Evaluating the Effectiveness of a Resilience Program for Children and Young People in a Private Australian Psychology Clinic

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This thesis is presented in fulfilment of the requirements for the degree of Master of Clinical Psychology

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Declarations

Statement of Originality

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. I give consent to this copy of my thesis, when deposited in the University Library*, being made available for loan and photocopying subject to the Copyright Act 1968.

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Acknowledgement of Authorship and Collaboration

I hereby certify that the work embodied in this thesis contains a scholarly work of which I am a joint author. I have included as part of this thesis a statement clearly outlining the extent of collaboration, with whom and under what auspices.

I conceived the research questions, participated in the design of the current study and undertook part of the statistical analysis. Ms Lyn Worsley and Dr Tanya L. Hanstock participated in the design of the current study. Ms Megan Valentine assisted with statistical analysis. All authors assisted with the editing of the manuscript, contributed to the interpretation and implications of the findings and approved the manuscript.

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Kaitlyn E Massey        Date
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Structured Abstract

**Scope.** Research into intervention programs that aim to enhance resilience in young people is continually expanding. Developing evidence-based intervention programs for use within non-clinical populations is important. These programs can be proactive in supporting young people to overcome inevitable adversity in positive ways.

Two early prevention programs, which have been utilised within non-clinical populations in Australia, are the FRIENDS program and the Resilience Doughnut model. Both programs are designed to develop social and emotional skills in children and adolescents in order to promote resilience. The FRIENDS program has a greater body of research than the Resilience Doughnut; however both programs have been shown to reduce anxiety and depression in young people.

**Purpose.** The purpose of this research was to expand on previous research for the Resilience Doughnut model. Since the earlier study, two programs based on the Resilience Doughnut model have been developed and are currently being used within a private clinic in Australia. The programs are Linked-Up (for 13-16 year-olds) and Connect-3 (for 8-12 year-olds). The two programs have identical structure, but use different examples and worksheets to tailor the concepts of the Resilience Doughnut to two developmental age groups.

**Methodology.** Participants were children and adolescents aged between 8-17 years old who were enrolled in either the Connect-3 or Linked-Up program. There were 70 participants in total, 40 males (57%) and 30 females (43%), from high socio-economic backgrounds. The programs were completed at The Resilience Centre, Sydney. Each group ran with approximately 6-10 participants. The programs ran over a 6-week period for 1.5-hour sessions, per-week.

The effectiveness of the two programs was assessed for the current study by taking pre and post measures of resilience and adversities. The Strengths and Difficulties
Questionnaire (SDQ; Goodman, 1997) and the Resilience Scale for Adolescents (READ; Hjemdal, et al., 2006) were administered to students 1-week prior to the program commencing and repeated following the conclusion of the sixth session. The data was analysed using linear mixed models.

**Results.** The Connect-3 group showed a significant reduction in mean scores from pre-intervention to post-intervention for total difficulties score. They also had a significant increase in mean scores from pre-intervention to post-intervention on the subscale of Personal Competency. The Linked-Up group showed no significant change in scores for pre-intervention to post-intervention. Gender analysis showed no significant difference between males and females, with the exception of the subscale of Personal Competency. On this scale, males in the Connect-3 group scored significantly higher than females.

**General Conclusions and Implications.** These findings support previous research, which suggests that resilience programs are more effective when implemented with primary school aged students rather than high school students. These results provide good evidence for the Connect-3 program in reducing adversities, however, it is important to consider the clinical relevance of the findings. In all of the SDQ subscales, the mean participant scores fell within the ‘average’ to ‘slightly raised’ descriptive categories, suggesting that the participants did not have a clinically high rate of difficulties before treatment. This is not surprising, given that the study was completed with a non-clinical population and delivered in a high Socioeconomic Status (SES) suburb. Future research should aim to explore the effectiveness of the resilience programs within clinical populations or with young people who have increased risk of adversity such as those from low SES areas. Future research should also consider how resilience could be enhanced in older-adolescent populations.

*Keywords:* Resilience, Children, Adolescents, Intervention Program
Critical Literature Review

Research on resilience has rapidly increased in the past 50 years (Goldstein, Brooks, & DeVries, 2013). Resilience is an important area of study because coping with stress, change and adversity is a facet of everyday life. This is particularly true for children and adolescents, who experience multiple biological, social and psychological changes during this developmental phase (Barrett, Cooper & Guajardo, 2014). The concept of resilience has been debated in the literature, and at present, there is no consensus over the definition of resilience (Ungar, 2008). However, it is generally accepted that resilience is an individual’s ability to bounce back from adversity (Prince-Embury, 2014). This ‘ability’ is influenced by the interaction between protective factors and risk factors (Werner & Smith, 1992; 2001) and is often characterised by positive coping skills, optimistic thinking, growth, social support and positive outcomes (Prince-Embury, 2014). This literature review will begin with a description of how resilience is developed through personal strengths and protective factors. It will include how this research has been used to develop two early intervention and prevention programs that promote resilience and coping skills in children and adolescents in Australia. These two specific Australian-based child and adolescent resilience programs will then be compared and critiqued, and recommendations for future research will be made.

History of the Term Resilience

Historically it was believed that resilience was a special quality that only a few children possessed (Anthony & Cohler, 1987). This came from early studies focusing on children who had experienced significant hardship, such as abuse or neglect, who had still developed into well-adjusted adults. These children were coined ‘invulnerable’ (Anthony & Cohler, 1987). This viewpoint was later discredited as Masten (2001) supposed that resilience came from ordinary minds of children within their family and community context, which she described as ‘everyday magic’. This was an important paradigm shift
as it provided an optimistic approach suggesting that the majority, rather than the minority, of children can overcome adversity.

Werner and Smith (2001) supported Masten’s (2001) view through a longitudinal study where they examined the development of 700 children into adulthood. The children had a number of risk factors and many had coping difficulties in adolescence. However, Werner and Smith (2001) found that the majority of children had developed into well-balanced adults with stable jobs and relationships and reported being satisfied with their life. The researchers suggested that these results highlight the importance of protective factors. They proposed that even when the risk factors are high, protective factors provided the support to overcome severe adversity. Ongoing research has largely accepted that resilience is influenced by a combination of an individual’s personal strengths, and external protective factors (Prince-Embury, 2014; Ungar, 2008).

Theories of Resilience

There are many theories about what formulates the personal strengths and protective factors of resilience. Grotberg (1995) categorised them into three main areas “I HAVE, I AM, I CAN”. I HAVE are the external supports that promote resilience (e.g., I have trusting relationships); I HAVE factors are foundational to the subsequent categories. I AM is the child’s personal strengths and characteristics (e.g., I am loveable). The I CAN factors are the child’s interpersonal and social skills (e.g., I can communicate and problem solve). Other researchers have provided more specific categories, such as community, school, family and individual/peers (Fuller, 1998) and social competence, problem solving, autonomy and sense of purpose (Benard, 2004). Ungar (2008) redefined the protective factors and personal qualities as ‘tensions’. He hypothesised that people needed to balance these tensions in order to enhance their resilience; having too many or too little resources removed the tension needed to develop resilience.
Overall, it is evident that throughout the research, there is a consensus that resilience is developed through both internal resources such as personal characteristics and skills, as well as external factors, such as environmental, social and educational factors. Luthar, Cicchetti and Becker (2000) clarified this further, by stating that personal qualities can be referred to as ‘resiliency’, whereas ‘resilience’ is the developmental process that occurs through the interaction of the internal qualities and the external factors.

**Defining Resilience**

Despite the consensus that resilience is developed through both internal resources and external factors, there is still no single agreed upon definition. Early definitions of resilience were primarily focused on overcoming adversity, such as Grotberg (1995), who stated, “resilience is the universal capacity which allows a person, group or community to prevent, minimise or overcome the damaging effects of adversity” (p.3). Masten and Powell (2003) stated, “Resilience refers to patterns of positive adaptation in the context of significant risk and adversity” (p. 4).

Over time, definitions have developed to be more comprehensive and complex, to include not just the individual, but also the community within which they live. Ungar, Brown, Liebenberg, Cheung and Levine (2008) define resilience as “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” (p. 168). In this definition Ungar et al. (2008) identifies that resilience is more than just having, or not having resources; but it is also the capacity to know how to use these resources to be resilient. This definition also identifies that individuals require support from their families and communities to assist in understanding and using these resources.
Intervention Programs for Non-Clinical Populations

Understanding that resilience is a process influenced by risk and protective factors, more recent research has been interested in how resilience can be developed or enhanced. Seligman (2002) suggests that resiliency can be enhanced with positive psychology through utilising a strength-based approach to build people’s capacity, rather than correcting their difficulties. There is considerable research into treatment programs that aim to enhance resilience, and evidence indicates that prevention programs are important in assisting people to overcome difficult circumstances and prevent mental health problems (Barrett et al., 2014). There are a number of international resilience-based programs, such as the Penn Resiliency Program (Gillham et al., 2007), however there are only two resilience programs that have been evaluated using Australian non-clinical child and adolescent populations. These two Australian programs, which aim to enhance resilience in children and adolescents, are the FRIENDS program (Barrett, 2012) and The Resilience Doughnut model (Worsley, 2006). There are other resilience programs being used within the Australian context, such as the BOUNCE BACK! (Axford, Schepens & Blyth, 2011) program, however it has not been evaluated using Australian samples, and therefore will not be focused on within this review.

The FRIENDS program

The FRIENDS program (Barrett, 2012) is the most widely researched resilience-enhancing program in Australia and was first developed and evaluated by Barrett and Turner (2001). It has since been revised several times to ensure the content of the program is up to date with current literature (Barrett et al., 2014). There are a number of versions of the program, which are targeted at different clinical populations. For the purposes of this research, only the universal program for children and adolescents has been examined.
The aim of the FRIENDS (Barrett, 2012) program is to develop social and emotional skills in children and adolescents in order to promote resilience and prevent anxiety and depression (Barrett et al., 2014). The theoretical framework of the program is based on cognitive-behavioural theory (CBT) and positive psychology (Barrett et al., 2014). The acronym of FRIENDS is used to form the basis of the program. The letter F stands for “Feelings”; the letter R is, “Remember to Relax”; I, “Inner helpful thoughts”; E, “Explore solutions and coping plans”; N, “Now reward yourself”; D, “Do it every day”; and S, “Stay strong inside.” The program is implemented over a 10-week period with each session lasting 60 minutes. The sessions correspond to one of the letters in the acronym; for example, the F week focuses on social and emotional skills development. The sessions utilise CBT strategies, such as relaxation, exposure, assertiveness and problem solving skills. Cognitive strategies involve developing the student’s awareness of their thoughts and feelings and how they interact. There is a focus on recognising faulty cognitions and developing optimistic thinking styles. It is through this process that protective factors, such as self-esteem and coping skills, are developed in order to foster resilience (Barrett, 2014).

The FRIENDS program has been evaluated several times as a universal program. Lock and Barrett (2003) studied 977 students in Year-6 and Year-9 over seven different Australian Schools. The schools were randomly assigned to an intervention condition or a monitoring condition. They used four different scales as pre and post measures; two anxiety scales, one depression scale and one coping scale. One of the anxiety scales, the Spence Children’s Anxiety Scale (SCAS; Spence, 1998) was used to stratify students into ‘at-risk’ and ‘healthy’ groups based on how the child scored. They also completed 12-month follow-up assessment to examine the long-term effects of the program. The results demonstrated that the program was successful in reducing anxiety and increasing coping skills, with the strongest effects noticed in the younger age group. Lock and Barrett
(2003) use these findings to suggest that earlier intervention could be more beneficial than later intervention. Barrett, Lock and Farrell (2005) replicated these results.

A follow-up study of Lock and Barrett’s (2003) findings was completed to assess the effects of the program at 24- and 36-month intervals (Barrett, Farrell, Ollendick & Dadds, 2006). This study found that the reductions in anxiety were maintained for Year 6 students who were in the treatment condition, and not in the aged-matched control group. They also reported a gender effect, with girls in the intervention group scoring lower on anxiety than girls in the control group, although this effect dissipated at the 36-month follow-up. The authors suggest this finding supports the previous study’s hypothesis that earlier intervention, specifically during Year-6, is ideal for long-term benefits.

Overall, these studies demonstrate sound methodological design, which was supported by an independent study by Brownlee et al. (2013), who found that the controlled empirical methodology of the FRIENDS program met their research standard. All of the studies discussed used a control condition to compare the treatment outcomes with a large sample size. The measures used to examine anxiety and depression were reliable and valid. The researchers also ensured randomised assignment of treatment and control conditions. Importantly, fidelity checklists were used to ensure a standardised implementation of the FRIENDS program. The combination of a thorough methodological design with appropriate statistical analysis establishes good support for the FRIENDS program as an evidenced-based intervention.

There were however, some limitations of the above-mentioned methodological designs. These included a high participant absenteeism at post-intervention and follow-up time points, which was cited as being primarily due to the many extra-curricula activities occurring at the same time (e.g., excursions, sport, music) within the schools. The authors reported that attrition rates were particularly high in the control conditions, which may have impacted the statistical analysis. Another limitation is that the statistical analysis is
based on self-reports from the children. This is a subjective measure, which may not be an accurate representation of the child’s symptoms. Future studies could consider using multiple informants, such as parents and teachers, to assess changes in anxiety.

The most important consideration of the FRIENDS program is whether it is actually focused on developing resilience or whether it simply focuses on managing anxiety. The studies discussed primarily present themselves as a cognitive-behavioural intervention to reduce anxiety, rather than as a program designed to develop resilience.

Furthermore, Lock and Barrett’s (2003) study is the only paper that used a coping scale to measure an increase in coping skills, however this scale was not used in the 12-month follow-up or in proceeding studies. Other scales could have been used to specifically measure resilience, such as the Resilience Scale for Adolescents (READ; Hjemdal, Friborg, Stiles, Martinussen, & Rosenvinge, 2006). Therefore, it could be argued that the FRIENDS program is a treatment program for anxiety, which may also impact on resilience factors. It is not specifically a resilience-enhancing program.

**The Resilience Doughnut**

The Resilience Doughnut program was developed by Worsley (2006) and is based in the theoretical framework of Solutions-Focused Theory (SFT) and Positive Psychology. As the name suggests, the program is based around the concept of a doughnut, where inside the doughnut represents the internal strengths of the individual, and the outside of the doughnut represents seven protective factors they may have, such as social and environmental factors (see Figure 1). The internal strengths are based on the work of Grotberg (1995), utilising the I HAVE, I AM and I CAN categories. These categories contribute to raising an individual’s self-esteem, and self-efficacy, as well as raising the young person’s awareness of his/her available resources (Cameron, Ungar & Liebenberg, 2007).
The protective factors are rooted in theoretical/empirical research by Werner and Smith (2001), Fuller (1998) and Ungar (2008b) and are the ‘Parent’, ‘Skill’, ‘Family and Identity’ ‘Education’, ‘Peer’, ‘Community’ and ‘Money’ factors. The Parent factor is considered strong when a young person has a parent who has a balance between control and warmth (Worsley, 2006). When young people have parents who are predictable with discipline and create firm boundaries, they are more likely to thrive under adversity (Suchman, Rounsaville, DeCoste & Luthar, 2007; Ungar, 2009). Furthermore, children whose parents communicate openly and show love and warmth are more likely to feel accepted and have a sense of belonging (Fuller, McGraw & Goodyear, 1998; Ungar, 2009).

The Skill factor is directly related to developing a number of resiliency qualities, such as hardiness and confidence (Worsley, 2006). Developing a skill, such as learning a new sport or musical instrument, encourages a young person to develop perseverance and problem solving skills (Hooper, Marotta & Lanthier, 2008) as well as a sense of achievement and success (Masten & Coatsworth, 1998). This is because learning a skill
provides young people with the opportunity to face difficulties and learn how to handle failure (Worsley, 2006).

The Family factor looks beyond the parent and considers the wider family system in supporting the development of resiliency. Extended family members assist in creating a family identity and sense of belonging (Worsley, 2006). This is created through family traditions, shared spiritual/cultural beliefs and sharing trials or adversity (Fuller, 2002; Geggie, Weston, Hayes & Silberberg, 2007). Having other trusted adults, such as grandparents, aunts or uncles, assists children in accessing other supports during times of adversity (Masten & Shaffer, 2006; Ungar, 2009).

The Education factor considers not just the academic ability of a young person, but also considers the relationships and community that a young person can develop through his/her educational institution (Worsley, 2006). Schools provide young people with the opportunity to connect with other students as well as teachers who challenge and support them (Fuller, 2002). Resilient students have teachers with high expectations of them and who support them to develop skills to achieve academically (Masten, Herbers, Cutuli & Lafavor, 2008). Schools also provide young people with the opportunity to participate in extra curricular activities to encourage broader learning and development (Worsley, 2006).

The Peer factor explores the relationships that a young person has with his/her peers and how this impacts on resiliency. Developing and maintaining friendships is a significant challenge during adolescence (Worsley, 2006). Young people report that being connected with their peers is one of the most important protective factors during times of adversity (Fuller et al., 1998). Peer relationships are fundamental in developing social skills in young people. Through friendships, young people learn skills of empathy, cooperation and managing group dynamics (Worsley, 2006).
Furthermore, peer relationships facilitate the development of moral reasoning skills. Kohlberg (1984) mapped 6 stages of moral development, which can be grouped into 3 main platforms, ‘Pre-conventional Morality’, ‘Conventional Morality’ and ‘Post-conventional Morality’. The Pre-conventional stage is characterised by fixed, absolute rules, where an individual’s moral behaviour is determined by satisfying their own needs and avoiding punishment. The Conventional stage is characterised by social conformity. Moral behaviour is determined by what is right for the group, and is motivated by seeking approval of others and compliance with common rules or law. The Post-conventional stage is characterised by the development of empathy and personal values. Moral behaviour is about recognising that there are differing opinions about what is considered to be right and wrong. Instead, morality is about justice and fairness and recognising the needs of others. Worsley (2006) suggests that peer relationships assist young people in developing moral understanding and therefore, progression through to higher stages of moral reasoning.

The Community factor examines the role of social structures and support services available to young people in order to enhance resilience. Communities such as sporting clubs, music societies, religious or other activity groups, provide young people with the opportunity for positive relationships and a sense of belonging (Worsley, 2006). For many cultural backgrounds, the wider community plays an important role in developing social connectedness to their geographical location, other communities and society as a whole (Ungar, 2008; Ungar et al., 2015). Additionally, being a part of a community provides another opportunity for young people to connect with other adults outside their family and develop mentoring relationships (Fergus & Zimmerman, 2005). Furthermore, when a young person belongs to a community that shares a common belief, it provides a sense of purpose and meaning, which also enhances resilience (Crawford, Wright & Masten, 2006).
The Money factor is the last external factor in the Resilience Doughnut model. The Money factor relates to both economic stability as well as attitudes toward acquiring and spending money (Worsley, 2006). Having access to basic needs, such as stable housing, food and basic resources is protective for people during adversity (McLoyd, et al., 2009). However, it is also important for young people to understand the value of money, as having free access to resources limits young people’s ability to have control and manage resources (Masten & Coatsworth, 1998). Worsley (2006) states that the Money factor is based on learning how to ‘give’ in order to ‘take’ (p. 93). Giving focuses on contributing to society through work, which helps promote a strong work ethic and sense of gratefulness (Fuller et al, 1998). Taking focuses on developing self-discipline with spending, saving and managing finances (Masten & Coatsworth, 1998).

Combining these 7 external factors with the internal individual characteristics of I HAVE, I AM and I CAN (Grotberg, 1995) forms the framework of The Resilience Doughnut (Worsley, 2006). The Resilience Doughnut is a model of resilience where the external factors channel into the internal strengths of a child (Worsley, 2014). Worsley (2014) states that the Resilience Doughnut is not about teaching children to be resilient, but rather it is about teaching families and communities to have relationship skills that build resilience in children. This process occurs through helping children and their families gain more self-awareness and social skills, as well as developing creative ways to strengthen their external protective factors (Worsley, 2008).

Worsley (2014) suggests that not all seven factors need to be present to build resilience, but hypothesise that when three factors are working together, a young person’s wellbeing will be enhanced. Through strengthening three factors, Worsley (2014) proposes that the rest of the factors will be strengthened too. This is based on the principles of SFT, which suggests that focusing on strengths, rather than problems, will elicit positive change and promote resiliency (Worsley, 2008).
From the Resilience Doughnut model, Worsley (2014) developed a program to implement within a school context. This program used the strengths-based approach of the Resilience Doughnut to teach young people about optimistic thinking skills, similar to the FRIENDS (Barrett, 2012) program. Developing optimistic thinking skills involves learning cognitive skills that promote resilience. For example, students learn that when adversity arises, people who have optimistic thinking skills can recognise that the adversity is (1) temporary, so that the situation will improve; (2) the adversity is specific to the situation and that they can learn from it; (3) the adversity is not because of them, but because of other factors, so they can try to change their circumstances (Worsley, 2006). Similarly, learning optimistic thinking skills also teaches student’s self-awareness, so that they can develop insight into their own thinking style and alter it accordingly to develop a more optimistic mindset (Gillham, Reivich & Shatte, 2002).

Optimistic thinking is an important aspect of the Resilience Doughnut programs because it is an ability that is associated with a variety of emotional and behavioural skills. These skills include emotion control, impulse control, empathy, self-efficacy, and maintaining realistic optimism (Gillham, et al., 2002). Many of these qualities are critical to the development of resiliency, more specifically, the development of the I HAVE, I AM and I CAN (Grotberg, 1995) of the Resilience Doughnut model (Worsley, 2006).

The Resilience Doughnut (Worsley, 2006) has not been evaluated to the extent of the FRIENDS program; however, three case studies conducted by Worsley (2014) demonstrate a number of positive outcomes for the model. Three schools were selected to utilise the Resilience Doughnut model. The first and second case study used Year 8 students to implement the program, and the third case study used Years 7-10. The schools were varied in socioeconomic status (SES), gender, location and public/private education. Specific staff members were trained in the Resilience Doughnut model, which they implemented with the students using an online tool. The online tool assisted the students
in identifying their three strongest protective factors, from the seven external factors in the model. The students then had to develop a project linking their three strengths. For example, a student’s strengths might be Parent Factor, Skill Factor (skill being football) and Community Factor. This child’s project might involve planning a football match in the local park and inviting his parents to participate.

Pre and post measures of anxiety, depression and resilience were taken for each case study. These measures included the Multidimensional Anxiety Scale for Children, shortened version (MASC-10; March, 1997), the Child Depression Index shortened version (CDI-10; Kovacs, 2003), the Child, Youth Resilience Measure (CYRM; Ungar, 2008), the Resilience Scale for Adolescents (READ; Hjemdal et al., 2006) and the Strength and Difficulties Questionnaire (SDQ; Goodman, 1997). Each case study used a different combination of these measures to assess pre and post treatment. Pre-intervention measures were taken one week prior to the program; post-measures were taken at 12 months for all cases and 24 months for two of the cases. Similar to the FRIENDS project the participants were divided by level of anxiety (low, medium and high anxiety) for the purposes of data analysis. Post-intervention results showed that children with high and medium anxiety increased their resilience scores over time. Worsley (2014) suggests that these results demonstrate that the Doughnut can be used successfully to build resilience in adolescents.

The research regarding the Resilience Doughnut program has some methodological limitations. Like the FRIENDS Program, the Resilience Doughnut uses self-report measures to evaluate the efficacy of the program. This can be problematic, as various biases may affect the results, like social desirability bias. Participants may exaggerate their answers, or be too embarrassed to reveal private details. Participants, particularly children, may also forget pertinent details. Furthermore, self-report studies are inherently biased by the person’s feelings at the time they filled out the questionnaire.
Another significant limitation of the research is that the author does not comment on the reliability or validity of the measures used. Some of the measures are well known, however one of the measures, the READ (Hjemdal, et al., 2006) has not yet been validated in Australian samples. Furthermore, the Worsley (2014) study used various different measures across the case studies, making it difficult to compare the results and formulate a strong evidence-base for the program. Worsley (2014) provided reasons for the different approaches, stating that each school was interested in different outcomes and that working with the school increased cooperation for the data collection. Despite these differences, the measures were highly correlated, and the statistical analysis of the data was appropriate. A final consideration is that the program was only implemented over one session. For ongoing learning and retention purposes, delivering the program over a several week period, similar to the FRIENDS program, may provide more robust findings. Also, considering the Barrett et al. (2006) results, implementing the Doughnut program with Year-6 children may provide the most profound outcomes.

The significant strength of the Resilience Doughnut program is that it has been developed using a solid theoretical basis. The model is clearly shaped around well-supported paradigms of resilience, and as such, there is little doubt that the program is targeted at enhancing resilience in children, in contrast to the FRIENDS program.

**Comparison of Australian Resilience Programs for Young People**

The FRIENDS program and the Resilience Doughnut are the two main resilience programs for children and adolescents in Australia. These two programs are similar in that they are positive interactive programs that promote resilience through teaching optimistic thinking skills. Both programs have been used within the school-context and have been successful in reducing self-reported anxiety among young people. However, several differences of the programs include that there is less empirical research into the Resilience Doughnut model and the implementation of the program has not been
standardised in the same way as the FRIENDS program. Another important difference of the two programs is that the Resilience Doughnut model clearly aims to develop resilience in children and adolescents and measures of resilience have been used to assess this. It is unclear whether the FRIENDS program is a program aimed at enhancing resilience or whether it is better characterised as a program aimed at managing anxiety through teaching CBT skills.

**Measures of Resilience in Youth**

Given that the importance of prevention programs, such as the FRIENDS and Resilience Doughnut, has been established, it is equally important to have valid and reliable measures that assess the program’s effectiveness. There are vast numbers of measurement scales designed to measure resilience (Windle, Bennett & Noyes, 2011). However, just like there is no single agreed definition of resilience, or agreed factors that build resilience, there is also no consensus of a preferred measure (Windle et al., 2011). A majority of the measurement scales are designed for use in adults. There has been recent growth in measures used for youth, specifically for ages 12-17 years (Ungar et al., 2008).

The Resilience Scale for Adolescents (READ; Hjemdal, et al., 2006) was a measure developed out of the Resilience Scale for Adults (RSA; Friborg, et al., 2003). Hjemdal et al. (2006) states that resilience is made up of three broad categories of different factors. The first category is positive individual factors, such as intelligence, adaptive temperament, beliefs about self-worth and the future, and individual robust neurobiology. The second category is family support, which includes, functional family relationships, stable living situation, emotional support, low-level parental discord, parental warmth, care and secure attachment. The third category is a supportive environment outside the family. This refers to characteristics of the neighbourhood, school and other social supports and positive role models. Hjemdal et al. (2006) argue that previous measures
primarily focus on the first category, individual factors, where as the RSA and the READ are more comprehensive measures that consider all categories when measuring resilience.

The factors of the RSA measures were developed through content analysis of resilience factors. These factors were sorted into 13 groups that made up the three broad categories. Items in each of these categories were reduced through exploratory and confirmatory factor analysis to create a 33-item response form (Friborg & Hjemdal, 2004; Friborg, et al., 2003). The READ was adapted from the RSA for use specifically in the adolescent population. The items were tested on a group of adolescents in a pilot study, which resulted in changes to the wordings of the items to be more simplified and reduced the number of items, from a 33-item to a 28-item version. The pilot study also resulted in the creation of a Likert scale response (1 = totally disagree, 5 = totally agree). Five subscales of the READ were developed, (1) Personal Competence (2) Social Competence (3) Structured Style (4) Family Cohesion and (5) Social Resources. These five subscales fit within the three board categories of individual factors, family support and environmental support, originally described by Hjemdal et al. (2006).

Hjemdal et al. (2006) and von Soest, Mossige, Stefansen & Hjemdal (2010) state that the READ is a valid and reliable measure, reporting Cronbach’s alpha between .69 and .85 for the subscales. Similarly, Hjemdal, Aune, Reinfjell, Stiles and Friborg (2007) and Worsley (2014) demonstrate that the READ has negative correlations with measures of negative life events such as depression symptoms, and it positively correlates with measures of other positive constructs. However, these studies have some significant limitations, including a lack of cultural and age diversity within the adolescent sample, and limited participant numbers.

There are a number of other scales designed to measure resilience in adolescents but only three (including the READ), measure resilience on multiple levels, not just personal attributes (Windle, et al., 2011). The Child and Youth Resilience Measure
RESILIENCE PROGRAMS IN A NON-CLINICAL SAMPLE

(CYRM; Ungar, et al., 2008) is one of these measures. The CYRM uses Ungar et al. (2008a) definition of resilience to develop a measure that is culturally and contextually relevant. A strength of this measure is that it was developed using youth from 11 different countries, allowing it to be the most culturally adaptable measure. However, this also presents a significant limitation, as the meaning of resilience can vary across cultures, and therefore, the reliability of the measure may be questionable (Windle et al., 2011).

The Youth Resiliency Scale: Assessing Developmental Strengths (YR:ADS; Donnon & Hammond, 2003 & 2007) is the other scale that measures resilience on multiple dimensions, including factors such as family, community, work commitment and learning, social sensitivity and self-concept. The multi-dimensionality is a strength of this measure, however, Windle et al. (2011) question the design of the measure, suggesting that YR:ADS lacks strong content validity as youth were not involved in the development of the tool. Windle et al. (2011) also suggest that the construct validity of the YR:ADS is unclear. It appears to be have been developed with the purpose of creating resiliency profiles of individuals, and does not assess change of resilience over time.

Overall, Windle’s et al. (2011) methodological review assessed a number of these scales based on stringent validity and reliability criteria. Their results placed the READ as the most robust scale to use for the adolescent population, receiving a maximum score on content validity and construct validity. Whilst Windle et al. (2011) state that there is still no one gold standard instrument for measuring resilience in youth, the READ is the most psychometrically sound measure that is currently available. However, it was recommended that the selection of which measure to use in practice should be based on the aims of the research question.

Recommendations for Future Research

There appears to be a number of limitations to the two commonly used resilience programs for children and adolescents. One of the significant limitations of the FRIENDS
program was that it may not be a specific resilience-enhancing program, but rather is a
program for treating anxiety in young people using CBT strategies. Future research could
assess this in further detail through the use of resilience-specific measures, such as the
READ (Hjemdal, et al., 2006). This may provide more information about the resilience-
enhancing aspects of the program. Another suggestion for future studies is to use
psychological and resilience measures from multiple informants, such as parents and
teachers. This could be done in conjunction with self-report measures in order to provide
a more holistic and accurate report of the young person’s presentation.

Further research also needs to be conducted to develop empirical evidence of the
Resilience Doughnut model. It is recommended that a standardised approach be used to
implement programs based on the Resilience Doughnut. This may include developing a
specific program manual that contains fidelity checklists. Having a standardised program
may provide more comparable results, and increase the reliability and validity of the
program’s reported results.

Another consideration for future research of the Resilience Doughnut includes
implementing the program over a period of time, rather than in one session. The program
could be implemented in one-hour sessions over several weeks, allowing for revision of
content to consolidate learning. Furthermore, completing the program over several weeks
may provide the opportunity for participants to generalise the skills learned into their
everyday life circumstances and then reflect on these moments during the following
week’s session.

Finally, implementing the program among primary school aged children, in
addition to adolescents, may be a direction for future research. Barrett et al. (2006) found
that their program had the most significant impact on students in late primary school.
Implementing the Resilience Doughnut with this population could support Barrett’s et al
(2006) theory that there is an optimal age for implementing Resilience Programs to maximise their effectiveness.

**Summary**

In conclusion, developing evidence-based intervention programs is vitally important for use within non-clinical child and adolescent populations. As Barrett et al. (2014) stated that universal prevention programs have the potential to be positive and proactive in supporting an individual’s ability to overcome adversity. There are a number of theoretical foundations of resilience, but it is generally accepted that resilience is developed through both internal resources, such as personal characteristics and skills, and external factors, such as the environment, social and educational factors.

Recommendations for future research for the FRIENDS Program include using resilience-specific measures to evaluate the effectiveness of the program. Recommendations for the programs associated with the Resilience Doughnut model include standardising the implementation of the programs, implementing the programs over several weeks for shorter sessions, and using the program within a primary school aged population. Overall, there is a need to expand the empirical evidence for the Resilience Doughnut model programs.
Evaluating the Effectiveness of a Resilience Program for Children and Young People in a Private Australian Psychology Clinic

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Abstract

Research into intervention programs that aim to enhance resilience in young people is continually increasing. Evidence suggests that early intervention programs are important in assisting children to overcome difficult circumstances and prevent the development of mental health problems. There are a number of international resilience-based group programs, however few exist within Australia. Two programs that are currently being used within a private clinic in Australia are the Linked-Up (13-16 year-olds) and Connect-3 (8-12 year-olds) programs, which are based on the Resilience Doughnut model. The current study assessed the effectiveness of the two programs by taking pre and post measures of resilience and adversities. Participants were children and adolescents aged between 8-17 years. There were 70 participants in total, 40 males (57%) and 30 females (43%). There were 48 participants in the Connect-3 group and 22 participants in the Linked-Up group. Results show that the Connect-3 program built personal competency and reduced total difficulties within a non-clinical population. This supports previous research, which suggests that programs are more effective when implemented with primary school aged students, rather than high school students. Future research should aim to explore the effectiveness of the resilience programs within clinical populations or with young people who have increased risk of adversity. Future research should also consider how resilience could be enhanced in older-adolescent populations.
Resilience is an important area of study because coping with stress, change and adversity is a facet of everyday life. This is particularly true for children and adolescents, who experience multiple biological, social and psychological changes during this developmental phase (Barrett et al., 2014). The concept of resilience has been debated over time, and at present, there is no one agreed upon definition of resilience (Ungar, 2008). However, it is generally accepted that resilience is an individual’s ability to bounce back from adversity (Prince-Embry, 2014; Werner & Smith, 2001). This ‘ability’ is influenced by the interaction between protective factors, such as positive social relationships, economic stability, or adaptive coping skills, and risk factors, such as vulnerability to mental health problems, poor attachment or other adversities (Werner & Smith, 1992; 2001). It is suggested that even when there are several risk factors, having multiple protective factors can provide the support to overcome adversity (Werner & Smith, 2001).

There are many theories about what formulates the protective factors of resilience. Grotberg (1995) categorised them into three main areas ‘I HAVE, I AM, I CAN’. I HAVE factors are foundational to the subsequent categories. I AM is the child’s personal strengths and characteristics (e.g., I am loveable). The I CAN is the child’s interpersonal and social skills (e.g., I can communicate and problem solve). Other researchers have provided more specific categories, such as community, school, family and individual/peers (Fuller, 1998) and social competence, problem solving, autonomy and sense of purpose (Benard, 2004). Ungar (2008) redefined the protective factors and personal qualities as ‘tensions’. He hypothesised that people need to balance these tensions in order to enhance their resilience, and having too much or too little of these...
resources removes the tensions that are important to developing resilience. Overall, there appears to be a consensus in the research that resilience is developed through both internal resources, such as personal characteristics and skills, as well as external factors, such as environmental, social and educational factors.

**Intervention programs for non-clinical populations**

Understanding that resilience is a process influenced by risk and protective factors, more recent research has been interested in how resilience can be developed or enhanced. Seligman (2002) suggests that resiliency can be enhanced with positive psychology through utilising a strength-based approach to build people’s capacity, rather than correcting their difficulties. There is considerable research into treatment programs that aim to enhance resilience, and evidence suggests that prevention programs are important in assisting people to overcome difficult circumstances and prevent mental health problems (Barrett et al., 2014). There are a number of international resilience-based programs, such as the Penn Resiliency Program (Gillham et al., 2007); however, there are only two resilience programs that have been evaluated in Australia. The FRIENDS program (Barrett, 2012) and the Resilience Doughnut model (Worsley, 2006) aim to enhance resilience in non-clinical child and adolescent populations.

**FRIENDS program**

The FRIENDS program (Barrett, 2012) is the most widely researched resilience-enhancing program in Australia and was first developed and evaluated by Barrett and Turner (2001). The aim of the FRIENDS program (Barrett, 2012) is to develop social and emotional skills in children and adolescents in order to promote resilience and prevent anxiety and depression (Barrett et al., 2014). The program is based on the theoretical framework of cognitive-behavioural theory (CBT) and positive psychology (Barrett et al., 2014). It is uses the acronym of FRIENDS to form the basis of the program, for example, the F stands for ‘feelings’ and focuses on developing social and emotional skills.
The FRIENDS program (Barrett, 2012) has been evaluated several times as a universal program, using pre-intervention, post-intervention and follow-up data (Lock & Barrett, 2003; Barrett, Lock & Farrell, 2005). The results demonstrated that the program was successful in reducing anxiety and increasing coping skills, with the strongest effects noticed in children in the Year 6 age group compared to adolescents in the Year 9 age group. Lock and Barrett (2003) used these findings to suggest that earlier intervention could be more beneficial than later intervention.

A follow-up study of Lock and Barrett’s (2003) findings was completed to assess the effects of the program at 24 and 36-month intervals (Barrett, Farrell, Ollendick & Dadds, 2006). This study found that the reductions in anxiety were maintained for Year 6 students who were in the treatment condition, and not in the aged-matched control group. They also reported a gender effect, with girls in the intervention group scoring lower on anxiety after the intervention than girls in the control group, although this difference was not maintained at the 36-month follow-up. The authors suggest that this finding supports the previous study’s hypothesis that earlier intervention, specifically during Year 6, is ideal for long-term benefits.

Whilst these research findings are positive, an important consideration of the FRIENDS program is whether it is actually focused on developing resilience or whether it just focuses on managing anxiety. The studies discussed primarily define themselves as a cognitive-behavioural intervention to reduce anxiety, rather than as a program designed to develop resilience. This is particularly evidenced by the authors not using any known measures of resilience, such as the Resilience Scale for Adolescents (READ; Hjemdal, Friborg, Stiles, Martinussen & Resenvinge, 2006) to measure the effect of the FRIENDS intervention on developing the factors that build resilience.
**The Resilience Doughnut**

The Resilience Doughnut program was developed by Worsley (2006) and is based in the theoretical framework of Solutions-Focused Theory (SFT) and Positive Psychology. As the name suggests, the program is based around the concept of a doughnut, where inside the doughnut represents the internal strengths of the individual, and the outside of the doughnut represents seven protective factors they may have, such as social and environmental factors (see Appendix A). The internal strengths are based on the work of Grotberg (1995), while the protective factors are rooted in the theoretical research by Werner and Smith (2001), Fuller (1998) and Ungar (2008) and are the ‘Parent’, ‘Skill’, ‘Family and Identity’, ‘Education’, ‘Peer’, ‘Community’ and ‘Money’. Worsley (2014) suggests that the process of resilience is built when the external factors feed into the internal strengths of a child. She states that the Resilience Doughnut is not about teaching children to be resilient, but rather it is about teaching families and communities to have relationship skills that build resilience in children. This process occurs through helping children and their families gain more self-awareness and social skills, as well as developing creative ways to strengthen their external protective factors (Worsley, 2008).

Worsley (2014) suggests that not all seven factors need to be present to build resilience, but hypothesises that three factors are sufficient to enhance wellbeing. Through strengthening three factors, Worsley (2014) hypothesises that the rest of the factors will be strengthened too. This is based on the principles of SFT, which suggests that focusing on strengths, rather than problems, will elicit positive change and promote resiliency (Seligman, 2002). Similar to the FRIENDS program, the Resilience Doughnut framework teaches students about optimistic thinking and also provides parent education sessions on the model.

The Resilience Doughnut (Worsley, 2006) has not been researched as frequently as
the FRIENDS program; however, three case studies conducted by Worsley (2014) demonstrate a number of positive outcomes for the model. Three schools were selected to utilise the Doughnut model. The first and second case study used Year 8 students to implement the program, and the third case study used Years 7-10. Specific staff members were trained in the Resilience Doughnut model, which they implemented with their students using an online tool. The online tool assisted the students in identifying their three strongest protective factors. The students then had to develop a project linking their three strengths. For example, a student’s strengths might be **Parent Factor, Skill Factor** (skill being football) and **Community Factor**. This child’s project might involve planning a football match in the local park and inviting his parents to participate.

Pre- and post-measures of anxiety, depression and resilience were taken for each case study, including longitudinal follow up at 12 and 24 months. The measure differed across each of the case studies, but included the Multidimensional Anxiety Scale for Children (MASC-10; March, 1997), the Child Depression Index (CDI-10; Kovacs, 2003), the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997), the Child, Youth Resilience Measure (CYRM; Ungar, 2008), the Resilience Scale (RS-14; Wagnild & Young, 1993) and the Resilience Scale for Adolescents (READ; Hjemdal et al., 2006). Post-intervention results showed that children with high and medium anxiety, based on the MASC-10, increased their resilience scores on the resilience measures over time. Worsley (2014) suggests that these results demonstrate that the Doughnut can be used successfully to build resilience in adolescents.

Further research is needed to develop the empirical evidence of the Resilience Doughnut model. Specifically, implementing the program over several sessions, rather than one session to give participants extra time to capitalise on the specific resources around them (Luthar & Cicchetti, 2000). Also, implementing the Doughnut program with both primary school students and high school students and comparing their scores of
resilience. This may build on Barrett et al. (2006) suggestion that programs implemented at an earlier age are more effective at reducing adversity and improving resilience.

Aims and Hypotheses

The current study builds on Worsley (2014) research by evaluating two programs based on the Resilience Doughnut (2006) model. The Connect-3 (8-12 year-olds) and Linked-up (13-16 year-olds) programs are interactive 6-week group programs designed to help young people develop their personal competency, improve their social interactions and develop resilient thinking skills (Worsley, 2012). This research aims to assess the effectiveness of the two programs by measuring the change from pre-intervention to post-intervention for participants, using the Resilience Scale for Adolescents (READ; Hjemdal et al., 2006) and the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997).

It was hypothesised that there would be a significant improvement in the resilience measure scores and decrease in difficulties scores at post-intervention. Specifically, it was hypothesised that participants would increase their scores on all subscales of the READ and decrease their scores on the subscales of the SDQ, with the exception of the Prosocial scale, which would increase. Secondly, it was hypothesised that the Connect-3 group will have a greater decrease in their difficulty scores and increase in the resilience scores compared to the Linked-Up population, based on Barrett et al., (2006) findings. Finally, it was hypothesised that the female participants would have a greater reduction in their difficulties scores and increase in their resilience scores compared to male participants again based on Barret et al., (2006) results.

Method

Participants

Participants were children and adolescents aged between 8-17 years who were enrolled in either the Connect-3 or Linked-Up program. There were 70 participants in total; 40 males (57%) and 30 females (43%), with a mean age of 10.43 years ($SD=2.74$).
There were 48 participants (69%) in the Connect-3 group (60% males, 40% females) and 22 participants (31%) in the Linked-Up group (50% males and females).

The participants parent’s completed a consent form on behalf of their child, which provided permission for their child’s information to be collected, de-identified and used for the research project (Appendix D). Participants who did not give consent to participate in the research were still able to complete the resilience program.

The programs were completed at The Resilience Centre, Sydney, within a high socio-economic suburb as indicated by the Socio Economic Indexes for Areas (SEIFA). The SEIFA is a range of indices created by the Australian Bureau of Statistics (ABS) to analyse the socio-economic status of a population. The Epping-North Epping Statistical Area 2 (SA2) ranks in the highest decile for three of the four SEIFA measures, indicating that it is a highly advantaged and highly educated population (ABS, 2013). More specific demographic details were unavailable for the participants, however, participants generally came from financially resourced families, as they were required to pay $350 to participate in the program. Furthermore, as part of the program, parents of the participants were invited to attend parent-information sessions to encourage them to engage with what their child was learning. There is no data available for parent attendance at these sessions.

**Procedure**

Participants were recruited in several ways, most commonly through self-referral to the program. The resilience programs have a strong reputation in the local geographic area, and therefore, many referrals come from recommendations by previous participants. Other referral sources include general practitioners, school counsellors or psychologists who have knowledge of the program, and usually refer because the young person has difficulties with anxiety. Specific details of how many participants were referred from each source was unavailable for this research.
The group programs ran with approximately 6-10 participants in each group. If a participant was unable to attend any of the six sessions, they were offered an individual catch-up session with the provisional psychologist who was co-facilitating the program.

The Linked-Up and Connect-3 programs each ran over a 6-week period for 1.5-hour sessions, per-week. The programs had identical structure, using different examples and worksheets to tailor the concepts of the Resilience Doughnut for the two developmental age groups (see Appendix G). The programs were delivered by a psychologist and a provisional psychologist who had completed The Resilience Doughnut accredited training (Worsley, 2008). The facilitators followed a structure outlined by the program manuals, which is summarised in Table 1. Additionally, a parent information session was completed following the first session so parents and other family or community members could become engaged in what their child was doing within the program. After each other session, a parent letter was provided, detailing session content and how the strategies discussed could be implemented and developed at home or school. No data is available on overall student attendance at the 6 sessions or parent’s attendance during the first week.

The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) and the Resilience Scale for Adolescents (READ; Hjemdal, et al., 2006) were administered to students 1-week prior to the program commencing and repeated following the conclusion of the sixth session. Most participants completed the questionnaires via a computer, but due to some technical complications, six participants were required to complete the questionnaire using paper and pencil and results entered into the database manually.

**Measures**

**The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997).** The SDQ is a brief behavioural screening questionnaire for people aged 3-16 years. It
contains 25 items, divided into 5 subscales: emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems, and pro-social behaviour.

For this study, the SDQ is being used as a measure of participant’s risk factors or adversities. Higher scores on each of the subscales indicate higher level of emotional symptoms, conduct problems, hyperactivity, peer problems and total difficulties, with the exception of the prosocial scale. As the prosocial scale is a measure of social competency, higher scores indicate a higher level of social resilience. The SDQ subscale scores are divided into four descriptive categories, based on the clinical cut-off points for the subscales. The descriptive categories range from ‘close to average’, indicating difficulties/prosocial score within a normal range through to ‘very high (very low)’, indicating a much higher than average score for difficulties (or much lower prosocial score). The SDQ has previously demonstrated good internal consistency, with a Cronbach $\alpha$ of .93 (Goodman, 2001). For the current study the SDQ had moderate-weak internal consistency, with alpha coefficients ranging between .65 to .43 at pre-intervention to .82 to .43 at post-intervention (Table 2).

The Resilience Scale for Adolescents (READ; Hjemdal et al., 2006). The READ (Hjemdal et al., 2006) is a 28-item questionnaire that also consists of five subscales: personal competence, social competence, structured style, awareness of social resources, and family cohesion. The READ is being used as a measure of resilience in this study. It does not have recommended clinical cut-offs points, however, higher scores on each of the subscales indicate higher levels of resilience. The READ has previously demonstrated very strong internal consistency with Cronbach $\alpha$ of .94 (Hjemdal et al., 2006). For the current study, the READ demonstrated adequate internal consistency, with alpha coefficients ranging between .83 to .58 at pre-intervention and .83 to .43 at post-intervention (Table 2).
Statistical Analyses

Statistical analyses were conducted using IBM SPSS Statistics for Windows (version 21.0; SPSS, Chicago, IL, USA) and all statistical tests used a type I error of $\alpha = .05$. Cronbach alpha coefficients were calculated for both the READ and SDQ, at both time points to determine the internal consistency of the subscales for these students.

Linear mixed models were created for all subscales of SDQ (total difficulties, emotion symptoms, conduct problems, hyperactivity/inattention, peer relationship problems and pro-social behaviour) and READ (personal competence, social competence, structured style, awareness of resources and family cohesion) to compare baseline to post-treatment for students in each of the Connect-3 and Linked-Up groups separately.

A mixed models approach to analysing repeated measures data was used as it analyses on an intention to treat basis and there was incomplete data from participants for pre-intervention to post-intervention. The current study only had 29 data points available for post-intervention analysis. Mixed models analysis ensured all participants were included in the analysis and allowed inherent adjustments for baseline scores. Another advantage of using a mixed models approach is that the optimal covariance matrix is selected, resulting “in more appropriate estimates of the effect of treatment and their standard errors” (Brown & Prescott, 2006: p. 3). Model choice was based on comparison of two covariance patterns (Compound Symmetry and Unstructured/General) and selection of the covariance matrix with the best fit was indicated by the lowest Akaike’s Information Criteria (AIC) and Schwartz’s Bayesian Criterion (BIC) values. Compound Symmetry Matrix was most appropriate model for all subscales. Cohen’s $d$ effect size was calculated for each of the variables using the pooled standard deviation from the residual covariance matrix (Dunst & Hamby, 2012).

Further models were used to examine for any difference in gender for each of the two age groups (Connect-3 and Linked-Up). Correlation between the READ and SDQ
subscales was examined using Spearman’s rho, due to the relatively small number of students and non-normality of the distributions of the subscales.

**Results**

**Main Findings from Baseline to Post-Intervention**

Results for the Connect-3 (N=50) group on the SDQ showed a significant reduction in mean scores of 2.11 points from pre-intervention to post-intervention for Total Difficulties $F_{(1,32)} = 4.60, p=.04, d = 0.37$ (see Table 3). Additionally, differences in scores on the Emotional Problems and Hyperactivity subscale were approaching significance $F_{(1,33)} = 3.92, p=.06, d = 0.33$ and $F_{(1,37)} = 3.70, p=.06, d = 0.40$, respectively. No other subscales of the SDQ showed a significant change from pre to post-intervention for the Connect-3 group. On the READ measure, results for the Connect-3 group showed a significant increase in mean scores by 2.65 points on the subscale of Personal Competency from pre-intervention to post-intervention $F_{(1,36)} = 7.31, p=.01, d = 0.49$ (Table 4). No other subscales on the READ were significant for the Connect-3 group.

The results for the Linked-Up (N=22) group showed no significant change in scores for pre-intervention to post-intervention for either the SDQ or the READ (see Table 5 & 6). However, the subscale of Prosocial Behaviour on the SDQ was approaching significance $F_{(1,34)} = 3.62, p=.07, d = 0.62$. There was an apparent increase in mean scores of 1.09 points from pre-intervention to post-intervention (Table 5).

**Gender Analysis**

Further analysis was conducted to determine if the overall results were significant for both males and females. There was little difference in gender from baseline to post-intervention in either the Connect-3 or Linked-Up group. The only significant difference was found for the Connect-3 group on the subscale of Personal Competency. Males
significantly \((p=.01)\) increased their scores from pre-intervention \((M=19.54)\) to post-intervention \((M=23.02)\).

**Resilience and Adversities**

As hypothesised, most subscales of READ were negatively correlated with subscales of the SDQ, with the exception of the Prosocial scale, which was significantly positive (See Table 7). Specifically, the Prosocial scale was positively correlated with the subscale of Personal Competency \((.31, p=.01)\); Social Competency \((.39, p<.01)\); Social Resources \((.40, p<.01)\); Family Cohesion \((.26, p=.04)\) and was approaching significance for Structured Style \((.24, p=.06)\). Unexpectedly, Social Competency was positively correlated with Hyperactivity \((.30, p=.02)\).

**Attrition Rates**

For the 70 participants for whom pre-intervention data from the SDQ and READ measures were available; only 29 (41%) of participants had post-intervention data available. There are also two participants in the Connect-3 group where post-intervention SDQ and READ data was available, but not their pre-intervention data. Given this low retention rate, independent-sample \(t\)-tests were conducted on each of the subscales and available demographics for the READ and SDQ to compare the baseline scores of the students for whom no post-intervention measures were available. The two groups were similar in all respects except for the Family Cohesion \((p=.04)\) subscale within the READ and the Peer Problems \((p=.01)\) and Total Difficulties \((p=.02)\) within the SDQ (see Table 8).

**Discussion**

The aim of the current study was to build on Worsley’s (2014) research of the Resilience Doughnut model. Specifically, to assess the effectiveness of two programs based on the Resilience Doughnut model. The Connect-3 and Linked-Up programs are group-interventions that aim to help young people find their strengths, improve their
social interactions and develop resilient thinking skills. The effectiveness of these programs was assessed by examining pre-intervention and post-intervention measures of resilience, using the READ (Hjemdal et al., 2006) and adversities, using the SDQ (Goodman, 1997). The study also examined age and gender difference from pre- to post-intervention.

**Effectiveness of Resilience Doughnut Programs**

Results from the Connect-3 group show that there were significant changes in their scores from pre-intervention to post-intervention. Specifically, participants in the Connect-3 group significantly reduced their total difficulties score at post-intervention. They also had a significant increase in their scores for the Personal Competency subscale within the READ measure of resilience. Further, there was an apparent decrease in the subscales of Emotional Problems and Hyperactivity that were trending toward significance. Whilst these results provide some good evidence for Connect-3 program in reducing adversities, it is important to consider the clinical relevance of the scores. In all of the SDQ subscales, the mean participant scores fell within the ‘average’ to ‘slightly raised’ descriptive categories, suggesting that the participants did not have a clinically high rate of difficulties even before treatment. This is not surprising, given that the study was completed with a non-clinical population.

Unlike the Connect-3 group (primary school aged students), the Linked-Up group (high school aged students), showed no significant change in scores from baseline to post-intervention. These results support the Lock and Barrett (2003) and Barrett et al. (2006) findings, which suggest that implementing programs with primary school-aged children appears to be more effective at reducing adversities than compared to high-school aged youth. Small participant numbers in the Linked-Up group may have impacted on these findings, given that there were only 22 participants at pre-intervention and seven at post-intervention. There was a non-significant increase in the Total
Difficulties scores for the Linked-Up group, which appears more likely due to random variation rather than a type II error. Although these scores are based on only seven available participants, there appears to be no downward trend of the estimated marginal means from pre to post, which was apparent in the Connect-3 group.

However, in contrast to Barrett et al. (2006) findings, the results of this study found no significant difference in the changes from baseline to post-intervention for most subscales for males and females. The only exception was in the Connect-3 group, where male scores significantly increased on the subscale of Personal Competency from baseline to post-intervention. This unremarkable finding suggests that males and females generally do not respond differently to the Resilience Doughnut programs.

**Relationship Between READ and SDQ Scores**

As hypothesised, there was a significant increase in the resilience measure scores (READ) and decrease in difficulties scores (SDQ) at post-intervention, as seen in the correlation matrix of the two measures (Table 7), which is consistent with Worsley (2014) findings. However, unlike Worsley’s (2014) study, a small number of the SDQ subscales did not have significant correlations against the READ subscales, such as the Hyperactivity scale. This is likely due to the type of participants within the group, who were more commonly referred for anxiety difficulties than problems with hyperactivity behaviour. In contrast to Worsley (2014) study (particularly the third case study), this research contained participants from socio-economically advantaged backgrounds.

Unexpectedly, Social Competency was positively correlated with Hyperactivity. This is again likely the result of the shy and anxious population. The Hyperactivity scale may be indicative of participants who were more extroverted and not hyperactive, as evidenced by the Hyperactivity scores being within the clinically normal range.
**Strengths**

The current study is the first to examine the effectiveness of the Connect-3 and Linked-Up group programs based on the Resilience Doughnut model. The data collected from this study provides further insight into the factors that build resilience in young people for a well-resourced population. These findings provide the platform to conduct further study of these programs within more diverse, and less affluent populations.

Another strength of this study is that the Connect-3 and Linked-Up programs are innovative, strengths-based programs, which aim to build resilience in a variety of domains, such as community and peer factors. Unlike other programs that may focus on solely developing an individual’s characteristics (e.g., coping skills), the Resilience Doughnut programs are designed to engage young people in connecting with their family, community and other external resources around them. The READ subscales provide some measure of these resources, however future research could focus more specifically on how this broader view of resilience impacts on the effectiveness of the programs.

Finally, the difficulty in obtaining post-intervention scores for the READ and SDQ measures highlights the importance of having good quality assurance within the private clinic. This study has been the catalysis for improving the data collection system, including identifying technical issues with the computer-based program. Stricter procedures for the collection and recording of data will assist the clinic to conduct further rigorous research on the programs run at the centre. It will also allow the clinic to continue to contribute to the growing field of resilience-based research.

**Limitations**

There were a number of limitations to this research. Firstly, there were only a small number of participants within the Linked-Up group. These smaller numbers may have impacted on the ability to find significant change in resilience and adversity scores over
time. Further research within the adolescent population is needed to assess this more thoroughly.

Another limitation of the program was the small amount of post-intervention data available. There were only 29 data points available for post-intervention analysis; however, this is not a direct indication of dropout rates, as most participants completed the program in full. Rather, this low number could also be due to technical issues, with the failure of the computer system to save the data properly. It could also have been due to some participants not attending the follow-up session, which is where most of the post-intervention data was collected. Attempts were made to get participants to complete the post-intervention questionnaires at a later date, however this was not always possible.

The results from the independent-sample t-tests showed that only Family Cohesion, Peer Problems and Total Difficulties subscales were significant for participants who did not have data for post-intervention. It is unclear what may have contributed to this; however, it could be that participants who had more limited familial support were unable to attend the follow-up session for post-intervention data collection, as they had significantly lower Family Cohesion baseline scores. Alternatively, it could be that these participants did not attend the follow-up session because they did not need the intervention, as they had significantly lower scores for Peer Problems and Total Difficulties.

Another limitation was the small amount of demographic and descriptive data available to analyse the participant population. Specifically, no data was available to examine how many participants had had previous intervention, or how many participants were getting other psychological intervention in conjunction with participating in the programs, particularly given that many referrals to the program came from psychologists. Similarly, there is a limitation for participants who self-referred to the program, as often self-referrals only capture a population that is likely to be interested and more engaged in the program and therefore may bias the results toward a positive response to the program.
Finally, the design of the current research presents a significant limitation. The current design was a pre-post test, with no control group. This limits the conclusions that can be drawn from the findings for the general effectiveness of the program.

**Recommendations for Future Research**

The current study examined the effect of the Connect-3 and Linked-Up programs on improving resilience scores with a small, homogenous population that is socio-economically advantaged, and therefore well resourced enough to already be resilient, as suggested by Ungar (2008). Future research may be interested in examining the effectiveness of Connect-3 and Linked-Up groups within a population that has increased adversity, as it may yield more clinically significant results. It could also be interesting to examine how these programs compare with other international resilience programs, such as the Penn Resiliency Program (Gillham, et al., 2007).

Another area for future research could be to examine how these programs help to engage young people with the resources around them, such as their family and community, and how in turn, these resources build a young person’s resilience. For example, the programs were designed to engage the young person’s family through providing parent information sessions. The family and community were also involved in homework tasks, such as the kindness project, where participants had to develop a project that connected themselves with their available social resources (e.g., school, sporting club, family, faith-based community). Future research could aim to examine the impact of these connections on building resilience. This is particularly important as increasingly resilience is being defined as a process of overcoming adversity through using both individual and environmental resources (Ungar at al., 2008; Windle et al 2011).

Finally, future studies should consider changing the design of the study. Rather than using pre-post test design, future research could consider using randomised assignment
training and control groups. This would ensure more statistically robust results, which may provide wider scope for the clinical implications of the programs.

**Conclusion**

The current research offers a perspective on building resilience in non-clinical child and adolescent populations through the Connect-3 and Linked-Up programs. These two 6-week programs, which are based on the Resilience Doughnut model, have demonstrated the ability to build personal competency and reduce total difficulties within a primary school aged population. However, more research is required to examine the impact of the programs within non-clinical and clinical population samples.
Table 1. *Overview of the Connect-3 and Linked-Up programs*

<table>
<thead>
<tr>
<th>Session</th>
<th>Description of the Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>Introducing the Resilience Doughnut</td>
</tr>
<tr>
<td>Week 2</td>
<td>Identifying young person’s strengths</td>
</tr>
<tr>
<td>Week 3</td>
<td>Learning optimistic thinking</td>
</tr>
<tr>
<td>Week 4</td>
<td>Learning empathy and social skills</td>
</tr>
<tr>
<td>Week 5</td>
<td>Reporting on their kindness project</td>
</tr>
<tr>
<td>Week 6</td>
<td>Noticing change</td>
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</tbody>
</table>

Table 2. *Reliability of the READ and SDQ subscales for pre and post (Cronbach alpha)*

<table>
<thead>
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<th></th>
<th>Cronbach alpha</th>
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</thead>
<tbody>
<tr>
<td>READ Subscale</td>
<td>Pre</td>
</tr>
<tr>
<td>Personal Competency</td>
<td>.78</td>
</tr>
<tr>
<td>Social Competency</td>
<td>.75</td>
</tr>
<tr>
<td>Structured Style</td>
<td>.58</td>
</tr>
<tr>
<td>Social Resources</td>
<td>.78</td>
</tr>
<tr>
<td>Family Cohesion</td>
<td>.83</td>
</tr>
<tr>
<td>SDQ Subscale</td>
<td></td>
</tr>
<tr>
<td>Emotional Problems</td>
<td>.61</td>
</tr>
<tr>
<td>Conduct Problems</td>
<td>.50</td>
</tr>
<tr>
<td>Hyperactivity</td>
<td>.58</td>
</tr>
<tr>
<td>Peer Problems</td>
<td>.43</td>
</tr>
<tr>
<td>Prosocial Behaviour</td>
<td>.65</td>
</tr>
<tr>
<td>Total Difficulties</td>
<td>.49</td>
</tr>
</tbody>
</table>
Table 3. *Linear Mixed Model Estimated Marginal Means (M), Significance (p) and Effect Size (d)* for the Connect-3 group (n=48) on the SDQ measure.

<table>
<thead>
<tr>
<th>SDQ Connect-3</th>
<th>Pre M (SE)</th>
<th>Post M (SE)</th>
<th>Difference</th>
<th>Significance</th>
<th>CI (95%)</th>
<th>Cohen’s d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Difficulties</td>
<td>17.71 (0.81)</td>
<td>15.60 (1.05)</td>
<td>-2.11</td>
<td>.04*</td>
<td>0.11, 4.11</td>
<td>0.37</td>
</tr>
<tr>
<td>Emotional Problems</td>
<td>4.90 (0.36)</td>
<td>4.05 (0.46)</td>
<td>-0.84</td>
<td>.06</td>
<td>-0.02, 1.71</td>
<td>0.33</td>
</tr>
<tr>
<td>Conduct Problems</td>
<td>3.37 (0.26)</td>
<td>3.20 (0.35)</td>
<td>-0.17</td>
<td>.63</td>
<td>-0.87, 0.53</td>
<td>0.09</td>
</tr>
<tr>
<td>Hyperactivity</td>
<td>5.85 (0.29)</td>
<td>5.04 (0.40)</td>
<td>-0.82</td>
<td>.06</td>
<td>-1.68, 0.04</td>
<td>0.40</td>
</tr>
<tr>
<td>Peer Problems</td>
<td>3.59 (0.32)</td>
<td>3.35 (0.41)</td>
<td>-0.24</td>
<td>.52</td>
<td>-1.00, 0.52</td>
<td>0.11</td>
</tr>
<tr>
<td>Prosocial Behaviour</td>
<td>7.74 (0.25)</td>
<td>8.02 (0.33)</td>
<td>0.28</td>
<td>.40</td>
<td>-0.39, 0.95</td>
<td>0.16</td>
</tr>
</tbody>
</table>

Table 4. *Linear Mixed Model Estimated Marginal Means (M), Significance (p) and Effect Size (d)* for the Connect-3 group (n=44) on the READ measure.

<table>
<thead>
<tr>
<th>READ Connect-3</th>
<th>Pre M (SE)</th>
<th>Post M (SE)</th>
<th>Difference</th>
<th>Significance</th>
<th>CI (95%)</th>
<th>Cohen's d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Competency</td>
<td>19.79 (0.81)</td>
<td>22.44 (1.01)</td>
<td>2.65</td>
<td>.01*</td>
<td>0.66, 4.64</td>
<td>0.49</td>
</tr>
<tr>
<td>Social Competency</td>
<td>14.47 (0.54)</td>
<td>15.10 (0.65)</td>
<td>0.63</td>
<td>.29</td>
<td>-0.56, 1.82</td>
<td>0.17</td>
</tr>
<tr>
<td>Structured Style</td>
<td>10.40 (0.43)</td>
<td>10.84 (0.56)</td>
<td>0.44</td>
<td>.45</td>
<td>-0.74, 1.62</td>
<td>0.15</td>
</tr>
<tr>
<td>Social Resources</td>
<td>16.47 (0.49)</td>
<td>16.49 (0.58)</td>
<td>0.02</td>
<td>.97</td>
<td>-0.96, 1.00</td>
<td>0.01</td>
</tr>
<tr>
<td>Family Cohesion</td>
<td>19.29 (0.58)</td>
<td>19.44 (0.73)</td>
<td>0.15</td>
<td>.84</td>
<td>-.134, 1.64</td>
<td>0.04</td>
</tr>
</tbody>
</table>
Table 5. *Linear Mixed Model Estimated Marginal Means (M), Significance (p) and Effect Size (d) for the Linked-Up group (n=22) on the SDQ measure.*

<table>
<thead>
<tr>
<th></th>
<th>Pre M (SE)</th>
<th>Post M (SE)</th>
<th>Difference</th>
<th>Significance</th>
<th>CI (95%)</th>
<th>Cohen's d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Difficulties</td>
<td>18.59 (1.21)</td>
<td>19.73 (1.82)</td>
<td>1.16</td>
<td>.50</td>
<td>-4.65,2.32</td>
<td>0.20</td>
</tr>
<tr>
<td>Emotional Problems</td>
<td>5.59 (0.54)</td>
<td>5.78 (0.80)</td>
<td>0.19</td>
<td>.80</td>
<td>-1.70,1.31</td>
<td>0.08</td>
</tr>
<tr>
<td>Conduct Problems</td>
<td>3.32 (0.39)</td>
<td>3.67 (0.61)</td>
<td>0.35</td>
<td>.56</td>
<td>-1.56,0.87</td>
<td>0.19</td>
</tr>
<tr>
<td>Hyperactivity</td>
<td>5.27 (0.43)</td>
<td>6.12 (0.72)</td>
<td>0.85</td>
<td>.26</td>
<td>-0.65,2.34</td>
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<tr>
<td>Peer Problems</td>
<td>4.41 (0.48)</td>
<td>4.27 (0.71)</td>
<td>-0.14</td>
<td>.83</td>
<td>-1.18,1.46</td>
<td>0.06</td>
</tr>
<tr>
<td>Prosocial Behaviour</td>
<td>7.23 (0.37)</td>
<td>8.32 (0.59)</td>
<td>1.09</td>
<td>.07</td>
<td>-0.07,2.25</td>
<td>0.62</td>
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</table>

Table 6. *Linear Mixed Model Estimated Marginal Means (M), Significance (p) and Effect Size (d) for the Linked-Up group (n=22) on the READ measure.*

<table>
<thead>
<tr>
<th></th>
<th>Pre M (SE)</th>
<th>Post M (SE)</th>
<th>Difference</th>
<th>Significance</th>
<th>CI (95%)</th>
<th>Cohen's d</th>
</tr>
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<tbody>
<tr>
<td>Personal Competency</td>
<td>17.72 (1.15)</td>
<td>17.14 (1.79)</td>
<td>-0.59</td>
<td>.74</td>
<td>-2.91,4.09</td>
<td>0.11</td>
</tr>
<tr>
<td>Social Competency</td>
<td>12.50 (0.77)</td>
<td>12.49 (1.13)</td>
<td>-0.15</td>
<td>.99</td>
<td>-2.09,2.12</td>
<td>0.04</td>
</tr>
<tr>
<td>Structured Style</td>
<td>8.96 (0.61)</td>
<td>9.19 (1.00)</td>
<td>0.23</td>
<td>.82</td>
<td>-1.83,2.30</td>
<td>0.08</td>
</tr>
<tr>
<td>Social Resources</td>
<td>14.91 (0.70)</td>
<td>14.36 (0.98)</td>
<td>-0.55</td>
<td>.52</td>
<td>-2.28,1.18</td>
<td>0.17</td>
</tr>
<tr>
<td>Family Cohesion</td>
<td>16.36 (0.82)</td>
<td>15.17 (1.30)</td>
<td>-1.19</td>
<td>.36</td>
<td>-3.81,1.42</td>
<td>0.31</td>
</tr>
<tr>
<td></td>
<td>Emotional Problems</td>
<td>Peer Problems</td>
<td>Hyperactivity Problems</td>
<td>Conduct Problems</td>
<td>Emotional Problems</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td>-------------------</td>
<td>--------------</td>
<td>------------------------</td>
<td>-----------------</td>
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</tr>
<tr>
<td>Total Difficulties</td>
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<td>0.96</td>
<td>0.76</td>
<td>0.24</td>
<td>0.46</td>
<td></td>
</tr>
<tr>
<td>Social Competency</td>
<td>-0.18</td>
<td>-0.19</td>
<td>-0.05</td>
<td>-0.19</td>
<td>-0.19</td>
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<td>Social Resources</td>
<td>0.22</td>
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<td>0.12</td>
<td>0.23</td>
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<tr>
<td>Structured Style</td>
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<td>-0.21</td>
<td>-0.12</td>
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<td>-0.15</td>
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</tr>
<tr>
<td>Family Cohesion</td>
<td>-0.20</td>
<td>-0.22</td>
<td>-0.01</td>
<td>-0.07</td>
<td>-0.22</td>
<td></td>
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</table>

Table 7. Correlation Matrix for the RASD and SDQ Subscales
Table 8. *Baseline measures for n=41 students whose time 2 data was not available compared to the n=29 students who completed both time 1 and time 2 measures.*

<table>
<thead>
<tr>
<th></th>
<th>Post Data Not Available</th>
<th>Post Data Available</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>n=41</td>
<td>n=29</td>
</tr>
<tr>
<td>Age</td>
<td>11.14</td>
<td>10.5</td>
</tr>
<tr>
<td>Gender (Males)</td>
<td>26 (61%)</td>
<td>16 (55%)</td>
</tr>
<tr>
<td>Personal Competency</td>
<td>18.70</td>
<td>19.55</td>
</tr>
<tr>
<td>Social Competency</td>
<td>13.62</td>
<td>13.90</td>
</tr>
<tr>
<td>Structured Style</td>
<td>9.38</td>
<td>10.59</td>
</tr>
<tr>
<td>Social Resources</td>
<td>15.27</td>
<td>16.69</td>
</tr>
<tr>
<td>Family Cohesion</td>
<td>17.35</td>
<td>19.45</td>
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<tr>
<td>Emotional Problems</td>
<td>4.88</td>
<td>5.54</td>
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<td>Conduct Problems</td>
<td>3.24</td>
<td>3.50</td>
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<td>Hyperactivity</td>
<td>5.40</td>
<td>6.07</td>
</tr>
<tr>
<td>Peer Problems</td>
<td>3.31</td>
<td>4.57</td>
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</tr>
<tr>
<td>Total Difficulties</td>
<td>16.83</td>
<td>19.68</td>
</tr>
</tbody>
</table>
References


Australian Council for Educational Research.


Appendix A

Abstract Accepted into the Pathways to Resilience III Conference, Halifax, Canada.
Presented at the conference 19th June 2015

Evaluating the efficacy of a Resilience program for children and young people in a private clinic in Sydney Australia.

Ms Kaitlyn Massey, Clinical Psychology Program, University of Newcastle, Australia

Dr Tanya Hanstock, Senior Lecture, Clinical Psychology Program, University of Newcastle, Australia

Research into intervention programs that aim to enhance resilience in young people are continually expanding. Evidence suggests that early intervention programs are important in assisting children to overcome difficult circumstances and prevent mental health problems. There are a number of international resilience-based group programs, however few exist within Australia. Two programs that are currently being used in Australia are the Linked-Up (13-16 year-olds) and Connect-3 programs (8-12 year-olds), which are based on the Resilience Doughnut model. They are creative and interactive 6-week group programs designed to help young people find their strengths, improve their social interactions and develop resilient thinking skills. This research assesses the efficacy of the two programs using the Resilience Scale for Adolescents (READ) and the Strengths and Difficulties Questionnaire (SDQ) for pre, post and follow-up measures. The results will help determine if prevention programs have the potential to be positive and proactive in developing resilience in young people in Australia. Discussion will be encouraged with regard to the use of ecological resilience programs in various contexts. Of particular note is the usefulness of such programs in activating the strong resources within small groups of youth in a private practice setting.
Thank you for your Response to Conditional Approval (minor amendments) submission to the Human Research Ethics Committee (HREC) seeking approval in relation to the above protocol.

Your submission was considered under Expedited review by the Ethics Administrator.

I am pleased to advise that the decision on your submission is Approved effective 21-Aug-2015.

In approving this protocol, the Human Research Ethics Committee (HREC) is of the opinion that the project complies with the provisions contained in the National Statement on Ethical Conduct in Human Research, 2007, and the requirements within this University relating to human research.

Approval will remain valid subject to the submission, and satisfactory assessment, of annual progress reports. *If the approval of an External HREC has been "noted" the approval period is as determined by that HREC.*

The full Committee will be asked to ratify this decision at its next scheduled meeting. A formal Certificate of Approval will be available upon request. Your approval number is **H-2015-0152**.

If the research requires the use of an Information Statement, ensure this number is inserted at the relevant point in the Complaints paragraph prior to distribution to potential participants. You may then proceed with the research.

Professor Allyson Holbrook  
*Chair, Human Research Ethics Committee*
Appendix C

Information Statement

Dr Tanya Hanstock
University of Newcastle
University Drive
Callaghan NSW 2308
(02) 4921 5641
Tanya.Hanstock@newcastle.edu.au

Information Statement for the Research Project:
Evaluating the Effectiveness of a Resilience Program in a Private Practice Setting
Document Version 2: dated 23/06/15

Your child has been invited to participate in research project identified above which is being conducted by Kaitlyn Massey. Kaitlyn is a student of the University of Newcastle, completing her Master degree in clinical psychology and she is conducting this study under the supervision of Dr Tanya Hanstock and Lyn Worsley.

Why is the Research being done?
The study examines the effectiveness of using a program based on the Resilience Doughnut model to promote resilience in young people. Lyn Worsley, who is the author of the resilience model, has trained psychologists and provisional psychologists in the resilience program.

What would your child be asked to do?
This study involves your child completing two questionnaires prior to the delivery of educational program aimed at raising resilience. Your child will also be asked to complete the same two questionnaires at the conclusion of the program; hence four questionnaires will be completed in total. The questionnaires will be administered online and psychologists from the Resilience Centre will conduct the educational programs. The time taken will be 30 minutes of questionnaires before the program commences and again at the completion of the program. Whilst all participants are asked to complete these questionnaires as part of normal clinical assessment, should you agree to participate then this data will also be used for research purposes.

The questionnaires consist of a Resilience Doughnut tool, a strength and difficulties scale and a resilience scale. The resilience scale has statements such as “I have self discipline” “my life has meaning” with a 7-point likert scale and the strength and difficulties scale has items such as “I usually share with others” “I have many fears and am easily scared” with a 3-point likert scale. The Resilience doughnut tool consists of your child responding to positive statements about their family, friends, teachers and personal strengths.

What choice do you have?
Being in this study is completely voluntary and you are not under any obligation to consent to allow your child to complete the questionnaires. You can withdraw any time prior to submitting the completed questionnaires however once questionnaires have been submitted anonymously, responses can be withdrawn by contacting the psychologist administering the test. You are also encouraged to discuss this document with your child and confirm that they are happy to participate in the research and that they allowed to withdraw from the research at any time.

Your decision whether or not to permit your child to participate in the research project will not prejudice you or your child in allowing them to complete the Resilience Doughnut program. Your child will still be allowed to complete the resilience program if you choose to withdraw your
consent. If you decide to permit your child to participate, you are free to withdraw your consent and to discontinue your child’s participation at any time.

**How will your privacy be protected?**
All aspects of the study, including results, will be strictly confidential and only the researchers will have access to information on participants. Names will be deleted and codes will be used to identify participants for statistical analysis.

**How will the information collected be used?**
The data collected will be reported in a thesis as part of Kaitlyn Massey’s degree. A report of the study may also be submitted for publication, but individual participants will not be identified in any publication. Non-identifiable data may also be shared with other parties to encourage scientific scrutiny, and to contribute to further research and public knowledge, or as required by law. Data will be retained for at least 5 years and held at the University of Newcastle.

**What are the risks and benefits of participating?**
The study has the benefits of raising awareness of the process of building resilience during adolescence. It is hoped the study will enable participants to strengthen their existing connections and enhance their emotional and mental wellbeing. Talking about your participation in the study is encouraged, particularly as it builds awareness of the importance of connecting with others.

It is unlikely that your child will experience any distress by participating in the research, however some questions will ask you child about things they may find difficult, such as asking if they feel scared easily. If your child is upset at any stage whilst completing the questionnaires they do not have to continue and they are free to finish the questionnaire whenever they choose.

**What do you need to do to participate?**
Please read this Information Statement and be sure you understand its contents before you consent to participate. If there is anything you do not understand, or you have questions, contact the researcher.

If you are consenting on behalf of a child or young person under 18 years of age, and they can understand what is being asked of them, please discuss the project with them before making a decision. Where a parent/guardian consents to their child or young person participating, the final decision will rest with the child / young person.

**Further information**
If you would like further information please contact, Ms Kaitlyn Massey, Dr Tanya Hanstock or Ms Lyn Worsley on the following contact details:

Ms Kaitlyn Massey: Kaitlyn.Miller@uon.edu.au or (02) 9869 0377
Dr Tanya Hanstock: Tanya.Hanstock@newcastle.edu.au or (02) 4921 5641
Ms Lyn Worsley: lyn@theresiliencecentre.com.au or (02) 9869 0377

Thank you for considering this invitation.
Appendix D

Consent Form

Consent Form for the Research Project:
Evaluating the Effectiveness of a Resilience Program in a Private Practice Setting
Document Version 2: dated 21/07/15

I agree for my child to participate in the above research project and give my consent freely.

I understand that the project will be conducted as described in the Information Statement, a copy of which I have retained.

I understand I my child can withdraw from the project at any time and do not have to give any reason for withdrawing.

I understand that my personal information will remain confidential to the researchers.

I understand that my de-identified data may be shared or used in future studies.

I consent for my child’s de-identified data to be used for research purposes

I have had the opportunity to have questions answered to my satisfaction.

Name:_____________________________________
Signature: ________________________________
Date: _____________________________

Consent of child / young person < 18 years:

Name:_____________________________________
Signature: ________________________________
Date: _____________________________
Appendix E

READ Questionnaire

Resilience Scale for Adolescents

Please think about how the last month has been for you. Your thought and how you have felt about yourself and important people in your life. Please mark the option that best describes your thoughts and feelings. There are no right or wrong answers.

(Developed by Odin Hjemdal & Oddgeir Friborg)

<table>
<thead>
<tr>
<th></th>
<th>Totally agree</th>
<th>Agree</th>
<th>Average</th>
<th>Disagree</th>
<th>Totally disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I reach my goals if I work hard</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2. I am at my best when I have clear aims and objectives</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3. I have some friends/family members that usually encourage me</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4. I am satisfied with my life up till now</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5. In my family we share views of what is important in life</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>6. I easily make others feel comfortable around me</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7. I know how to reach my goals</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8. I always make a plan before I start something new</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9. My friends always stick together</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10. I feel comfortable with my family</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>11. I easily find new friends</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>12. When it is impossible for me to change certain things I stop worrying about them</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>13. I am good at organizing my time</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>14. I have some close friends/family members that really care about me</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>15. In my family we agree on most things</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td>16. I am good at talking to new people</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>17. I feel competent</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>18. In my family we have rules that simplify everyday life</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>19. I always have someone that can help me when I need it</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>20. When I have to choose between several options I almost always know what will be right for me</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>21. My family view the future as positive, even when very sad things happen</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>22. I always find something fun to talk about</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>23. My belief in myself gets me through difficult times</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>24. In my family we support each other</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>25. I always find something comforting to say to others when they are sad</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>26. When thing go badly I have a tendency to find something good that can come out of it</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>27. In my family we like to do things together</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>28. I have some close friends/family members that value my qualities</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>
# Appendix F

## SDQ Questionnaire

**Strengths and Difficulties Questionnaire (SDQ) for 11-17 Years**

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of how things have been for you over the last six months.

**Your name:__________________________________________________________________________**

**Date of birth:__________________________________________**

<table>
<thead>
<tr>
<th>Item</th>
<th>Not True</th>
<th>Somewhat True</th>
<th>Certainly True</th>
</tr>
</thead>
<tbody>
<tr>
<td>I try to be nice to other people. I care about their feelings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am restless, I cannot stay still for long</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I get a lot of headaches, stomach-aches or sickness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I usually share with others, for example CD's, games, food</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I get very angry and often lose my temper</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would rather be alone than with people of my age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I usually do as I am told</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I worry a lot</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am helpful if someone is hurt, upset or feeling ill</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am constantly fidgeting or squirming</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I have one good friend or more</td>
<td></td>
<td></td>
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<tr>
<td>I fight a lot. I can make other people do what I want</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>I am often unhappy, depressed or tearful</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other people my age generally like me</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am easily distracted, I find it difficult to concentrate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am nervous in new situations. I easily lose confidence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am kind to younger children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am often accused of lying or cheating</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other children or young people pick on me or bully me</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I often volunteer to help others (parents, teachers, children)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I think before I do things</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I take things that are not mine from home, school or elsewhere</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I get along better with adults than with people my own age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have many fears, I am easily scared</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I finish the work I'm doing. My attention is good</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Your Signature:______________________________________________**

**Today's Date:______________________________________________**

*Thank you very much for your help*
Appendix G

Detailed Description of the Connect-3 and Linked-Up Resilience Doughnut Programs

The Connect-3 program is designed for children aged between 8-12 years-old. The Linked-up program, for young people aged between 13-16 years-old. The programs are creative and interactive 6-week group-based sessions designed to help young people find their strengths, improve their social interactions and develop resilient thinking skills.

The first week of the program involves introducing the participants to the Resilience Doughnut model, through the use of a story about a boy named “Sam” and the factors that help him to cope with adversity. Participants are then asked to identify what they thought Sam’s strongest three factors were, and develop ideas on how he could combine these strengths into a project or event that builds his resilience. Through Sam’s story the participants learned how to identify strengths or “Doughnut Factors”, in other people and how these strengths build resilience.

The second week of the program focuses on helping the children to identify their own strengths, or ‘factors’ based on the model. They complete activity sheets about their doughnut factors, which ask strengths-based questions such as “What makes this factor strong?” and “What could you do to make it stronger?” During this week, participants are given a homework task called a “Kindness Project”. This is a project that the participants design outside of session over the following weeks, which combine their three strongest factors. Students are instructed to use their three strengths to help make a difference for others or to do something kind for someone else, for example, raising money (Money Factor) to paint the local youth centre (Community Factor) with friends (Peer Factor).

During the third week of the program the participants learn about optimistic thinking skills. The participants identify optimistic and pessimistic thinking styles, and practice how to be optimistic, particularly when facing adversity. The Kindness Projects
are reviewed and participants are encouraged to use optimistic thinking skills when faced with the challenges of completing the project, such as turning thoughts like, “I’m never going to be able to do this”, into a more optimistic view.

The fourth week involves helping the participants develop empathy and social skills, within the context of moral development. Participants learned how to see situations from someone else’s perspective and consider what that person may be feeling. Participants learn, that rather than being self-focused, or even simply focused on friends or people they know, it is important to consider all people, even when they are different from themselves. This is consistent with Kohlberg’s (1984) post-conventional stage of morality.

Week four also involves developing social scanning skills to assist the children in noticing and considering others. Participants complete a social map (see Figure 2. for example). The social map is used to help students to notice who is around them, who is missing, and to consider what these relationships are like and how they could be different. Importantly, participants are also encouraged to remain connected to others, particularly during times of adversity when people are more inclined to withdraw or become self-focused. Instead, participants learn that being connected to the people around them helps to build resilience. Participants are also encouraged to consider how they could connect with the people around them for help with their kindness projects. In general, the focus of week four is not about teaching empathy and social skills; rather, it focused on facilitating the opportunity for children to develop these skills for themselves.
The fifth session is where each of the participants report on their Kindness Project. Parents, friends and other community members were invited to attend this session, which creates an atmosphere of celebration, and also continues the theme of building connections with the people around them.

Finally, the sixth session involves refreshing the participant’s memory about the program and reflecting on what changes they were able to maintain over the period. This session focuses on increasing the participant’s awareness of their internal resources and learning self-reflection skills. The session is also designed to help the participants prepare for future challenges through generalising the skills that they have learned.

The program is designed to keep parents and other family or community members engaged in what their child is doing within the program. For this reason, a parent information session is completed following the first session. Then after each following session a parent letter is provided, which details what the session was about and how the strategies learned in session could be implemented and developed at home or school.
Response to Marker’s Feedback for Master of Clinical Psychology Thesis

Thesis Title: Evaluating the Effectiveness of a Resilience Program for Children and Young People in a Private Australian Psychology Clinic

Student: Kaitlyn Massey

Supervisors: Dr Tanya Hanstock and Ms Lyn Worsley

Examiners: Professor Nicola Schutte and Professor Odin Hjemdal

1st June 2016

Dear A/Prof Ross Wilkinson,

Thank you for checking the changes to my thesis following the examiners’ feedback as well as my responses to the examiner’s feedback. I understand that you are doing this role as my supervisor Dr Tanya Hanstock is also the Course Convenor for PSYC6530. I would like to thank both markers of this thesis. I particularly want to thank them for their valuable feedback and suggestions to improve the thesis and manuscript. A Summary of these suggestions and my responses follow.

Kind regards,

Kaitlyn Massey

Examiner 1 Professor Nicola Schutte

1. **In the literature review, additional information about international programs could be added, specifically the Penn Resilience Program.**

There are many international resilience programs, including the Penn Resilience Program; however the scope of this research was to focus specifically on Australian-based resilience programs. The literature review identified that there are numerous international resilience programs that have been evaluated for their effectiveness. I have suggested that future research could consider examining both international and Australian programs, such as the Penn Resilience Program; see page 47, paragraph 1.

2. **Correct the grammatical in pairing the plural pronoun ‘their’ with singular subject.**

I have changed this to “his/her” rather than “their” on pages 16, paragraph 4 and page 18, paragraph 3 and 4.

3. **The F or T statistic should be reported for the pre and post comparisons.**

I have now reported the \( F \) statistic for the relevant findings and can be found on page 41 under the subheading ‘Results’. The F statistics are:

Total Difficulties \( F(1,32) = 4.60, p=.04 \)
Emotional Problems $F(1,33) = 3.92, \, p=.06$
Hyperactivity $F(1,37) = 3.70, \, p=.06$
Personal Competency $F(1,36) = 7.31, \, p=.01$
Prosocial Behaviour $F(1,34) = 3.62, \, p=.07$.

4. **Add the effect size for the change (e.g., eta squared) for each variable for each of the two groups.**

Cohen’s $d$ has been used for effect size and these have been calculated for each of the variables and have been added as a column to tables 3-6 and can be found on pages 50 and 51. This has also been added to the statistics section on page 40, paragraph 2, written as, “Cohen’s $d$ effect size was calculated for each of the variables using the pooled standard deviation from the residual covariance matrix (Dunst & Hamby, 2012).”

5. “There were substantially more participants in the younger cohort than the older cohort, making it more likely that even with the same effect size for the two cohorts, the change for the younger cohort would reach significance because of the larger n. A two (pre-post) by two (age cohort) analysis would help determine whether there was a difference between groups. Such a test would also address the stated hypothesis that there would be a greater change in the Connect-3 (younger) group. A contrasting of effect sizes would also be helpful in addressing the differences between the age cohorts.”

Whilst there were more participants in the younger cohort, it is unlikely that a similar change would be found for the older cohort. There was a non-significant increase in the Total Difficulties scores for the Linked-Up group, which is likely due to random variation, rather than a type II error. Although these scores are based on only 7 available participants, there is no downward trend of the estimated marginal means, which was apparent in the Connect-3 (younger) group. However, the small sample size for the Linked-Up population has been noted as a limitation of the research. This can be found on page 43, paragraph 3.

6. **The design of the research should be included in the limitations section as it was a pre and post test only design with no control group.**

I have now added the below sentences to explain the limitation of the study design. This change can be found on page 46, paragraph 3.

“Finally, the design of the current research presents a significant limitation. The current design was a pre-post test, with no control group. This limits the conclusions that can be drawn from the findings for the general effectiveness of the program.”

7. **Make a suggestion for future research that that a study be completed using randomised assignment to the training and control groups.**

I have now added the below sentences recommending changes to the study design for future research. This change can be found on page 47, paragraph 3.
“Finally, future studies should consider changing the design of the study. Rather than using pre-post test design, future research could consider using randomised assignment training and control groups. This would ensure more statistically robust results, which may provide wider scope for the clinical implications of the programs.”

Examener 2 Professor Odin Hjemdal

8. Clarify the statement “there was little difference in gender from baseline to post-intervention in both groups” on page 9.

I have now added the below sentences to clarify this statement. This change can be found on page 9, paragraph 2.

“Gender analysis showed no significant difference between males and females, with the exception of the subscale of Personal Competency. On this scale, males in the Connect-3 group scored significantly higher than females.”

Werner and Smith (2001) is not theoretical work and should be changed on page 17.

I have now changed it to “empirical” research”. This sentence so it now reads, “The protective factors are rooted in theoretical / empirical research by Werner and Smith (2001), Fuller (1998) and Ungar (2008)…” This change can be found on page 17, paragraph 1.

9. Clarify which reference is being made when referring to Ungar (2008) work on page 17.

I have now clarified that it is Ungar (2008b) that is the correct citation on page 17.

10. Specify the common problems with self-report measures on page 23.

I have now specified the common problems with the self-report measures. This change can be found on page 22, paragraph 3. The change reads:

“The research regarding the Resilience Doughnut program has some methodological limitations. Like the FRIENDS Program, the Resilience Doughnut uses self-report measures to evaluate the efficacy of the program. This can be problematic, as various biases may affect the results, like social desirability bias. Participants may exaggerate their answers, or be too embarrassed to reveal private details. Participants, particularly children, may also forget pertinent details. Furthermore, self-report studies are inherently biased by the person's feelings at the time they filled out the questionnaire.”

11. State how many participants were in each group in the abstract on page 31.

I have now added to the abstract: “There were 48 participants in the Connect-3 group and 22 participants in the Linked-Up group.” This change can be found on page 30, sentence number 7.
12. Make clearer in the introduction the reasoning for the second hypothesis that “the most notable change will occur for the Connect-3 population compared to the Linked-Up population”.

I have changed the statement of the second hypothesis so that it now links with introduction about the reasoning for the hypothesis. It now says, “Secondly it was hypothesised that the Connect-3 will have a greater decrease in their difficulty scores and increase in the resilience scores compared to the Linked-Up population, based on Barrett et al., (2006) findings.” This change can now be found on page 36, paragraph 2.

13. State the gender distribution of the group in page 38.

I have now added the gender distribution of the group. This change can be found on page 36, paragraph 3. It now reads as:

“There were 48 participants (69%) in the Connect-3 group (60% males, 40% females) and 22 participants (31%) in the Linked-Up group (50% males and females).”

14. In the limitations, put in that many of the participants were self-referrals and the associated limitations of this.

I have now added to the limitations section on page 46, paragraph 2. “Similarly, there is a limitation for participants who self-referred to the program, as often self-referrals only capture a population that is likely to be interested and more engaged in the program and therefore may bias the results toward a positive response to the program.”

15. State the potential consequences of the small sample size on page 44.

I have now added to the limitations section on page 43, paragraph 3. Small participant numbers in the Linked-Up group may have impacted on these findings, given that there were only 22 participants at pre-intervention and seven at post-intervention. There was a non-significant increase in the Total Difficulties scores for the Linked-Up group, which appears more likely due to random variation rather than a type II error. Although these scores are based on only seven available participants, there appears to be no downward trend of the estimated marginal means from pre to post, which was apparent in the Connect-3 group.

16. Correct the error that refers to the correlation matrix as table 2, where it should say table 7 on page 45.

I have changed Table 2 to now correctly read as Table 7. This change can be found on page 44, paragraph 3.
17. State the small sample at post-intervention analysis earlier in the paper, at either the statistics or method section.

I have now added information about the small sample earlier in the paper, under the statistics section. This can be found in on page 40, paragraph 2. It now reads: “A mixed models approach to analysing repeated measures data was used as it analyses on an intention to treat basis and there was incomplete data from participants for pre-intervention to post-intervention. The current study only had 29 data points available for post-intervention analysis. Mixed models analysis ensured all participants were included in the analysis and allowed inherent adjustments for baseline scores.”

18. Table 2-Table 6 should have participant number within the title of the tables.

I have now added the number of participants on all tables pages 50-52 and page 54.