 (Peer items)
	Conflict	7, 9, 10, 2
	Group identity	4, 6
	Conformity, cooperation, self control and regulation	5, 8
Community	Informal network, sport club neighbourhood	5, 7, 8 (community items)
	Organised groups, religious youth,	3, 4, 6
	Local resources	1, 2,
	Faith and belief	9, 10
Money	Money accessibility,	1, 4 (Money items)
	Earning and spending	3, 6, 8, 9, 10
	Family work ethic	3, 7, 2

Note. Items for the ORD tool are with a 6 point Likert scale - Disagree very strongly XXX to Agree very strongly √√√(Worsley, 2006)

The interaction of the internal and external factors in the Resilience Doughnut.

In each of the seven environmental contexts, as suggested by previous research, potential exists to enhance positive beliefs within the individual, helping to develop resilience (Benard, 2004; Fuller, 2004; Resnick, et al., 1997). It is also suggested that most resilient individuals have only some, and not all seven contexts working well in their life

(Dolbier, Smith, & Steinhardt, 2007; Eisenberg, Ackard, & Resnick, 2007; Fuller-Iglesias, Sellars, & Antonucci, 2008; Noeker & Petermann, 2008). In applying this to the model, the available external contexts would need to show sufficient strength and interaction to positively effect all of the three internal concepts, thereby influencing an individual's overall resilience. 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. However, considering the number and strength of external contexts needed to effect changes in all three internal constructs in the Resilience Doughnut is untested, this hypothesis needs to be explored in detail. For the purpose of preliminary studies, only three external contexts have been targeted for each individual, and to date, programs aimed at increasing the interaction of these contexts have been implemented.

The Resilience Doughnut Educational Resources

Resources have been developed for the Resilience Doughnut in order to implement intervention programs. The resources include an on-line computer program (ORD), a school workbook, a large floor model and a teacher practitioner pack with handouts and procedures to be used with the school programs (see appendix). The ORD tool, the result of collaboration with teachers, psychologists, university students and young people, (aged 8-20 years) in Sydney, Australia, during the years 2006-2008, has not been subjected to a factor or item analysis, or tests of reliability and validity. It is likely that the tool can be modified to resemble a more refined measure of resilience building factors; however the present aim of the tool is as an educational and conversational resource, enabling young people to understand the importance of their strong factors in building their resilience. It appears there is a need for an effective tool to use with youth, promoting good developmental processes to build resilience during child hood (Donnon, 2007; Ungar, 2008a). The presence or absence of three or more interacting strong factors in contexts such as work, activities and everyday interactions, is collated in the ORD tool and recorded for each individual accessible with a login name and password. Suggestions for ways to strengthen the factors are listed along with saved previous on line resilience (ORD) games played.

The Resilience Doughnut School Program

The Resilience Doughnut school program is a process-orientated teaching package, allowing cross curricula planning and implementation with aims of teaching students to recognize and build on their strong resources. The program has lesson plans for small and classroom size groups supported by the ORD for individual work (see appendix), which has open-ended questions asking students to consider ways to strengthen their factors. The purpose of implementing a whole school program is to strengthen existing connections in the school, community, families and parents attached to the school. Accredited trained teachers in the Resilience Doughnut can implement the program across curriculum areas, and train other teachers in their schools to use the model. Parents can attend school workshops based on the Resilience Doughnut followed by regular informative emails showing how to help their children build strong resources and forge community connections.

The Resilience Doughnut Model and Current Models of Resilience

It is possible the Resilience Doughnut supports 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**.** It appears compensatory, by focussing 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 and it shows a challenge effect when strong contexts are mobilised during adversity preparing individuals for future challenges. Furthermore, within each of the external contexts the child could be exposed to conflict and tensions (parental control versus warmth, skill mastery, family identity and roles, educational expectations, peer belonging and acceptance versus conflict, community support and money management).

Fergus and Zimmerman (2005) note the result of the process of resilience is evident by healthy development and academic achievement. Four different trajectories of adolescent development associated with risk are presented.

A. Adolescents who are exposed to low levels of a risk factor, who achieve positive outcomes. They note this is an expected result as supported by researchers (Fuller, 1998).

B. Adolescents who are exposed to high risk but achieve positive outcomes. This can be explained by current resilient theories (Benard, 2004; Fuller, 1998; Werner, 2001).

C. Adolescents who are exposed to low risk levels and achieve negative outcomes. Fergus and Zimmerman (2005) note this trajectory is unexplained but is likely to be due to unidentified high risks.

D. Adolescents who are exposed to high risk, who achieve negative outcomes. Again this is an expected trajectory.

Table 3. Groups selected by risk and outcomes (Fergus and Zimmerman,2005)

	Low Risk	High Risk
Positive outcomes	A	B
Negative outcomes	C	D

Of interest is the trajectories B and C, where B appears to fit with some of the models, however C is dismissed as poor risk assessment (Fergus & Zimmerman, 2005). Considering the interactional nature of the Resilience Doughnut, it would suggest an absence (C and D) or presence (A and B) of strong external factors that are active in the youth's life. Of interest would be the number of strong factors present with those who had negative or positive outcomes. If the Resilience Doughnut model were applicable, those with negative outcomes would show a limited number of stronger factors, while those with positive outcomes would show the interaction of possibly three or more strong factors, regardless of their high-risk status.

The Resilience Doughnut appears to be different to 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 model proposes the turning point, evoking changes in the trajectories of individuals, is based on the presence or absence of a number of contextual factors. If shown to be valid, the model could enable a more practical application in building resilience.

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