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School of Psychology

Expressive writing interventions for children and young people: A systematic review and exploration of the literature.

by

Jerricah Holder Spriggs

Thesis for the degree of Doctor of Educational Psychology

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ABSTRACT

FACULTY OF SOCIAL AND HUMAN SCIENCES

Doctorate in Educational Psychology

EXPRESSIVE WRITING INTERVENTIONS FOR CHILDREN AND YOUNG PEOPLE: A SYSTEMATIC REVIEW AND EXPLORATION OF THE LITERATURE.

BY JERRICAH HOLDER SPRIGGS

Literature review: This systematic review explored the existing research literature concerning the effectiveness of expressive writing interventions for children and young people. The review found that the expressive writing intervention was associated with a range of psychological and health benefits for studies that involved participants of secondary- or college-age. However, the research regarding the effectiveness of expressive writing interventions with primary-aged participants was less consistent. Analysis of the key features of the studies included in the review revealed that the discrepancy in findings could be due to the age differences of participants and the ability of the child to create the type of narrative associated with the well-being outcomes (i.e. a coherent, cohesive and emotionally disclosing narrative; Reynolds, Brewin & Saxton, 2000). It was therefore suggested that younger children may be better supported through more guided expressive writing interventions, such as therapeutic story writing (Waters, 2004), in which the child receives support from an adult to create more causal-explanatory and emotionally disclosing narratives (Fivush & Sales, 2006).

Empirical paper: Researchers have suggested that anxious children may underperform at school because their worrisome thoughts reduce the capacity of their verbal working memory (Eysenck et al., 2007; Hadwin et al., 2005; Ng & Lee, 2010). It was therefore hypothesised that anxious children may benefit from interventions, such as therapeutic story writing (Waters, 2008), that provide the child with the opportunity to discuss their worries in a manner that reduces anxiety. A total of 26 participants, all experiencing anxious affect that was above the average range (T score > 50), took part in the study (7

females and 19 males, *M* = 10 years 2 months). A mixed measures design was conducted and the results suggested that the therapeutic story writing intervention was associated with a significant reduction in child-rated anxiety and a trend for an increase in verbal working memory capacity, but not an increase in reading or writing attainment when compared to the control group.

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DECLARATION OF AUTHORSHIP

I Jerricah Holder Spriggs declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

Expressive writing interventions for children and young people: A systematic review and exploration of the literature.

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work has been published before submission.

Signed:

Date: 5th June 2015

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Abbreviations

α	Alpha
β	Power
CASP	Critical Appraisal Skills Programme
CBT	Cognitive Behavioural Therapy
F	F statistic
MANOVA	Multivariate analysis of variance
M	Mean
n	Total number of participants or studies
η^2_p	Partial Eta Squared
NC levels	National Curriculum Levels
p	probability (significance of a test statistic)
r	Pearsons Correlation
SAS-TR	School Anxiety Scale – Teacher Rated
SCAS	Spence Children's Anxiety Scale
SCAS-P	Spence Children's Anxiety Scale parent version
SD	Standard Deviation
SENCO	Special Educational Needs Coordinator
t	t-test value
TSW	Therapeutic Story Writing
T1	Time point 1
T2	Time point 2
T3	Time point 3
WMTB-C	Working Memory Test Battery for Children
X^2	Chi squared test value

Chapter 1: Literature Review

Expressive writing interventions for children and young people: A systematic review and exploration of the literature

1.1 Introduction

There is a large and growing body of research documenting the beneficial effects of writing about "deepest thoughts and feelings" on a range of psychological and physical health outcomes (Frattaroli, 2006; Pennebaker, 1997, p.162). This type of writing is often referred to as expressive writing and was developed and popularised by Pennebaker and Beall in 1986. In a typical expressive writing intervention, participants are asked to write about their deepest thoughts and feelings about a personally stressful or traumatic event. Participants are instructed not to worry about their spelling or grammar and are asked to let go completely and explore their very deepest thoughts and emotions within their writing. Most expressive writing interventions involve participants writing continuously for 15-20 minutes a day, across three to five consecutive days. The main purpose of the intervention is to provide participants with the opportunity to identify and reflect on their thoughts and feelings about the stressful or traumatic event through their writing. All writing is confidential and participants are asked to submit their writing following each session (Pennebaker, 1997; Pennebaker & Beall, 1986).

1.1.1 Research on expressive writing interventions with adults

Since the introduction of the expressive writing paradigm, there has been a surge of research interest regarding the potential benefits of writing down deepest thoughts and feelings (Frattaroli, 2006). These studies have largely focussed on adult and university student populations and have documented the benefits of expressive writing interventions on a range of psychological and physical health outcomes, when compared to participants who write about non-emotional topics or non-writing control groups

(Smyth, 1998). Health-related outcomes have included: improved immune functioning, a reduction in visits to the doctor and fewer illness-related symptoms (Burton & King, 2004; Cameron & Nicholls, 1998; de Moor et al., 2002; Francis & Pennebaker, 1992; Hamilton-West & Quine, 2007; Lepore & Greenberg, 2002; Pennebaker & Beall, 1986; Pennebaker, Colder, & Sharp, 1990; Pennebaker, Kiecolt-Glaser, & Glaser, 1988; Petrie, Booth, Pennebaker, Davison, & Thomas, 1995). Psychological outcomes have included a decrease in levels of depression, aggression, anxiety, distress and improvements in subjective well-being (Barry & Singer, 2001; Baum & Rude, 2013; Goldman, Dugas, Sexton & Gervais, 2007; Gortner, Rude & Pennebaker, 2006; Kliewer et al., 2011; Lepore, Ragan, & Jones, 2000; Pennebaker et al., 1988; Schoutrop, Lange, Hanewald, Davidovich, & Salomon, 2002; Sloan & Marx, 2004; Soliday, Garofalo & Rogers, 2004). There is also a growing body of research demonstrating the impact of expressive writing interventions on academic performance. Several researchers have found that, asking college and university students to write about a stressful event or their worries regarding an upcoming exam, to be associated with exam performance or grade point averages that are significantly higher than the scores of the non-writing or non-emotional writing control groups (Cameron & Nicholls, 1998; Dalton & Glenwick, 2009; Klein & Boals, 2001; Lumley & Provenzano, 2003).

In addition to these studies, there have also been a number of meta-analyses exploring the effectiveness of expressive writing interventions. All have reported significant and positive average-effect sizes (Harris, 2006; Frattaroli, 2006; Frisina, Borod, & Lepore, 2004; Meads, Lyons, and Carroll, 2003; Smyth, 1998). The most recent meta-analysis, which examined the effects of 146 expressive writing studies on a range of psychological and health outcomes, found a positive and significant overall r-

effect size of .075 (Frattaroli, 2006). Although this could be considered to be a small effect size by standard conventions (e.g. Cohen, 1988), Frattaroli (2006) argues that it should still be considered meaningful and important as it is comparable to other reported effect sizes in related research domains and is of practical importance in terms of educational research (Lanahan, McGrath, McLaughlin, Burian-Fitzgerald, & Salganik, 2005).

Frattaroli's (2006) meta-analysis found that the expressive writing interventions were associated with improved psychological well-being (as measured by decreases in depression, anxiety and distress), as well as better immune functioning and fewer doctor visits. Effect sizes tended to be greater for studies which included participants who had a history of health problems or trauma and who were given the opportunity to disclose at home or in a private setting instead of a clinic. Greater gains were also observed for participants who wrote about a recent upsetting event that they had not previously disclosed. Interventions which employed three 15-minute writing sessions were found to be more effective than interventions that included less frequent or shorter writing sessions. Overall, Frattaroli (2006) concluded that writing about deepest thoughts and feelings about a traumatic or stressful event was "beneficial for one's psychological health, physical health and overall functioning" (p. 860).

1.1.2 Mechanism underlying expressive writing:

Although the beneficial effects of expressive writing for adults has been well documented within the research literature, the exact mechanisms by which expressive writing is beneficial is still under debate and there are many conceptual bases from

which to draw from when explaining its effects. Within the current literature, most researchers tend to draw upon one of the following three theories: inhibition, cognitive change and/or self-regulatory processes (Frattaroli, 2006; Sloan & Marx, 2004).

Early research regarding the effects of expressive writing often referred to the psychodynamic theory of inhibition (Pennebaker, 1989). Pennebaker (1989) theorised that the process of inhibiting thoughts and feelings regarding an upsetting event prevented an individual from working towards a resolution of their difficulties and was therefore detrimental for an individual's well-being. Support for the theory of inhibition was drawn from several research studies which found that repressing thoughts and feelings about a stressful or upsetting event to be associated with negative health outcomes (Schwatz, 1990; Pennebaker & O'Heeron, 1984). For example, Schwartz (1990) found that female breast cancer patients, who concealed their illness and inhibited their emotions about their illness, had higher re-occurrence rates and lower remission rates. Thus, it was hypothesised that encouraging such individuals to express their inhibited thoughts and feelings through writing, would reduce the negative outcomes associated with inhibiting such thoughts (Frattaroli, 2006; Pennebaker, Colder & Sharp, 1990).

However, more recent research has suggested that writing about thoughts and feelings not subjected to prolonged inhibition also produced beneficial effects and, as such, the theory of inhibition and its ability to explain the effects of expressive writing was called to question (Francis & Pennebaker, 1992; Greenberg, Wortman & Stone, 1996; Greenberg & Stone, 1992). For example, Greenberg and Stone's research (1992) with 60 healthy undergraduate students found that the health benefits associated with writing about thoughts and feelings about a severe trauma occurred regardless of

whether the trauma had been previously disclosed. In addition to this, Greenberg et al.'s (1996) research involving 97 college women, who had previously experienced a traumatic event, found that asking participants to write about a real or imaginary trauma was equally effective in reducing illness-related doctor's visits, when compared to non-emotional writing controls.

As a result, cognitive change theory was offered as an alternative theory to refer to when trying to understand the mechanisms that underlie expressive writing (Frattaroli, 2006; Pennebaker & Seagal, 1999). According to the cognitive change theory, writing about deepest thoughts and feelings enables individuals the opportunity translate their experiences into language and thus provides them with the opportunity to gain understanding and insight into the event and re-organise their thoughts and feelings to create a more meaningful and coherent narrative of their experience (Frattaroli, 2006; Pennebaker & Seagal, 1999). Research exploring the linguistic content of participants' writing revealed that individuals who created narratives with more causal words (e.g. "because; therefore; so") and insight words (e.g. "understand; realise; think") demonstrated the most gains, whereas those who did not benefit from the expressive writing intervention did not to show an increase in these types of words (Pennebaker, 1993; Pennebaker & Beall, 1986; Pennebaker & Francis, 1996). Pennebaker et al. (1997) argued that these linguistic changes reflected the cognitive processes associated with encoding and storing features of the experience in a more organised and coherent manner. Thus, these studies suggest that having the opportunity to create more causal-explanatory and emotionally disclosing narratives to be a critical component for facilitating well-being within the expressive writing paradigm.

However, although cognitive change theory was useful in explaining the findings of several studies, such as Greenberg and Stone's (1992), it did not necessarily explain the benefits associated with writing about an imaginary trauma in Greenberg et al. (1996) study. Nor did it help to explain the findings of other studies in which researchers found that writing about the benefits of a traumatic event to be just as effective as the traditional expressive writing paradigm (King & Miner, 2000). The beneficial effects of adapted/enhanced expressive writing interventions are currently being explained within the context of self-regulation theory (Lepore, Greenberg, Bruno & Smyth, 2002). Lepore et al. (2002) suggested that expressive writing interventions could be considered a mastery experience, in the sense that it provides the individual with the opportunity to observe themselves expressing and controlling their emotions. Thus, providing them with a new and increased sense of self-efficacy in their ability to regulate their emotions and identify strategies to cope with the stressful or traumatic event.

In summary, the exact mechanism by which expressive writing is beneficial is still under debate. Pennabaker (2004) has argued that expressive writing is a complex phenomenon and it is likely that there are multiple underlying mechanisms and interacting factors at play (Pennebaker, 2004). Thus, researchers have drawn upon a combination of these theories to understand the mechanisms that underlie expressive writing (Frattaroli, 2006; Pennebaker et al. 1997).

1.1.3 Research on expressive writing interventions with children and young people:

Despite the large body of evidence regarding the beneficial effects of expressive writing for adults, there is relatively little evidence regarding the effectiveness of expressive writing for children and young people. Of the research that is available,

there is some inconsistency regarding the effectiveness of expressive writing, with some researchers reporting beneficial effects (Soliday, Garafolo & Rogers, 2004) and other researcher's reporting null and in some cases, negative outcomes for the child (Fivush, Marin, Crawford, Reynolds & Brewin, 2007; Reynolds, Brewin & Saxton, 2000). Researchers have argued that the discrepancy in findings could be due to the age differences of participants and the ability of the child or young person to create a coherent and cohesive narrative on their own (Reynolds et al., 2000). Due to these developmental considerations, researchers have argued that it may not be possible to simply extrapolate findings from the adult literature and apply these directly to children and young people (Reynolds et al., 2000). Several researchers have also argued that expressive writing (in its current format) may be inappropriate for young children and should be approached with caution (Fivush et al., 2007; Reynolds et al., 2000).

Despite the limited evidence base regarding the effectiveness of expressive writing interventions for children and young people, these approaches are being widely used within schools. For example, 35 Local Authorities have introduced the therapeutic story writing programme, which is an example of an enhanced expressive writing intervention for primary school-aged children (www.therapeuticstorywriting.com). Thus, there is a clear need to review and explore existing research regarding the effectiveness of expressive writing interventions for children and young people, and clarify the conditions under which it could be implemented successfully. As far as the author is aware, there has not yet been a publication of a systematic search of the literature concerning the impact of expressive writing for children and young people.

1.1.4 Review questions

This review explored the literature regarding the effectiveness of expressive writing interventions for children and young people, in order to inform decisions regarding the appropriateness of this type of intervention for use with children and to identify next steps for development of effective intervention. The effectiveness of the intervention will be judged according to the extent to which the intervention is associated with improvements across psychological, health and/or academic outcomes.

To meet these aims the following questions are considered important:

1. Is expressive writing an effective intervention for children and young people?
2. Are there particular circumstances under which expressive writing is particularly effective or ineffective for children and young people?
3. How might the research into expressive writing inform future practice regarding the use of expressive writing interventions with children and young people?

1.2 Review methodology

1.2.1 Search Strategy

In January 2015, a systematic search was conducted in two electronic databases: PsycINFO via EBSCO (1980 – 2015) and Web of Science (1980-2015). The electronic databases were searched using a combination of the search terms summarised in Table 1. These search terms were generated by the author and were informed by key papers found during an initial literature search. As the initial literature search indicated that a

range of terms were being used to describe expressive writing interventions (e.g. creative writing, written communication, therapeutic writing), it was decided that the search terms used for the systematic search would need to be quite broad in order to ensure that papers were not missed.

Table 1: Search terms used for searching the electronic database.

Participant terms	**Intervention terms**	**Outcome terms**
Childhood (birth-12 years) School age (6-12 years) Adolescence (13-17 years)	Expressive writing OR creative writing OR written communication OR narrative therapy OR narratives OR story writing OR therapeutic writing.	Performance OR performance anxiety OR test anxiety OR anxiety OR well-being OR short-term memory OR achievement OR cognitive ability OR depression OR mental health OR emotional content OR emotions OR emotional states OR emotional development OR emotional trauma OR emotional adjustment OR emotionality OR self-expression OR behaviour problems OR health.

1.2.2 Inclusion and Exclusion criteria

Articles retrieved from the systematic search were screened according to the inclusion and exclusion criteria outlined in Table 2. Relevant checklists and guidelines, provided by the Critical Appraisal Skills Programme's (CASP, 2013 http://www.casp-uk.net), were also used to ensure that the articles selected for the literature review were of a good standard. Particular consideration was given to the participant sample and how groups were organised (e.g. use of control groups and allocation to groups), the validity and reliability of measures, research design and generalisability of the results. All studies were found to be of a good standard.

Table 2: Inclusion and Exclusion Criteria applied to articles

Study Item	Inclusion criteria	Exclusion criteria
Participants	Children and young people currently in full-time education, such as school or college.	Those who are not in full time education (e.g. part-time education, evening classes, full time employment). University students. Pre-school children.
Intervention	Expressive writing interventions that involve participants writing about their deepest thoughts and feelings about a stressful or upsetting event.	Writing tasks that do not involve writing about deepest thoughts and feelings about a stressful or upsetting event.
Design requirements	Studies that involve quantitative and/or qualitative methodology.	Review articles or brief reports.
Publication Requirements	Published in English Full-text access to articles published in peer-reviewed academic or professional journals.	Published in any language other than English. Book chapters, abstracts, dissertations, unpublished articles, conference presentations.

1.2.3. Reviewed articles

Articles were initially screened using the database's filters for language (English only), publication (peer review only), year (1980 to 2015) and age of participants (birth -17 years old). A total of 244 articles were retrieved from PsycINFO and 313 articles were retrieved from Web of Science (total = 557). After screening the article's titles and abstracts, according to the inclusion and exclusion criteria, 19 articles remained and were selected for the literature review.

A visual representation of the systematic search methodology employed in this review and articles retrieved is summarised in Figure 1. More in-depth information

regarding articles selected for the systematic review (e.g. authors, year of publication, participants, design, outcome measures and relevant findings) can be found in Appendix A.

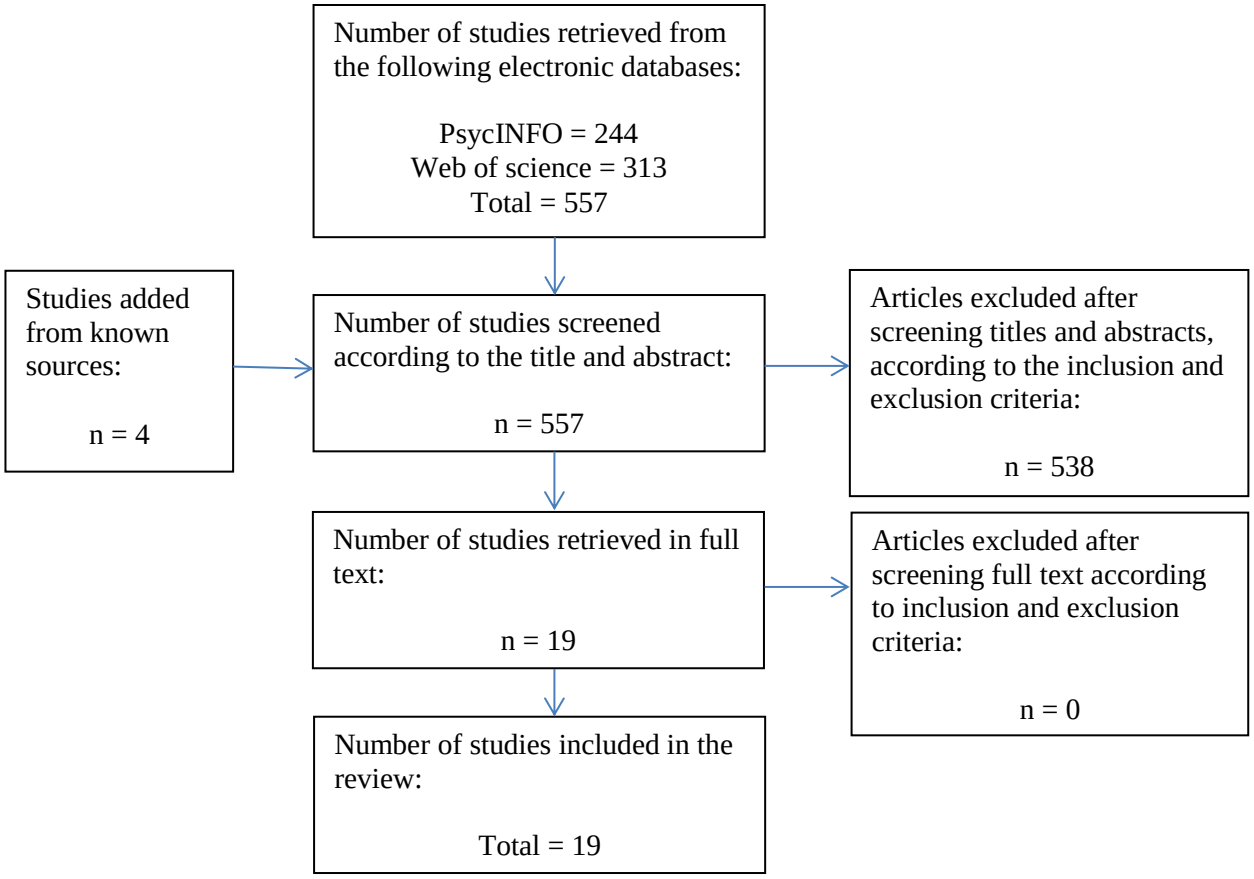


Figure 1: Flow chart detailing the results of the systematic search process and the application of the inclusion and exclusion criteria

1.3 Systematic review results

This review begins by describing some of the key features of the 19 studies, paying particular attention to research design and quality. In the next section of the review, each study is explored in more depth and the effectiveness of each expressive writing intervention is considered in terms of the extent to which the intervention is, or is not, associated with improvements across psychological, health and/or academic

outcomes for children and young people. This section is then followed by an exploration of the factors that may detract or contribute to intervention success and the implications of these findings with regards to intervention use. The final section will consider the appropriateness of the expressive writing intervention for children and young people, paying particular attention to the age of participants and the ability of the child or young person to create a coherent and cohesive narrative on their own. The author will also make suggestions regarding the development of effective intervention and identify next steps for research.

1.3.1 Study characteristics

All of the studies had been peer-reviewed and are therefore considered to be of a good standard. The majority of studies included a control group (n = 16), with most employing a randomised control design (n =14). Randomised control trails are often considered to be the 'gold standard' when evaluating the effects of interventions as it reduces the risk of selection bias by randomly distributing participant characteristics which may influence outcome variables across the groups and the use of a control group better enables the researcher to establish causation as comparisons can be made between the experimental group and the control group (Akobeng, 2005). Although three of the 19 studies did not include a control group, two employed a multiple baseline design instead (Bray et al., 2005; Bray, Theodore, Patwa, Margiano, Alric & Peck, 2003) and one study employed a mixed methods quasi-experimental design (Margola, Facchin, Molgora & Revenson, 2010). All of the studies also used two of more data sources to evaluate the intervention. The use of two or more different sources of data is often considered desirable, as it allows the researcher to compare different data sources and gain a more comprehensive understanding of the phenomenon under investigation. This

process of triangulation also enables the researcher to look for patterns amongst the different data sources, thus increasing confidence in the findings (Campbell & Fiske, 1959; Thurmond, 2001).

Most of the studies (n = 9) followed the standard expressive writing script outlined by Pennebaker (1997). The other studies adapted the standard expressive writing script in order to direct participants to write about their deepest thoughts and feelings in relation to a specific traumatic experience or stressful event. Five studies adapted the script to instruct participants to write specifically about their social circumstances and interpersonal relationships (Boniel-Nissim & Barak, 2013; Fivush et al., 2007; Giannotta, Settanni, Kliewer & Ciairano, 2009; Reynolds et al, 2000; Wong & Rochlen, 2009), two studies instructed participants to write about a violent incident that they may have witnessed (Parker et al., 2006; Kliewer et al., 2011), one study instructed the participants to write about the recent death of a classmate (Margola et al., 2010), one study asked participants to write about managing stress (Lumley & Provenzano, 2003) and one study asked participants to write about their worries relating to an upcoming exam (Frattaroli, Thomas & Lyubomirsky, 2011).

1.3.2 Impact of the expressive writing interventions:

In order to facilitate the evaluation of the effectiveness of the expressive writing interventions the outcome variables of the studies have been grouped into the following three categories: psychological, health and academic outcomes.

Psychological outcomes: Overall the research regarding the effects of expressive writing on psychological outcomes for children and young people was mostly positive,

with seven studies reporting beneficial effects (Boniel-Nissim & Barak, 2013; Kliewer et al., 2011; Margola et al., 2010; Parker et al., 2006; Soliday et al, 2004; Stice et al., 2006; Wong & Richlen, 2009). However, two studies reported insignificant findings (Gallant & Lafreniere; 2003; Reynolds et al., 2000) and two studies reported a mix of significant and insignificant findings (Fivush et al., 2006; Giannotta et al., 2009).

Soliday et al. (2004) study of 106 secondary school-aged children and Wong and Rochlen's (2009) study of 158 male college students reported positive findings. In both studies, the expressive writing intervention was associated with a decrease in measures of psychological distress when compared to the scores of participants who wrote about non-emotional topics or non-writing control groups. The expressive writing intervention was also found to be beneficial for young people who had been exposed to violence. Parker et al. (2006) study of 15 female adolescents who had been exposed to domestic violence, found that participants in the expressive writing group reported a significant increase in positive emotion ratings following the writing intervention. Similarly, Kliewer et al. (2011) study of 258 12-13 year old children living in high-violence urban neighbourhoods, found that those who participated in the expressive writing condition had lower levels of teacher-rated aggression and lability in comparison to controls and these effects were maintained two months following the intervention.

The benefits of the expressive writing intervention were also found in studies which pre-selected participants of the basis of them having or being at risk of developing social, emotional and mental health difficulties. In Boniel-Nissim and Barak (2013) study of 161 adolescents (M = 15.5 years old) who were experiencing social and emotional difficulties, the expressive blogging interventions were associated with a

reduction in distress. Stice et al. (2006) also found beneficial effects for participants aged between 14 to 19 years old with body dissatisfaction, in which the expressive writing condition showed significantly greater reductions on thin-ideal internalisation from pre-test to 6-month follow-up and on bulimic symptoms from pre-test to 1-year follow-up relative to assessment-only controls.

Researchers also provided support for the beneficial effects of expressive writing interventions at a whole class level. In Margola et al. (2010) study, a class group of 20 students (*M* = 15 years old) were invited to participate in an expressive writing intervention following the death of a classmate. Linguistic analysis of the participants' content of writing suggested that the participants writing changed across the three writing sessions. On the first day of writing participants tended to adopt a more factual perspective of the event, describing the context and facts surrounding the death. By the second and third writing session the participants began to write less about the death and more about the meaning of the event and increased emotional processing, with an increased use of positive emotion words. Participants' writing was also more future-orientated and included more references to coping with everyday life.

By contrast, studies that included both secondary and primary-aged children were less consistent. Reynolds et al. (2000) research of 191 8-13 year olds and Gallant and Lafreniere's (2003) study of 53 10-17 year old children, who self-identified as children of alcoholics, found that the writing groups did not differ significantly across assessment measures following the intervention. Similarly, Giannotta et al. (2009) research of 153 secondary school aged children (*M* = 12.24 years old) found the expressive writing intervention not to be successful in reducing internalising or post-

traumatic stress symptoms. However, the expressive writing intervention in Giannotta et al. (2009) was associated with an increase in the use of positive cognitive reframing coping strategies which suggests that, although participants' scores across measures of post-traumatic stress and internalising symptoms did not change, there had been a change in participants coping style as a results of the intervention.

Interestingly, Fivush et al. (2006) study, which further analysed the original diaries produced by the children in Reynolds et al. (2000), also found differences in participants' coping styles according to writing group. Linguistic analysis of the content of 112 primary and secondary school aged (8-13 years old) children's writing in Fivush et al. (2006) study found that participants who were in the expressive writing group wrote more about negative evaluations, problems, emotions, explanations and coping than children in the non-emotional writing group. The more children wrote about negative evaluations and problems, the greater their levels of anxiety and depression were. However, the more children wrote about coping, the lower their subsequent levels of anxiety and depression were.

Health related outcomes: Four studies explored the effects of expressive writing for children and young people currently experiencing health-related difficulties, such as chronic asthma (Bray et al., 2003; Bray et al., 2005; Warner et al., 2006) or serious physical illness (Taylor et al., 2003). All of these studies reported a range of health-related benefits ranging from a reduction in health related symptoms and hospital visits to increases in health-related functioning (Bray et al., 2003; Bray et al., 2005 Warner et al., 2006). Furthermore, Warner et al. (2006) study of 50 adolescents (12-17 year olds) with asthma also found that those who wrote about stressful events reported more positive affect and fewer internalising behaviours at follow up, when compared to

participants who wrote about neutral topics. A reduction in anxiety as a result of the expressive intervention was also observed in Bray et al. (2003) research involving five participants (*M* = 15.5 years old) with chronic asthma.

Academic outcomes: Three studies explored the impact of expressive writing interventions on outcomes related to academic performance (Frattaroli et al., 2001; Klein & Boals, 2001; Lumley & Provenzano, 2003). Frattaroli et al. (2011) study of 104 students (*M* = 20.98 years old) about to take entrance exams, found that getting students to write about their deepest thoughts and feelings about the upcoming exam significantly improved their entrance exam performance when compared to a non-emotional writing control group. Similarly, Lumley and Provenzano's (2003) study of 74 college students (*M* = 19.5 years old*)* who scored highly on the somatic symptom checklist, found that asking students to write about their general life stress was associated with better grades in the subsequent semester. These effects were also significant when compared to non-emotional writing controls and the improvements in grades for the expressive writing group were maintained in the following semester. The researchers also found the expressive writing interventions to be associated with a range of psychological well-being outcomes, such as a significant reduction in depressive symptoms shortly before the exam (Frattaroli et al., 2011) and improved mood after the first and last writing session (Lumley & Provenzano, 2003).

In addition to better grade point averages, Klein and Boals' (2001) study of 35 college students (*M* = 18.5 years old) found evidence to suggest that the expressive intervention was also associated with working memory gains. They found that participants who were asked to write about their thoughts and feelings about coming to

college demonstrated larger working memory gains at seven weeks when compared to those who wrote about a trivial topic or a positive experience. The increases in working memory were also associated with increases in grade point averages for the expressive writing group.

1.3.3 Factors that may detract or contribute to intervention success

Participants' age: The majority of studies that reported reporting beneficial effects of expressive writing interventions recruited secondary school or college aged participants (n = 16). Whereas the three studies that reported insignificant findings tended to involve a mixture of primary and secondary aged participants and therefore had much younger children within their participant samples (e.g. Fivush et al., 2006; Gallant & Lafreniere 2003; Reynolds et al., 2000). There is some evidence to suggest that the different age groups may have responded differently to the intervention and this may in part explain some of the discrepancies amongst the research studies and this will be discussed at length during the discussion section.

Selection of participants: The majority of studies which pre-selected participants on the basis of them having a pre-existing health condition or who were considered to have, or be at risk of, social, emotional and/or mental health difficulties reported beneficial effects; and there was some evidence to suggest that the expressive writing intervention was particularly effective for these groups. For example, Warner et al. (2006) found that participants who reported higher levels of functional disability and who had higher baseline scores on asthma symptoms prior to the intervention, were found to benefit the most from the expressive writing. Similarly, Kliewer et al. (2011)

also found that youth living in communities with higher levels of violence benefited the most from the expressive writing intervention.

This suggests that the expressive writing intervention was particularly beneficial for participants with pre-existing health or psychological well-being needs. This is consistent with the finding of Frattaroli's (2006) meta-analysis in which the greatest effect sizes were observed for studies in which participants had known health or psychological well-being needs. Frattaroli (2006) suggest that participants with a pre-existing health or psychological need or a history of trauma may have more to disclose and are therefore more likely to benefit from participating in an intervention that provides them with an opportunity to express and make sense of their thoughts and feelings around these experiences.

Length of intervention: The majority of the studies within this review followed the standard three 15 minute writing sessions across three consecutive days. This is in line with the recommendations from Pennebaker (1997) and findings from Frattaroli's (2006) meta-analysis which suggest that adults require a minimum of 15 minutes of writing across three writing sessions in order to benefit from the expressive writing intervention. However there was some evidence to suggest that three fifteen minute writing sessions may not be sufficient for primary school-aged children. Studies involving primary school-aged, such as Fivush et al. (2006) and Reynolds et al. (2000), found that the content of children's writing did not vary greatly across the three writing sessions. This suggests that the three writing sessions may not have been sufficient to facilitate cognitive change for younger children and that primary school-aged children may require more time to process stressful experiences.

Interestingly, several of the studies that reported beneficial effects were also found to have included more writing sessions over time (Boniel-Nissim & Barak, 2013; Kliewer et al., (2011). For example, Boniel-Nissim and Barak (2013) asked participants to submit at least two blogs per week for ten weeks and Kliewer et al, (2011) asked participants to complete eight writing sessions across a five week period.

Intervention instructions: There is also some evidence to suggest that intervention instructions may have an impact on the content of participants' writing and how they respond to the intervention. In some of the studies, participants were instructed to write about the same topic across all three writing sessions and were instructed not to switch topics (Margola et al., 2010; Warner et al., 2006), whereas in other studies participants were told that they could switch between topics across the writing sessions (Fivush et al., 2006; Reynolds et al., 2000). Frattaroli (2006) suggested that being given the option to switch topics across writing sessions may have compromised the participants' ability to form a coherent story and may have therefore reduced the effectiveness of the intervention.

Some of the studies also included an enhanced expressive writing condition, in which the standard expressive writing script was adapted to encourage participants to think or write in a certain way (Facchine t al., 2014; Kliewer et al., 2011; Parker et al., 2006). For example, in Facchin et al. (2014) study of 201 secondary school-aged students, participants were randomly allocated to one of three writing conditions: standard expressive writing, benefit-focused expressive writing or factual writing (control group). They found that altering the writing instructions did have an impact on the content of participants' writing and associated outcomes. Linguistic analysis of the participants' writing content suggested that those in the expressive writing condition

used more negative emotion words, whereas those in the benefit-finding group used more positive emotion words. Overall, the benefit-focused group demonstrated the greatest gains in terms of academic self-concept relative to the standard expressive writing group and the control group. This suggests that adapting the expressive writing instructions, in order to encourage participants to reflect on their experience and draw out the positives, could represent a useful development for expressive writing interventions.

Intervention integrity: The majority of studies did use linguistic software to check the content of the participants' writing. Most of the researchers found that participants did adhere to the intervention instructions and wrote about their subject accordingly (i.e. control groups wrote about non-emotional events and that experimental groups wrote about emotional events). However, it is worth noting that in the Reynolds et al. (2000) study, which reported insignificant findings, analysis of the content of the children's writing revealed that several of the children in the non-emotional writing control group wrote about emotional issues and several of the children in the expressive writing group wrote about non-emotional issues. This suggests that something went wrong during the delivery of instructions as the children did not consistently write according to the instructions that they had been given. Further analysis of the instructions given to the control group also suggests that these instructions may not have been as neutral as the researchers had initially intended. Although the non-emotional writing group were instructed to write about the facts of their day, they were not explicitly told to exclude emotional words. They were also given an example of Anne Frank's diary, which may have inadvertently set an expectation that they should write about their thoughts and

feelings like Anne Frank did. This could in part explain why the control group also benefited from the intervention.

Evaluation time points: Several of the studies administered the assessment measures shortly after the last writing session (Fivush et al., 2007; Giannotta et al., 2009), whereas other interventions built in much longer follow-ups, assessing participants several months after the last writing session (Boniel-Nissim & Barak, 2013; Facchin et al., 2014; Klein & Boals, 2001). For example, Klein and Boals (2001) included an eight week follow-up and found that the greatest effects of the expressive writing intervention were found at this time point. Interestingly, both Smyth (1998) and Frisina et al. (2004) meta-analyses excluded studies with a follow-up period shorter than one month due to concerns regarding the short-term impact of disclosing a stressful event on participant mood. Several of the studies that have reported some insignificant findings have reflected on the evaluation time points and the possibility that the post-test follow-up may not have been long enough to track the changes associated with the intervention (Fivush et al., 2006; Giannotta et al., 2009; Reynolds et al., 2000). This suggests that effects of expressive writing may need time to manifest and therefore the differences in evaluation time points could also be another factor to consider when analysing discrepancy in findings.

1.4 Discussion of findings from the systematic search

Overall, research regarding the effectiveness of expressive writing interventions for secondary school- or college-aged participants was largely positive, with the majority of studies reporting beneficial effects (Boniel-Nissim & Barak, 2013; Bray et al., 2003; Bray et al., 2005; Facchin et al., 2014; Frattaroli et al., 2011; Giannotta et al.,

2009; Klein & Boals, 2001; Kliewer et al., 2011; Lumley & Provenzano, 2003; Margola et al., 2010; Parker et al., 2006; Soliday et al., 2004; Stice et al., 2006; Taylore et al., 2003; Warner et al., 2006; Wong, & Rochlen, 2009). The existing research and theory (i.e. cognitive change theory) suggests that writing down deepest thoughts and feelings provides the individual with the opportunity to translate their experiences into language and thus provides them with the opportunity to gain understanding and insight into the event and re-organise their thoughts and feelings to create a more meaningful and coherent narrative of their experience (Frattaroli, 2006; Pennebaker & Seagal, 1999). The results of studies involving secondary school or college aged participants included in the current review were consistent with this view. For example, both Klein and Boals (2001) and Warner et al. (2006) study of secondary school or college aged participants found that the most gains were made by participants whose writing included more cognitive insight and causal words. Thus, the creation of a more causal-explanatory and emotionally disclosing narrative can be viewed as a critical component of the intervention if it is to facilitate well-being.

However, studies that involved younger participants (i.e. primary school-aged) were not as consistent, with several studies reporting insignificant findings (Fivush et al., 2006; Gallant & Lafreniere, 2003; Reynolds et al., 2000). Reynolds et al. (2000) were some of the earlier researchers to explore the effectiveness of expressive writing interventions for primary school aged participants and they were also some of the first researchers to suggest that this intervention may not be effective for young children. Fivush et al. (2006) later re-evaluated the original diaries collected by Reynolds et al. (2000) and conducted an in-depth analysis of the content of the children's writing.

Linguistic analysis of the content of the children's writing revealed that the children in the expressive writing group, who included more descriptions and explanations regarding the stressful experience and who used more negative evaluations of others, subsequently showed higher levels of depression and anxiety compared to their baseline scores before writing. These findings suggest that that the expressive writing intervention could actually be detrimental for young children whose narratives involve this type of content.

Analysis of differences in the key features of studies that reported significant and insignificant findings suggests that discrepancy in findings could be due to the age differences of participants and the ability of the child or young person to create a coherent and cohesive narrative on their own. Linguistic analysis of participants' writing in Fivush et al. (2006) study, which included primary and secondary school aged children, found that the writing of the younger children (i.e. the primary school-aged children) tended to be shorter than that of older children (i.e. the secondary school aged children). The younger children tended to switch topics frequently and few wrote about the same negative event across writing sessions. Thus, few of the young children created coherent or causally explanatory narratives of the stressful experience (Fivush et al., 2006; Reynolds et al., 2006). Similarly, Gallant and Lafreniere's (2003) whose study also included primary school aged children found that although the expressive writing group did use more cognitive insight and causal related words, when compared to the control group, the number of cognitive insight and causal words did not differ from the first to the third writing session. This suggests that writing about the stressful experience did not help these children to shift their appraisal of the stressful event, nor

did they create more causal explanatory frameworks across writing sessions to help them to cope with the stressful experience over time.

Fivush et al. (2006) also found that children within the expressive writing group did not always explore or incorporate more adaptive strategies for coping with the stressful or traumatic experience. Of the few children who did try to incorporate coping strategies within their writing, these were not always the most adaptive strategies and tended to focus on avoiding the stressful situation (e.g. avoiding bullies) or soliciting the support an adult (e.g. telling a teacher about the bully). This suggests that the expressive writing intervention did not help young children to find more adaptive coping strategies either.

Instead, Fivush et al. (2006) research suggests that asking young children to write about stressful experiences increases the child's awareness of the stressful situation and provides no coherent explanatory framework to alleviate this distress. Although the adult literature has also found that adults often experience heightened levels of distress immediately after the expressive writing intervention, this distress then dissipates quite quickly in follow up measures (Pennebaker, 1997). This suggest that although the adults can also find writing about the stressful events distressing in the short-term, they do then seem to be able to use the expressive writing intervention to help create meaningful narratives that enable them to better cope with the aversive emotions towards the stressful experience in the longer-term. However, young children do not demonstrate this same pattern and do not seem to be able to be able to use the expressive writing intervention in a way that enables cognitive change in order for them to then benefit from the intervention in the long term (Fivush et al., 2006).

Previous research has found that children's narrative skills are still developing well into middle childhood (7-11 years old). Although young children are often able to recall an event in a simple chronological sequence, it is not until they get a bit older that they are able to move back and forth within a sequence and provide more causal explanations for how and why specific events may have occurred (Fivush & Haden, 1997; Trabasso & Rodkin, 1994; Van der Broek, 1997). Additionally, it is not until late childhood/early adolescence that children really begin to understand and explain events through drawing upon the intentions and motivations of themselves and others (Fivush & Haden, 1997; Trabasso & Rodkin, 1994). Habermans and Bluck (2000) have argued that the ability to construct complex causal sequences about an event, whilst referencing the human intentions and motivations that underlie the event, is often what underpins a more cohesive, casually linked and emotionally disclosing narrative and these abilities are still developing in middle childhood and continue to develop into adolescence. This suggests that young children may not yet have developed the narrative skills needed to engage with the expressive writing intervention and create a more casually-explanatory and emotionally disclosing narrative. As such, if children do not have the narrative skills needed to be able to access the intervention in a way that means that they can benefit from it, then the intervention could be considered to be inappropriate in its current format.

1.5 Conclusions and recommendations for future research

Overall, the majority of research exploring the impact of expressive writing interventions with secondary school-aged or college-aged participants has reported promising findings, with 16 of the 19 studies reporting beneficial effects on a range of health, psychological well-being and academic outcomes (Boniel-Nissim & Barak,

2013; Bray et al., 2003; Bray et al., 2005; Facchin et al., 2014; Frattaroli et al., 2011; Giannotta et al., 2009; Klein & Boals, 2001; Kliewer et al., 2011; Lumley & Provenzano, 2003; Margola et al., 2010; Parker et al., 2006; Soliday et al., 2004; Stice et al., 2006; Taylore et al., 2003; Warner et al., 2006; Wong, & Rochlen, 2009). These studies are therefore considered to be consistent with the adult research literature, which has documented the beneficial effects of expressive writing interventions for adult and university student populations (Frattaroli, 2006). Expressive writing interventions are therefore considered to be an appropriate intervention for secondary school and college-aged participants.

By contrast, research regarding the effectiveness of expressive writing interventions for younger age groups (i.e. primary school-aged children) is still under debate and should be approached cautiously. Two studies reported insignificant findings (Gallant & Lafreniere 2003; Reynolds et al., 2000) and two studies reported a mix of significant and insignificant findings (Fivush et al., 2006; Giannotta et al., 2009).

However, this is not to say that the expressive writing approach cannot be adapted to meet the needs of younger children. There is evidence to suggest that children and young people may benefit from the opportunity to receive feedback on their writing and the provision of adult support to develop more causally coherent and emotionally expressive narratives. For example, there is some research which suggests that narratives that have been co-constructed by a mother and her young child about stressful or traumatic experience include more emotion and explanation and the children demonstrated fewer internalising and externalising symptoms, as well as more flexible coping strategies (Fivush & Sales, 2006; Sales & Fivush, 2005). These findings suggest

that children may benefit from support to create more causally coherent and emotional expressive narratives and more effective coping strategies. When considering the implications of narrative development, in accordance with age, young children may need the narrative process to be scaffolded by a more competent adult in order to create narratives that facilitate cognitive change and increase coping and well-being (Fivush et al., 2006; Fivush & Sales, 2006).

Thus, future research should consider exploring the effectiveness of a longer and more guided expressive writing intervention in which children and young people are supported by an adult during the writing process to help them to create a more causally explanatory framework for understanding the stressful or traumatic experience over time. Young children may also benefit from initial training on how to write more coherent narratives in order to ensure that they get the most out of the intervention.

This review also suggests that children and young people may benefit from specific instructions, in which they are encouraged to write about the same stressful or traumatic experience across writing sessions and to write in a manner that facilitates the development of a causally explanatory framework. Participants with pre-existing health or psychological well-being needs are also more likely to benefit from the intervention. Therefore, researchers should consider pre-selecting children and young people on the basis of their mental or physical health history.

An example of an expressive writing intervention that has been specifically developed for primary school aged children is therapeutic story writing (Waters, 2008). Therapeutic story writing is a 10 week targeted expressive writing intervention designed to support primary school-aged children who have social, emotional and/or mental

health needs. Although the therapeutic story writing programme is an example of an expressive writing intervention, it has been adapted in many ways to better suit the needs of younger children. Firstly, unlike expressive writing interventions, therapeutic story writing promotes and utilises the benefits of discussing emotional events or experiences through story metaphor. The children are encouraged to project their worries onto story characters and use story metaphor to explore their worries. Discussion about the story and the emotionally aspects of the story are always kept within the story metaphor so not to expose or overwhelm the child by the lived experience of the trauma or strong emotion (Waters, 2008). Researchers have suggested that the metaphor employed in story writing provides a medium through which children can explore significant feelings, reflect on their experiences and explore different scenarios and ways of solving the problem without becoming overwhelmed by their emotions or the traumatic experience (Cattanach, 1994; Nicholson, Irwin & Dwivedi, 2010; Riordan, 1996; Waters, 2008). The children are also encouraged to share their stories with the adult and their peers and the adult actively encourages discussion about the emotional literacy aspects of the story (e.g. how particular story characters may be feeling) and different ways in which the emotional dilemma could be resolved (Waters, 2008).

Another key element of therapeutic story writing and another way in which it differs to expressive writing is the adult story. Each session, the adult will also write a story often exploring an emotional issue pertinent to the group (e.g. anxiety). Through the adult story the adult might also offer potential strategies for dealing with the experience or emotion and model the use of such strategies through the story characters. Thus, the therapeutic story writing approach represents a good example of a more

guided expressive writing intervention in which adults and peers are on hand to support the child to create more causally explanatory and emotionally disclosing narratives of the stressful or traumatic experience and identify more appropriate coping strategies. There is a growing body of research exploring the impact of therapeutic story writing on children's well-being, with several studies reporting positive results (Bachelor, Murray, Warhurst & Maclean, 2013; Harris, 2013; Waters, 2008). However much of this research is not yet published and has not been subject to peer-review. Thus there is a great need to explore this type of expressive writing intervention with more rigorous design methodology and to consider these findings with regards to the wider research literature concerning the effectiveness of a modified expressive writing intervention for primary school-aged children.

Chapter 2: Empirical Paper

An exploration of the therapeutic story writing intervention as a means of reducing anxiety and enhancing working memory and the academic attainment of anxious children.

2.1 Introduction

Anxiety has been found to be one of the most common mental health problems in childhood, affecting around five to 10% of children and young people (Bernstein & Borchardt, 1991; Costello, Egger & Angold, 2004; Rapee, Schniering & Hudson, 2009; Tracey, Chorpita, Douban, & Barlow, 1997). Although a certain degree of worry or anxiety can be viewed as a normal part of child development, for some children their anxieties can become so chronic and persistent that they have debilitating effect on their lives (Essau & Ollendick, 2013; American Psychiatric Association, 2013). If left unsupported, childhood anxieties can continue into adolescence and adulthood and can lead to an anxiety disorder (Mesman & Koot, 2001; Ollendick & King, 1994; Woodward & Fergusson, 2001).

The current classification system (DSM-5) makes a clear distinction between 'normal' and 'abnormal' levels of anxiety, based on the severity and persistence of the worries and the impact of the anxiety on the individuals functioning and well-being (American Psychiatric Association; APA, 2013). The DSM-5 (APA, 2013) criteria for a generalised anxiety disorder are as follows:

> (1) Excessive anxiety and worry (apprehensive expectation), occurring more days than not for at least 6 months, about a number of events or activities (such as work or school performance), (2) the individual finds it difficult to control the worry, (3) the anxiety, worry, or physical symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning, (4) the disturbance is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication) or another medical condition (e.g.,

hyperthyroidism), (5) the disturbance is not better explained by another mental disorder. For children, the anxiety and worry are associated with one (or more) of the following six symptoms (with at least some symptoms having been present for more days than not for the past 6 months): (1) Restlessness or feeling keyed up or on edge, (2) being easily fatigued, (3) difficulty concentrating or mind going blank, (4) irritability, (5) muscle tension, (6) sleep disturbance (difficulty falling or staying asleep, or restlessness, unsatisfying sleep).

2.1.1 Anxiety and school performance:

As well as disrupting children's emotional well-being, childhood anxiety has also been associated with poorer educational outcomes (Davis, Ollendick & Nebel-Schwalm, 2008; Mazzone, Ducci, Scoto, Passaniti, D'Arrigo & Vitiello, 2007; Richards & Hadwin, 2011; Owens, Stevenson, Norgate, & Hadwin, 2008; Putwain, 2008). A number of researchers have explored the relationship between anxiety and educational underachievement and as such, the relationship between childhood anxiety and educational underachievement is considered to be well-established within the research literature (Davis et al., 2008; Mazzone et al., 2007; Owens et al., 2008; Putwain, 2008; Seipp, 1991; Woodward & Fergusson, 2001). For example, Mazzone and colleagues (2007) found a statistically significant association between high levels of child-reported anxiety and poorer academic performance in their sample of 478 children between the ages of eight to 16 years old. Similarly, Putwain (2008) found elevated levels of child-reported test anxiety to be associated with lower GSCE grades in their sample of 558 students between the ages of 15-16 years old.

2.1.2 Processing Efficiency Theory:

In order to understand the link between anxiety and academic performance, Eysenck and Calvo (1992) developed Processing Efficiency Theory. An important element of Processing Efficiency Theory is the distinction between effectiveness and efficiency. Effectiveness refers to an individual's competence level; whereas efficiency concerns itself with the degree of effort that the individual has exerted to complete the task. The model argues that state anxiety will increase when individuals with heightened trait anxiety are faced with a stressful situation. As state anxiety increases, worries related to evaluation and performance lower the number of cognitive resources available to complete tasks efficiently.

More recently, Processing Efficiency Theory has been integrated with Attentional Control Theory (Eysenck, Derakshan, Santos, & Calvo, 2007). Attentional Control Theory proposes that anxiety impairs the efficient functioning of the goal-directed attentional system and in turn, increases the extent to which processing is influenced by the stimulus-driven attentional system. In both models, working memory represents a specific mechanism that could potentially underpin the effect of anxiety on educational outcome. Working memory has been defined as the ‘‘processes that are involved in the control, regulation, and active maintenance of task-relevant information in the service of complex cognition" (Miyake & Shah, 1999 p. 450). Researchers have argued that worrisome thoughts can consume the limited attentional resources of working memory. Thus, with a limited capacity to perform working memory operations, task efficiency is reduced and greater amounts of effort or time are required to achieve typical levels of performance on cognitive tasks.

Research with adults (Derakshan & Eysenck, 1998; Elliman, Green,Rogers, & Finch, 1997; MacLeod & Donnellan, 1993) and children (Aronen, Vuontela, Steenari, Salmi, & Carlson, 2005; Hadwin, Brogan, & Stevenson, 2005; Ng & Lee, 2010) has been consistent with the Processing Efficiency/Attention Control Theory framework. For example, Aronen et al. (2005) found negative links between performance on working memory tasks with anxiety and academic ability in their sample of 55 six to 13-year-old children. Furthermore, the association between anxiety and academic performance in school-aged children has been found to be mediated (Owens et al., 2008) or moderated by working memory (Ashcraft & Krause, 2007; Owens, Stevenson, Hadwin & Norgate, 2012).

More specifically, the adverse effects of worry are predicted to be more acute for processes involving verbal working memory, as worry typically involves inner verbal activity rather than imagery (Rapee, 1993). In their study of 30 children aged 9-10 years old, Hadwin et al. (2005) found that the high state anxious group were less efficient on verbal working memory tasks, both in terms of increased mental effort and time taken to complete tasks, than their less anxious peers. However, there was no difference in effort, time taken, or in overall performance on the spatial working memory task between the low and high anxious groups.

2.1.3 Expressive writing interventions:

There is a growing body of research regarding the potential of expressive writing interventions as a means of reducing worry and in turn enhancing working memory capacity and academic performance (Klein & Boals 2001; Ramirez & Beilock, 2011; Yoga & Fujihara, 2008). These interventions are of great interest to educationalists and

researchers who are interested in the development of interventions that could reduce worry in anxious children, in order to relieve the verbal working memory capacity needed for cognitively demanding tasks at school.

Ramirez and Beilock (2011) investigated the effects of a brief expressive writing intervention on exam performance with a school-aged sample of 14-15 year olds. They found that writing about test-specific worry prior to an exam boosted test performance and this effect was particularly evident for those students who were habitually anxious. The authors suggested that writing about exam worries may have alleviated the burden that these worries were placing on working memory, thus freeing cognitive resources needed for the exam. However, the authors of this study did not include a formal measure of working memory and therefore these working memory gains were only speculative.

In Klein and Boals' (2001) study, 35 undergraduate students were asked to complete three expressive writing sessions, which each lasted for 20 minutes and occurred over a two week period. The researchers found that students, who were assigned to write about their deepest thoughts and feelings about a negative personal experience, demonstrated greater working memory gains (as measured by standardised assessments) and a decline in intrusive thinking, when compared to students who wrote about positive experiences or trivial topics. The increases in working memory were also associated with increases in grade point averages for the expressive writing group.

According to the cognitive change theory, writing about deepest thoughts and feelings enables individuals to translate their experiences into language and thus provides them with the opportunity to gain understanding and insight into the event and re-organise their thoughts and feelings to create a more meaningful and coherent

narrative of their experience (Frattaroli, 2006; Pennebaker & Seagal, 1999). Support for the cognitive change theory comes from studies in which researchers have analysed the content of participants' writing. Researchers found that individuals who created narratives with more causal words (e.g. "because; therefore; so") and insight words (e.g. "understand; realise; think") demonstrated the most gains across psychological and physical health outcomes, when compared to those who did not show an increase in these type of words (Pennebaker, 1993; Pennebaker & Beall, 1986; Pennebaker & Francis, 1996).

Linguistic analysis of participants writing in Klein and Boals' (2001) study was also consistent with the cognitive change theory, as the working memory improvements observed for participants who wrote about a negative personal experience, were linked to an increase in the use of cause and insight words and reduction in intrusive thinking. Thus, these linguistic changes reflect the cognitive processes associated with encoding and storing features of the experience in a more organised and coherent manner. This reduction in thinking or worrying about the emotional experience is then thought to relieve the working memory capacity needed for cognitive tasks (Klein & Boals, 2001).

The findings that writing about emotional events could alleviate the burden that worries place on working memory has important implications for addressing the underachievement of anxious children. The research discussed so far suggests that anxious children may underperform at school because their worrisome thoughts reduce the capacity of their verbal working memory (Eysenck et al., 2007; Hadwin et al., 2005; Ng & Lee, 2010). Based on the assumptions of Processing Efficiency Theory/Attentional Control Theory and the cognitive change theory, educational

outcomes of anxious children could be improved by interventions (such as expressive writing) that aim to alleviate anxiety and in turn enhance working memory capacity needed for cognitively demanding tasks at school.

2.1.4 Therapeutic Story Writing:

An example of an expressive writing intervention appropriate for young children is therapeutic story writing. Therapeutic story writing is a ten-week targeted expressive writing intervention which was designed to support pupils in Key Stage 2 who have social, emotional and/or mental health needs. The model employs the medium of story writing to enable pupils to address emotional issues, which may be having an impact on their learning (Waters, 2004). Each week pupils are encouraged to write stories in which they project their own worries and concerns onto story characters and explore potential strategies for coping with this emotion or experience. The children are also encouraged to share their stories with the group at the end of the writing session. Both the adult and other children within the group make suggestions about how the emotional dilemma could be resolved, thus providing the children with the opportunity to receive feedback on their story and increasing the range of potential coping strategies that they could utilise (Waters, 2008). The adult also writes a story each week, which is often centred on an emotional issue pertinent to the group (e.g. anxiety). Through the medium of the story the adult also makes suggestions about potential strategies to deal with the emotion or experience and models the use of this strategy through the characters in the story.

Researchers have suggested that the metaphor employed in story writing provides a medium through which children can explore significant feelings, reflect on their experiences and explore different scenarios and ways of solving the problem

without becoming overwhelmed by their emotions or the traumatic experience. It also provides the child with the opportunity to gain understanding and insight into their feelings and the events that may lead them to feel this way (Cattanach, 1994; Nicholson, Irwin & Dwivedi, 2010; Riordan, 1996; Waters, 2004). A small number of studies have demonstrated the positive impact of school-based therapeutic story interventions for children (Bachelor, Murray, Warhurst & Maclean, 2013; Harris, 2013; Waters, 2008). Harris (2013) conducted a rigorous evaluation of therapeutic story writing, with 42 participants aged between nine and 11 years old. The researcher found a significant effect of the therapeutic story writing intervention on participating pupils' emotional vocabulary, use of complex feelings words and sense of belonging at post-test and follow-up.

Researchers have also documented the positive impact of therapeutic story writing on participating children's attainment in reading and writing (Bachelor et al., 2013). In Bachelor et al. (2013) research of 103 forces children, the therapeutic story writing intervention was not only associated with an improvement in measures of social-emotional well-being (e.g. Strengths and Difficulties questionnaire) but significant improvements in reading and writing attainment were also observed. Unfortunately the Bachelor et al. 2013 study, did not involve a control group. Therefore the researcher's ability to establish causation between the intervention group and observed outcomes is very difficult, as comparisons between the intervention group and the control group cannot be made. Nonetheless, the research so far is promising and warrants further investigation with more rigorous design methodology.

2.1.5 Purpose of the present study

The theories and research discussed so far suggest that therapeutic story writing could be particularly beneficial for children whose anxiety is interfering with their learning, as it provides them with an opportunity to explore and write about some of their worries (Waters, 2008). As such, therapeutic story writing could afford anxious children the opportunity to explore their worries in a manner that reduces anxiety and thus, frees up the working memory resources needed for cognitively demanding tasks at school.

2.1.6 Research questions and hypothesis

This research therefore explored the potential of therapeutic story writing as a means of reducing anxiety, alleviating working memory capacity and improving the academic attainment of anxious children. As far as the researcher is aware, there has not yet been any research evaluating the effectiveness of therapeutic story writing specifically for anxious children, nor has the therapeutic story writing research literature explored the impact of the intervention on anxiety and working memory and its subsequent interaction with academic performance.

The following questions are central to this study:

1. Does the therapeutic story writing intervention lead to a reduction in anxiety?
2. Does the therapeutic story writing intervention lead to an increase in verbal working memory? And is this effect exclusive to verbal working memory?
3. Does the therapeutic story writing intervention lead to an increase in reading and writing attainment?

4. Are the decreases in anxiety related to the increases in working memory and reading and writing attainment?
5. Are these effects maintained at 4-week follow up?

It is hypothesised that the therapeutic story writing intervention will be associated with a decrease in anxiety and an increase in verbal working memory capacity and an improvement in reading and writing attainment in this sample of anxious children. As anxiety decreases an increase in working memory capacity is likely to be observed and this increase in working memory capacity is also predicted to be positively associated with improvements in reading and writing attainment. It is also hypothesised that improvements associated with the therapeutic story intervention will be maintained at 4-week follow up.

2.2 Method

2.2.1 Research Design

A mixed measures design with between and within factors was employed in order to evaluate the impact of the therapeutic story writing intervention. The group (intervention vs. waiting list control) served as the between-group variable and the three time points of measuring outcomes (pre-intervention [T1], post-intervention [T2] and 4 week follow up [T3]) served as the within-groups variable. The independent variable had two levels: anxious children who were currently receiving the intervention vs. anxious children who were waiting to receive the intervention. The dependent variables were the psychological constructs under investigation: anxiety, working memory and National Curriculum (NC) levels in reading and writing.

2.2.2 Therapeutic story writing intervention

The therapeutic story writing intervention (Waters, 2004) is a 10 week intervention designed to support pupils who have social, emotional and/or mental health needs. The model employs the medium of story writing to enable pupils to address emotional issues, which may be having a detrimental impact on their learning. As such the intervention often involves children who are underperforming in school. The intervention is run by members of school staff, who have attended the three day therapeutic story writing training. Each session has the following six components: 1) Relaxation exercise followed by a feelings check-in; 2) review of previous week's stories and the emotional literacy aspects of these stories; 3) suggestion of a story theme which reflects the emotional issues relevant to the group; 4) children and teacher writing stories for 20 minutes; 5) sharing of stories and discussion of emotional content of stories; 6) story game (Waters, 2004).

2.2.3 Participant sample

A priori power analyses using G* Power software (Faul, Erdfelder, Lang & Buchner, 2007) with power (1 - β) set at 0.80 and α = 05, two-tailed was conducted. This revealed that an approximate sample size of 53 would have been needed in order to obtain statistical power at the recommended .80 level (Cohen, 1988).

A number of schools who were running therapeutic story writing groups between September 2014 and March 2015 were approached to take part in this study (n = 13). A total of seven schools agreed to take part in the research and six schools declined. Of the schools that declined to participate, three schools were not able to take part as the member of staff trained in therapeutic story writing had recently left and had not yet

been replaced and three schools did not feel able to commit to the research at this time due to external factors such as Oftsed and staffing issues.

The identification of pupils was based on two processes. First, the school's Special Educational Needs Co-ordinator (SENCo) was asked to identify six to eight children within the school who they believed to be experiencing anxious affect and who may benefit from an opportunity to discuss their worries in a therapeutic story writing group. The SENCo then sent out the parent-rated anxiety scale, parental consent forms and associated research information sheets to parents (Appendix B) and shared the school consent and associated information sheets with the Head teacher of the school (Appendix C). Once the consent forms were obtained, verbal assent was sought from the children themselves (Appendix E). All children and parents agreed to take part in the intervention and the research.

The participants then completed the Spence Child Anxiety Scale (Spence, 1998), to identify children who were experiencing anxious affect (n = 40). According to the Spence Child Anxiety Scale a T-score above 60 suggests that the child may be experiencing elevated levels of anxious affect (Spence, 1998). In the interest of early intervention, participants who obtained a T-score above 50 (i.e. above the average range) were selected for the research. Of the 40 participants, 26 were found to be experiencing levels of anxious affect that were above the average range (as indicated by a T score >50) and 11 were found to be experiencing levels of anxious affect that were within the elevated range (as indicated by a T score > 60). Thus, these 37 participants were included within the study. They were matched according to their gender and year group and matched participants were allocated to the intervention or the waiting list

control group by the SENCo. When matching participants, consideration was also given to group dynamics (as recommended by Waters, 2004). An outline of participant recruitment is illustrated in Figure 2.

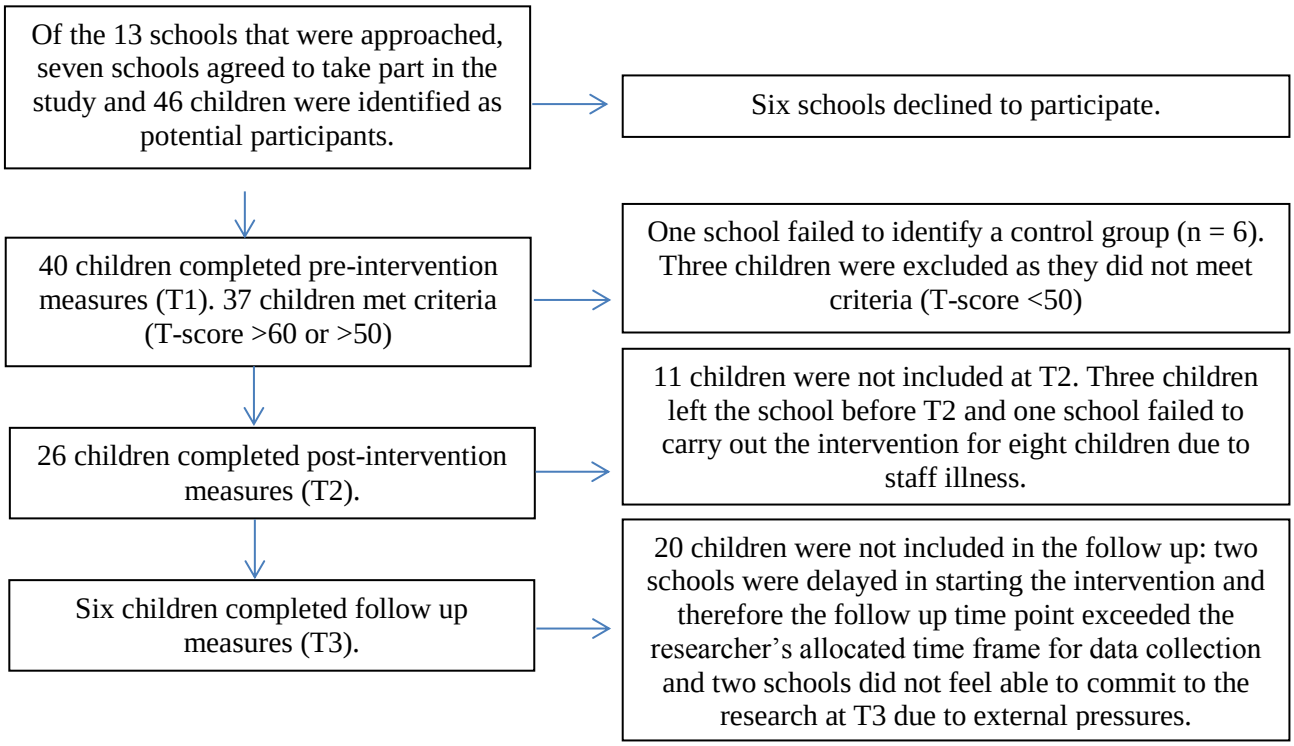


Figure 2: Flow chart illustrating participant recruitment and retention.

In total 26 participants, all experiencing levels of anxious affect that were above the average range (T score > 50), took part in this study (7 females and 19 males, *M* = 10 years 2 months, *SD* = 1.22). The intervention group contained 16 participants (5 females and 11 males, *M* = 10 years 4 months, *SD* = 1.0) and the control group contained 10 participants (2 females and 8 males, *M* = 9 years 6 months, *SD* = 1.39). The control group numbers were lower than expected due to one school failing to identify a control group. The number of female participants was also lower than expected as the participants who left the school before T2 were all female (n = 3).

Despite the researcher's best efforts, it was only possible to collect data from three of the six schools at the four week follow up (T3). This was largely due to external time constraints placed upon the researcher and the school: two schools were delayed in starting the intervention and therefore the follow up time point exceeded the researcher's allocated time frame for data collection and two schools did not feel able to follow through with this aspect of the research project due to external pressures, such as Ofsted.

Follow up measures were administered with six participants from the intervention group only. Unfortunately it was not possible to administer the follow up measures with the six matched control group children from these schools as the schools had already begun running the intervention with the waiting list control group due to the time pressures of the term dates and the need to run the second intervention before the end of the next school term.

2.2.4 Measures

The Spence Children's Anxiety Scale (SCAS; Spence, 1998) and **The Spence Children's Anxiety Scale parent version** (SCAS-P; Spence, 1998) were used to gain both child and parent views. Both consist of 44 items, 38 of which assess specific anxiety symptoms relating to the following six sub-scales: social phobia, separation anxiety, panic attack/agoraphobia, obsessive-compulsive disorder, generalised anxiety and physical injury fears. The remaining six items are known as positive ''filler items,'' which are included in order to try to reduce negative response bias. Participants are to consider the frequency with which symptoms occur and rate them according to a four-point scale ranging from Never (scored 0) to Always (scored 3). A total score can then

be obtained by adding the 38 anxiety symptom items together (maximum score = 114). The SCAS has been found to have high internal consistency, high concurrent validity with other measures of child and adolescent anxiety, and adequate test–retest reliability (Spence, 1998; Spence, Barrett & Turner, 2002; Muris, Merckelbach, Ollendick, King, & Bogie, 2002). The SCAS-P has also been found to have good psychometric properties and SCAS-P scores have been found to correspond with SCAS scores as well as with the classification of anxiety disorders by DSM-IV (Nauta, Scholing, Rapee, Abbott, Spence & Waters, 2004). A T-score above 60 or a raw score above 9 on the generalised anxiety subscale suggests that the individual is experiencing elevated levels of anxiety.

The School Anxiety Scale – Teacher Rated (SAS-TR; Lyneham, Street, Abbott and Rapee, 2008) assesses generalised and social anxiety symptoms experienced by a child from their teacher's perspective. The SAS-TR involves 16 items and the teacher is asked to rate the frequency with which they believe each symptom occurs for the child on a four-point scale ranging from Never (scored 0) to Always (scored 3). The SAS-TR is also felt to have good psychometric properties, in which evaluations have found the SAS-TR to have acceptable internal consistency and to be positively correlated with parental reports of childhood anxiety (Lyneham et al., 2008). A member of school staff who knows the child well, such as the class teacher was asked to complete this scale. A generalised anxiety sub-score above 10 suggests that the child is experiencing elevated levels of anxiety.

The Working Memory Test Battery for Children (WMTB-C; Pickering & Gathercole, 2001). The backward digit recall and block recall tasks from the WMTB-C were selected on the basis of their ability to tap the different components of working

memory (verbal working memory vs. spatial memory). In the backward digit recall the child is asked to recall a sequence of spoken digits in the reverse order. The number of digits in each list increases across trials, and the number of lists correctly recalled is scored. In the block recall test, the child views nine cubes randomly located on a board. The test administrator taps a sequence of blocks and the child is asked to tap that sequence in the correct order. In order to account for expected levels of working memory capacity according to age, raw scores were converted into standard scores so that comparison could be made. The WMTB-C has been found to have a good level of test-retest reliability, inter-tester reliability, as well as a good level of internal and external validity (Gathercole & Pickering, 2000; Pickering & Gathercole, 2001). A standard score between 85-115 represents the average range.

National Curriculum Levels: The school provided Key Stage 2 attainment levels in Writing before and after the intervention for both intervention and waiting list control group children. In order to account for the different NC levels across groups according to age, the NC levels were converted into numerical format and levels of progress were recorded at T2. Thus each participant was assigned a baseline progress score of 0 and the number of sub-levels of progress were recorded at T2.

2.2.5 Procedure

An ethics application was submitted and approved by the University of Southampton School of Psychology Ethics Committee (Appendix D) and data collection commenced once consent was obtained from the child and their parents. All participants completed a battery of tests and questionnaires before the therapeutic story writing intervention began (T1), the week the intervention finished (T2) and at a follow-

up time point (T3; 4 weeks after T2). The intervention group received the intervention between T1 and T2, whereas the control group received the intervention after T2. Assessments were administered by the researcher and took place individually and in a private room at the school. These assessments took approximately 30-45 minutes to administer.

Unfortunately it was not possible to include parent and school rated measures in the final analysis due to the difficulties that the researcher encountered when trying to collect this data at T1 and T2. Although the researcher was successful in acquiring the majority of parent-rated measures at T1 (n = 24), only five measures were returned at T2. Similar issues were encountered with the school-rated scale. Although the researcher was successful in acquiring 18 of 26 pre-post school-rated anxiety measures, several of the scales had missing data (n = 9). The researcher was therefore unable to calculate an accurate total anxiety score needed for the measure to be included in the analysis.

2.2.6 Statistical Methods

Initial exploration of the data confirmed that the assumptions needed for a parametric test had been met across time points (i.e. T1, T2, T3) and for each group (intervention, control). Histograms and p-plots revealed that the data was normally distributed and the Levene's test confirmed that the homogeneity of variance had been met for all of the outcome measures (all $p > .05$). The assumption of sphericity was also met (all $p > .05$).

For the main analysis, a 2(group: intervention vs. control) x 2 (time: T1, T2) repeated measures MANOVA was conducted to explore the changes in outcome

variables following the intervention, for the intervention and control group. As only a small number of participants from the intervention group were retained at T3 (n = 6), a separate 1(group: intervention) x 3 (time: T1, T2, T3) repeated measures MANOVA was also conducted to explore the impact of the intervention across all three time points for this sub-set of intervention participants.

2.3 Results

2.3.1 Descriptive Statistics

Preliminary analysis confirmed that there were no significant differences between the intervention and control group across measures of child-reported anxiety, $F(1,24) = .004$, $p = .947$, or verbal working memory, $F(1,24) = .43$, $p = .517$, prior to the intervention. The mean child-rated anxiety score confirmed that both the experimental ($M = 9.00$) and control group ($M = 9.10$) were experiencing elevated levels of anxious affect at T1 ($M = 9.00$). Similarly the mean verbal working memory standardised score for the intervention ($M = 80.38$) and control group ($M = 84.60$) fell within the below average range (Standardised score < 85), which confirms that the participants were also experiencing difficulty in the area of verbal working memory at T1. A chi-square test was also conducted and confirmed that there was no significant difference between the number of males (n = 11) and females (n = 5) in the intervention group compared to the number of males (n = 8) and females (n = 2) in the control group, $X^2(1) = .4$, $p = .44$. Thus, the intervention and control group were considered to be equivalent at T1 in terms of the number of males and females within each group and participants' pre-intervention anxiety and verbal working memory test scores.

However, preliminary analysis revealed that the intervention and control groups performance on the spatial working task did differ significantly, $F(1,24)= 5.78$, $p = .024$, The mean spatial working memory standardised score for the intervention group (M = 84.13) fell just short of the average range and the mean spatial working memory standardised score for the control (M = 97.70) group fell in the average range (Standardised score > 85). Although it will be important to be mindful of the difference in spatial working memory at T1 between groups when interpreting results, this difference was not controlled for in the analyses for the following reason: The spatial working memory task was not one of the main constructs that was under investigation. Roberts and Torgerson (1999) have argued that "baseline characteristics by which an analysis is adjusted should be determined by prior knowledge of an influence on outcome rather than evidence of imbalance between treatment groups in the trial" (p. 185). The notion of adjusting baseline characteristics according to the extent to which they influence the outcome was also supported by Pocock, Assmann, Enos and Kasten (2002) review of current practice. Previous research has shown that the adverse effects of worry are more acute for processes involving verbal working memory, as worry typically involves inner verbal activity rather than imagery (Hadwin et al., 2005; Rapee, 1993) and therefore spatial working memory is not predicted to be affected by the intervention or to be associated with the other constructs under investigation, such as anxiety. Instead it was intended that the spatial working memory task might enable the researcher to examine whether changes in working memory were exclusive to verbal working memory. A more detailed account of group characteristics at T1 is detailed in Table 3 and 4 below.

Table 3: Means and standard deviations of experimental and control participants' age and gender.

Group	Participants	Gender		Age	
		m	f	*M*	*(SD)*
Intervention	16	11	5	10.40	(1.00)
Control	10	8	2	9.60	(1.39)
Total	26	19	7	10.20	(1.22)

Note. m = male, f = female, *M* = Mean, *SD* = standard deviation.

A Pearson's correlation coefficient was also conducted on the T1 data set in order to assess if any of the measures correlated at T1 across groups. The Pearson's correlation suggested that child-rated anxiety at T1 was not significantly correlated with verbal working memory (r = -.04, p = .844), spatial working memory (r = .31, p = .125), reading attainment (r = .20, p = .381) or writing attainment (r = .22, p = .283) at T1. Reading and writing attainment were found to be significantly correlated with one another (r = .56, p = .008). However, this was to be expected as both of these measures assess key literacy skills (i.e. reading and writing ability) which are known to be related. Please see correlation table 4 below for more detail.

Table 4: Pearson's correlations for T1 measures.

	Anxiety	Verbal WM	Spatial WM	Reading attainment	Writing attainment
Anxiety	1	-.04	.31	.20	.22
Verbal WM		1	-.09	.05	.03
Spatial WM			1	-.01	-.05
Reading				1	.56**
Writing					1

*Note: ** Correlation is significant at the 0.01 level.*

Analysis of the intervention groups National Curriculum (NC) achievement at T1 revealed that 75 % of participants achieved a score that was below the average in writing and 69% achieved a score that was within the below average range in reading.

For the control group, 80% of the children had achieved a score that was below the average range in writing and 60% had achieved a score that was in the below average range for reading. The large proportion of children achieving in the below average range was expected, as the therapeutic story writing intervention was developed for children whose emotional needs were interfering with their learning and academic attainment (Waters, 2008). Please see Appendix F for further information regarding participant National Curriculum levels.

2.3.2 Main analysis

A 2(group: intervention vs. control) x 2 (time: T1, T2) repeated measures MANOVA was conducted with the following outcome measures: child-rated anxiety, verbal working memory, spatial working memory, reading and writing attainment. A series of paired samples T-tests were also conducted to enable the researcher to further compare the differences within groups. Table 5 displays the means and standard deviations for all outcome measures across pre-post intervention time points for intervention and control participants.

Table 5: Means and standard deviations for all outcome measures at T1 and T2 for the intervention and control participants.

Measures	Pre-intervention				Post-intervention			
	Intervention		Control		Intervention		Control	
	M	*(SD)*	*M*	*(SD)*	*M*	*(SD)*	*M*	*(SD)*
Anxiety (child)	9.00	(3.27)	9.10	(4.36)	5.44	(2.68)	9.60	(4.03)
Verbal WM	80.38	(11.15)	84.60	(21.67)	90.38	(11.40)	88.00	(16.3)
Spatial WM	84.13	(13.31)	97.70	(15.11)	88.44	(15.36)	102.00	(11.52)
Reading	0	(0)	0	(0)	1.44	(1.31)	.80	(.79)
Writing	0	(0)	0	(0)	1.19	(.75)	1.00	(.67)

Note. WM = Working Memory, *M* = Mean, *SD* = standard deviation.

Child-rated anxiety: A significant main effect of time, $F(1,24) = 20.24$, $p < .001$, $\eta^2_p = .01$ (T1 $M = 9.05$, T2 $M = 7.52$) and a significant group by time interaction effect was found for child rated anxiety ($F(1,24) = 35.62$, $p < .001$, $\eta^2_p = .59$). The main effect for group was not significant ($F(1, 24) = 2.44$, $p = .132$, $\eta^2_p = .09$). Post hoc tests revealed a significant reduction in child-rated anxiety in the intervention group over time ($t(15) = 8.73$, $p < .001$, $r = .51$, see Table 5 and Figure 3). By contrast, the control group showed a slight increase in child-rated anxiety scores over time but this increase was not significant ($t(9) = -.89$, $p = .397$). Moreover, there was no significant difference between the two groups at T1, but at T2 the intervention group had significantly lower anxiety scores compared to the control group ($t(10) = -2.58$, $p = .027$, $r = .52$). The results suggest that the intervention group showed a significantly greater reduction in child-rated anxiety compared to the control group following the intervention.

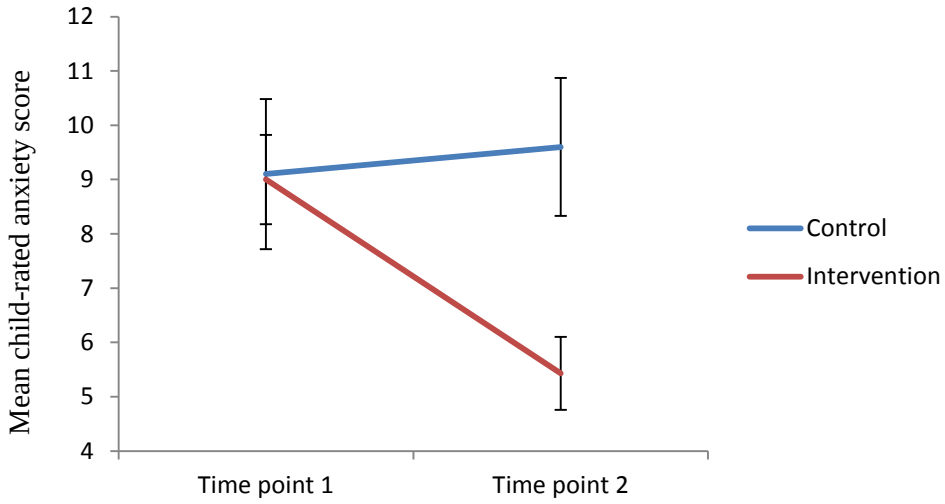


Figure 3: Participants' mean child-rated anxiety scores across T1 and T2 for intervention and control participants. A raw score above 9 suggests that the individual is experiencing elevated levels of anxious affect. Error bars displayed**.**

Verbal working memory A significant main effect of time ($F(1,24) = 12.36$, $p = .002$, $\eta^2_p = .34$ (T1 $M = 82.49$, T2 $M = 89.19$)) was found, but the main effect of group, $F(1,22) = .00$, $p = .99$, $\eta^2_p = .00$ and the interaction between group and time, $F(1,24) = 3.00$, $p = .096$, $\eta^2_p = .11$ on verbal working memory was not statistically significant. However, further post-hoc tests were conducted as the p value (<.10) suggested that there might be a trend in the data and the partial eta squared suggested that this was of a moderate effect. Follow-up tests identified a significant increase in verbal working memory for the intervention group over time ($t(15) = -6.01$, $p < .001$, $r = .41$, see Table 5 and Figure 4) but not for the control group ($t(9) = -.84$, $p = .43$). However, there was not a significant difference between the two groups at T1 or T2, ($t(24) = .438$, $p = .675$). The results therefore suggest that although the intervention group made statistically significant gains in verbal working memory (of approximately 10 points) following the intervention, these gains were not statistically greater than those observed in the comparison group.

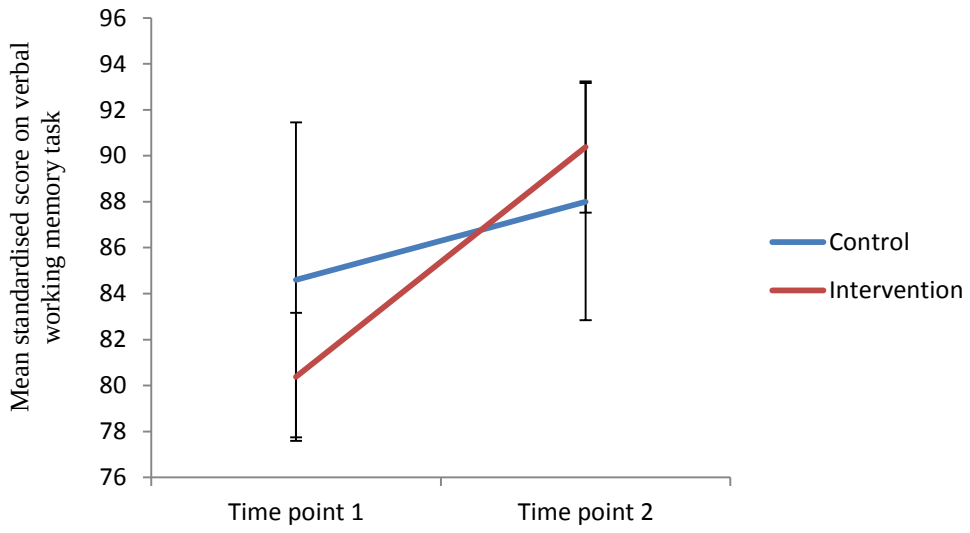


Figure 4: Participants' mean standardised score on the verbal working memory task across T1 and T2 for intervention and control participants. A standardised score between: 85-115 represents the average. Error bars displayed.

Spatial working memory: A significant main effect of time, $F(1,24) = 5.62$, $p = .026$, $\eta 2p = .19$, $\eta^2_p = .19$ (T1 $M = 90.92$, T2 $M = 95.22$), and group, $F(1,24) = 6.42$, $p = .018$, $\eta^2_p = .21$ (Intervention group $M = 86.29$, Control group $M = 99.85$), for spatial working memory. However, interaction between group and time for spatial working memory was not significant, $F(1,24) = .00$, $p = .997$, $\eta^2_p = .00$. Both groups improved by 4-5 points on average (see Table 5 and Figure 5). These findings are consistent with second part of the second hypothesis.

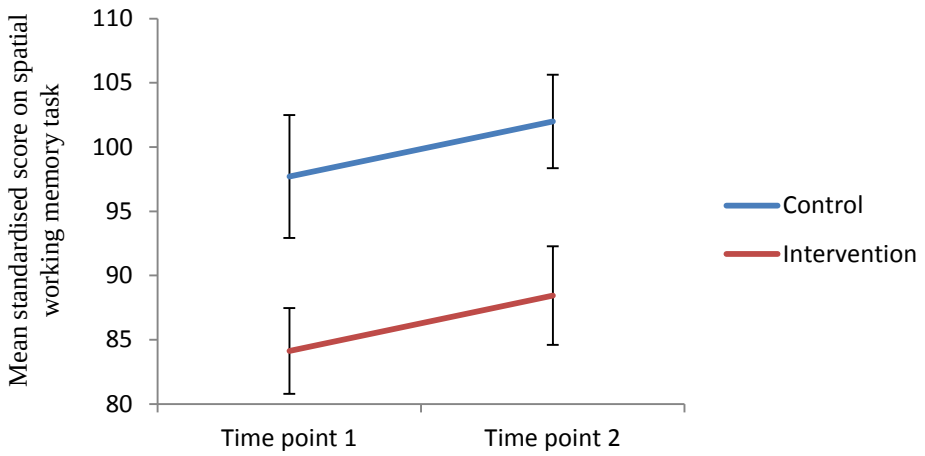


Figure 5: Participants' mean standardised score on the spatial working memory task across T1 and T2 for intervention and control participants. A standardised score between: 85-115 represents the average range. Error bars displayed.

Writing attainment: A significant main effect of time, $F(1,24) = 56.82$, $p < .001$, $\eta^2_p = .70$ (T1 $M = 0$, T2 $M = 1.09$) for writing attainment. However, the main effect of group, $F(1,24) = .42$, $p = .524$, $\eta^2_p = .02$, and the interaction effect between group and time, $F(1,24) = .42$, $p = .524$, $\eta^2_p = .017$ failed to reach significance. The means, illustrated in Table 5 and Figure 6, show that a small improvement in writing attainment was observed for all participants from T1 to T2 and therefore the third hypothesis was not met.

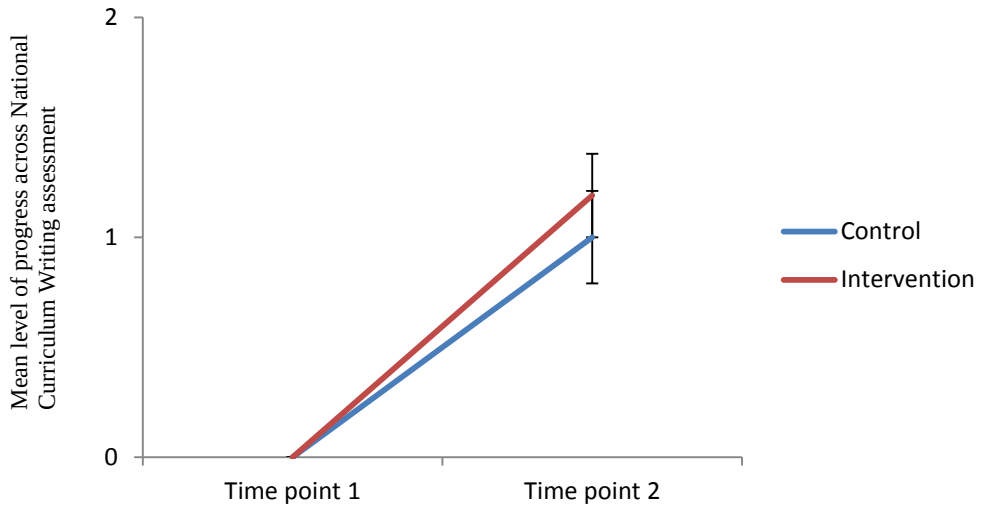


Figure 6: Participants' mean level of progress across National Curriculum Writing attainment (according to sub-levels) across T1 and T2 for intervention and control participants. Error bars displayed**.**

Reading attainment: The analysis also indicates that there was a significant main effect of time on reading attainment, $F(1,24) = 23.45$, $p < .001$, $\eta^2_p = .49$ (T1 M = 0, T2 M = 1.12). However, the main effect of group, $F(1,24) = 1.90$, $p = .18$, $\eta^2_p = .07$, and the interaction effect between group and time, $F(1,24) = .1.90$, $p = .180$, $\eta^2_p = 0.73$ on reading attainment failed to reach statistical significance. Table 5 and Figure 7 illustrates that a small improvement in reading attainment was observed for all participants from T1 to T2 and therefore the third hypothesis regarding the impact of the therapeutic story writing intervention on reading attainment was not met either.

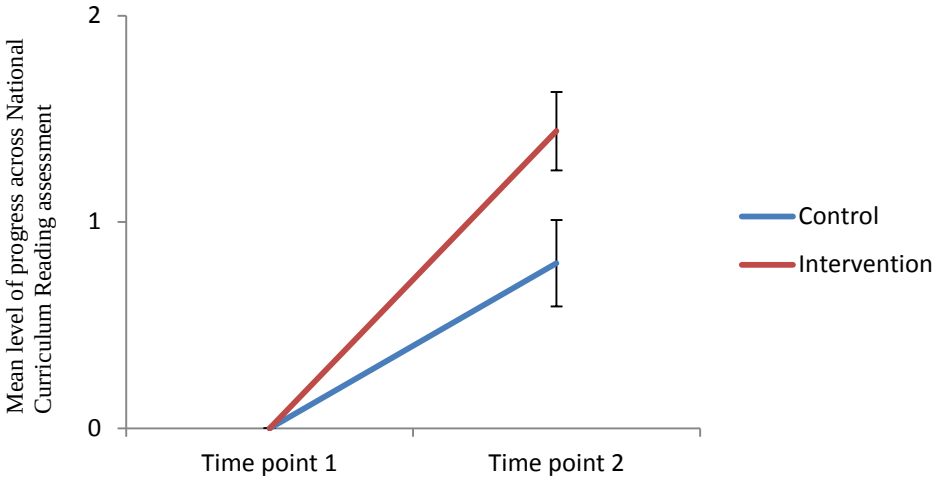


Figure 7: Participants' mean level of progress across National Curriculum Reading attainment (according to sub-levels) across T1 and T2 for intervention and control participants. Error bars displayed**.**

2.3.3 Correlations:

In order to explore the fourth hypothesis regarding the relationship between the different variables, a pre-post change score was computed for the anxiety variable and the verbal working memory variable (T2-T1 data). A negative change score in anxiety is indicative of a reduction in anxiety and a positive change score is indicative of an increase in anxiety. Whereas a negative change score in verbal working memory is indicative of a decrease in verbal working memory capacity and positive change score is indicative of an increase in verbal working memory capacity. For reading and writing attainment a positive change is suggestive of an increase in attainment and a negative score is indicative of a reduction in attainment.

The change score analysis, using a Pearson's correlation coefficient, suggested that the average change in child-rated anxiety across T1 and T2 for the intervention group was not significantly correlated with verbal working memory (r = .11, p = .357), writing attainment(r = .12, p = .338), or reading attainment (r = .05, p = .438).

Similarly, the average change in child-rated anxiety across T1 and T2 for the control group was not significantly correlated with verbal working memory (r = .18, p = .314), writing attainment(r = -.02, p = .479), or reading attainment (r = .31, p = .189) either. Therefore the fourth hypothesis was not met. A summary of these correlations can be found in Table 6 and 7.

Table 6: Pearson's correlations for the change scores (T2-T1) calculated across outcome measures for the intervention group.

	Anxiety	Verbal WM	Writing	Reading
Anxiety	1	.11	.12	.05
Verbal WM		1	-.16	.32
Writing			1	.24
Reading				1

Note. * = $p \leq 0.05$

Table 7: Pearson's correlations for the change scores (T2-T1) calculated across outcome measures for the control group.

	Anxiety	Verbal WM	Writing	Reading
Anxiety	1	.18	-.02	.31
Verbal WM		1	-.07	-.45
Writing			1	.00
Reading				1

Note. * = $p \leq 0.05$

2.3.4 Analysis of T3 data:

In order to explore the changes in anxiety and verbal working memory across all three time points (T1, T2, T3), a repeated measures MANOVA was conducted for the sub-set of participants from the intervention group. As follow up data was collected for a small number of the intervention participants, the number of participants' involved in the follow up analysis was very small (n = 6). Nonetheless, the results found a significant main effect of time (M = 8.99) for child-rated anxiety, $F(2,10) = 80.61$, $p < .001$, $\eta^2_p = .94$. Post hoc tests revealed that there was a significant reduction in child-

rated anxiety in the intervention group across T1 and T2, $F(1,5) = 62.5$, $p < .001$, $\eta^2_p = .93$, and T1 and T3, $F(1,5) = 247.35$, $p < .001$, $\eta^2_p = .98$ (see Table 7 and Figure 8).

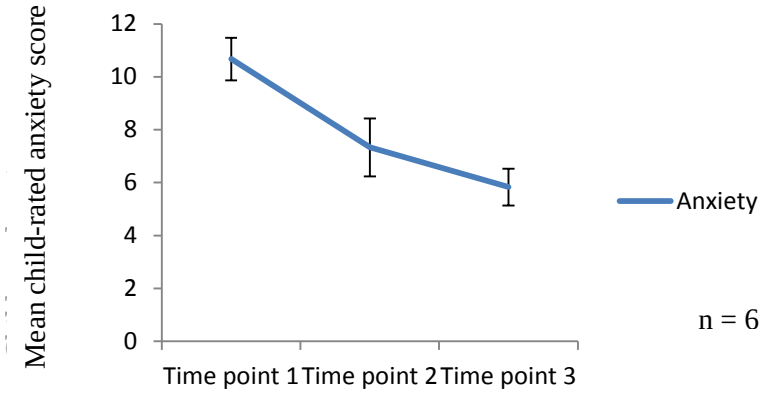


Figure 8: Means of child-rated anxiety for participants in the intervention group and for whom data was collected at all three time points (T1, T2, T3). A raw score above 9 suggests that the individual is experiencing elevated levels of anxious affect. Error bars displayed.

There was also a significant main effect of time ($M = 81.25$) for verbal working memory, $F(2,10) = 8.04$, $p = .008$, . $\eta^2_p = 62$. Post hoc tests revealed that there was a significant increase in verbal working memory in the intervention group acrossT1 and T2, $F(1,5) = 10.98$, $p = .02$, $\eta^2_p = .69$, and T1 and T3, $F(1,5) = 10.74$, $p = .02$, $\eta^2_p = .68$ (see Table 7 and Figure 9).

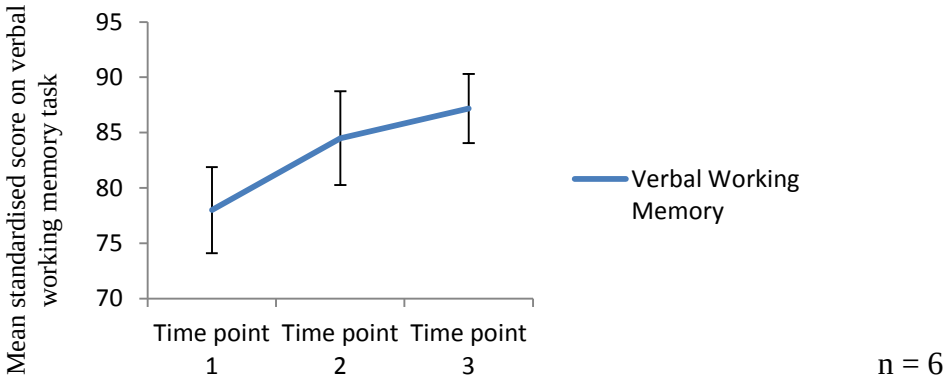


Figure 9: Mean performance on the verbal working memory task for participants in the intervention group and for whom data was collected at all three time points (T1, T2, T3). A standardised score between 85-115 represents the average range. Error bars displayed.

2.4 Discussion

The research and theory (e.g. Processing Efficiency Theory/Attentional Control Theory) discussed within the introduction of this paper suggests that anxious children may underperform at school because their worrisome thoughts reduce the capacity of their verbal working memory (Eysenck et al., 2007; Hadwin et al., 2005; Ng & Lee, 2010) and thus, the educational outcomes of anxious children might be improved by interventions (such as therapeutic story writing) that provide anxious children the opportunity to explore their worries in a manner that reduces anxiety and frees up the working memory resources needed for cognitively demanding tasks at school. This study, therefore, set out to explore the impact of a therapeutic story writing intervention on anxious children's levels of anxiety, verbal working memory and academic attainment.

2.4.1 Effect of intervention on anxiety:

The results of the study suggest that the therapeutic story writing intervention was associated with a significant reduction in child-rated anxiety for children who participated in the intervention, thus confirming the first hypothesis. Prior to the intervention, 69% of intervention participants' child-rated anxiety scores fell within the elevated range (T score > 60 n = 11) and 100 % fell within the above average range (T score >50 n= 16). Following the therapeutic story writing intervention, 87% of intervention participants' child-rated anxiety scores now fell below the elevated range (T score < 60, n = 14) and 56% fell within the average range (T score < 50 n= 9). Thus, participating children's answers to the questions on the child-rated anxiety scale not only suggests that their levels of anxiety decreased significantly, but for some, this

decrease was to such an extent that they were no longer reporting elevated levels of anxious affect following the intervention.

By contrast, the control group children's levels of child-reported anxiety increased. Prior to the intervention, 80% of control participants' child-rated anxiety scores fell within the elevated range (T score > 60 n = 8) and 20 % fell within the above average range (T score >50 n= 2). Following the therapeutic story writing intervention, 90% of intervention participants' child-rated anxiety score fell now below the elevated range (T score < 60, n = 9) and 10% fell within the average range (T score < 50 n= 1). This was an unexpected finding and although this increase was not statistically significant, it is very concerning that the anxiety levels of the control group children increased. Retrospective and longitudinal studies have shown that anxiety often begins in childhood and if left unsupported, these anxieties can continue into adolescence and adulthood and can lead to an anxiety disorder (Mesman & Koot, 2001; Ollendick & King, 1994; Woodward & Fergusson, 2001).

2.4.2 Effect of intervention on working memory:

Although the main interaction effect for verbal working memory did not reach statistical significance, closer inspection of the data suggests that the intervention was associated with substantial gains in verbal working memory, with an average increase of 10 standardised scores points, which is in line with the second hypothesis. It is possible that this interaction effect failed to reach statistical significance due to the small sample size (Field, 2013; Field & Hole, 2003). The priori power analyses suggested that an approximate sample size of 53 would have been needed in order to obtain statistical power at the recommended .80 level. In addition to this, the effect size associated with

the verbal working memory interaction effect, which was of a large nature ($\eta^2_{p=}.11$), also suggests that the effect may have suffered from a loss of power (Cohen, 1988). Thus, it is likely that the small sample size (n = 26) may have played a role in the interaction effect failing to reach significance.

Analysis of intervention participants verbal working memory capacity in this study prior to the intervention, revealed that 62% of intervention participants verbal working memory score fell below the average range (standard score < 85, n = 10). Furthermore, when comparing the intervention participants' performance on the spatial and verbal working memory tasks, the improvements in working memory were exclusive to the verbal working memory task. These findings are consistent with the Processing Efficiency/Attentional Control framework and existing literature that has found that children who experience anxious affect often experience difficulty with verbal working memory tasks, when compared to their performance on spatial working memory tasks and in comparison to their less anxious peers (Hadwin et al., 2005).

Following the intervention, 81% of the intervention participants achieved a score on the verbal working task that was within the average range (standardised score > 85, n = 13) which suggests that a large proportion of the intervention group were no longer experiencing difficulty in the area of verbal working memory following the intervention. The present findings are consistent with the adult and adolescent research literature, which has documented the beneficial effects of expressive interventions on participants' anxiety (Frattaroli, 2006; Sloan, Epstein & Dobbs, 2008) and working memory capacity (Klein & Boals, 2001; Ramirez & Beilock, 2011; Yoga & Fujihara, 2008). The present findings are also consistent with the wider research literature regarding the beneficial effects of therapeutic story writing interventions on

participating children's emotional well-being and resilience (Bachelor, Murray, Warhurst & Maclean, 2013; Harris, 2013; Waters, 2008).

2.4.3 Effect of intervention on academic attainment:

It was also predicted that the therapeutic story writing intervention would be associated with an improvement in academic performance. However, the results of the present study did not support the third hypothesis regarding the impact of the therapeutic writing intervention on children's academic attainment (as measured by NC progress in reading and writing). In the current study, both the control group and the intervention groups' reading and writing attainment improved over the course of the intervention and the rate at which the two groups improved was not found to be statistically different. This was unexpected as previous research has found the therapeutic story writing intervention to be associated with improvements in NC reading and writing (Bachelor et al., 2013). However, as noted in the introduction, the Batchelor et al., 2013 study did not include a control group and therefore changes in reading and writing attainment could not be interpreted with reference to potential changes in the control group.

Nonetheless, it is important to note that the intervention group did make slightly more progress than the control group. The control group made on average .80 sub-levels of progress across reading and 1 sub-level of progress across writing; whereas the intervention group made 1.44 sub-level of progress across reading and 1.19 across writing. Although the interaction effect did not reach statistical significance, it is the author's opinion that these effects should still be considered to be of educational importance. Particularly when considering that the primary aim of the therapeutic story

writing intervention is to support children's social and emotional needs and it is not a targeted academic reading or writing intervention per se. It is also possible that the NC assessment may not have been a sensitive enough measure to track potential progress across the ten-week intervention (i.e. children are typically expected to make two sub-levels of progress across the whole year).

Furthermore, it is also possible that the effects on attainment may not be detectable immediately after the intervention. Previous research has suggested that longer follow up time points (i.e. greater than 4 weeks) may be needed to demonstrate the full effects of the expressive writing interventions (Frisina et al., 2004; Klein & Boals, 2001; Smyth, 1998). For example, Klein and Boals (2001) included an eight week follow-up and found that the greatest effects of the expressive writing intervention were found at this time point. When considering that the immediate post-intervention assessments of the present study do suggest that the two groups begin to differ across measures of reading and writing attainment, it is possible that the effects on attainment may need more time to manifest and may only be evident in a longer-term follow up.

2.4.3 Correlational effects:

When considering the research and theory that suggests that worries consume the limited resources of working memory (Eysenck et al., 2007; Hadwin et al., 2005; Ng & Lee, 2010), it was also predicted that the decreases in anxiety following the intervention would be directly associated with the increases in verbal working memory capacity and academic attainment for the intervention participants. However none of the change scores for the outcome variables were correlated with one another and therefore the fourth hypothesis was not met. This was surprising, especially when considering the effects of the intervention on anxiety and verbal working memory. Although the

coefficient (albeit small) goes in the right direction, the relationship failed to reach statistical significance. It is possible that this test may have also failed to reach statistical significance due the small sample size (n = 26).

2.4.5 Effect of intervention over time:

Of the small number of children who completed the follow up assessments, the results suggests that the positive effects of the intervention on child-rated anxiety and verbal working memory performance were not only maintained, but further improvements were also observed for these children. Thus the final hypothesis regarding the maintenance of any improvements at the 4-week follow up was met. Although this analysis was only completed with a small sub-set of participants, the T1 and T2 data was in line with the findings of the larger intervention group.

However, the extent to which conclusions can be drawn about the maintenance of intervention effects in the current study is limited by the very small sample size (n = 6). The lack of control group for the follow up measures (T3) also means that it is very difficult to make judgements regarding the causal links between changes in anxiety and verbal working memory associated with the intervention, as comparison between experimental and control groups cannot take place.

2.4.6 Limitations and directions for future research

The findings of this study must be interpreted within the context of certain limitations. In particular, this study suffered from a small sample size (n = 26) and loss of power ($\beta = 0.41$) (Cohen, 1988; Faul et al., 2007). Although at the time of planning this research, the aim was to recruit a minimum of 40 participants and to include a one

month follow up with all participants, this was not possible due to the time restraints placed on the study and the difficulties encountered during the recruitment and retention of participants. Despite the initial success of the researcher in identifying seven schools and 46 children as potential participants, the failure of one school to carry out the intervention (n = - 8) and the failure of one school to identify a control group (n = -6) had a significant impact on the final number of participants. As this research was being conducted as part of a final year doctoral research project, data collection could not exceed allocated time frames and it was therefore not possible to recruit further participants in order to replace those that had not been retained.

Another limitation of this study was that it was not possible to randomly allocate children to the intervention vs. control condition, as consideration had to be given to group dynamics. Waters (2004) recommends that group members are selected on the basis of which children would work well together and the teacher should feel comfortable in being able to manage the social dynamics of the group members. Thus it was felt that total random allocation could have undermined the interventions effectiveness. However, analysis of participant characteristics suggested that the intervention and control group were equivalent at T1 in terms of the number of males and females within each group and participants' pre-intervention anxiety and verbal working memory test scores. Therefore the groups were considered to be comparable across these measures at T1 that were predicted to be affected by the therapeutic story writing intervention.

The initial research design included a parent-rated and school-rated anxiety measure, in order to include a multi-informer assessment of the effectiveness of the intervention (i.e. school, parent and child). However, it was not possible to include

parent and school rated measures in the final analysis due to the poor response rate at T2 for parent rated questionnaires and due to the large amounts of missing data within the school rated questionnaires at T1 and T2. Approximately 50% of the teacher rated scales had missing data points, whereby teachers had failed to answer particular questions and had added comments such as "I don't know" (e.g. in response to this child worries about things). As there were missing data points across a substantial number of questionnaires, it seemed unreliable to calculate a total anxiety score on these measures. It seemed reasonable to assume that these measures were not an accurate representation of the child's current level of anxiety and they were therefore excluded from the final analysis. Although triangulation of data on anxiety may have been strength of the study design (Nauta et al., 2004), it has also been argued that due to the internalising nature of anxiety the level of agreement between adult-child report is often quite poor (Birmaher et al., 1997; Rey, Schrader, & Morris-Yates, 1992) and that it is reliable and valid to use child-rated measure as the primary tool for assessing changes in anxiety (Horowitz, Leaf & Leventhal, 1998; Simon & Bögels, 2009; Spence, 1998).

Due to the discussed limitations, caution must be applied when making generalisations of this study. This research represents a study with a small sample of children who participated in the therapeutic story writing intervention and its effects on anxiety and verbal working memory. The effects reported in this study are encouraging and further research with a larger participant sample is required in order to corroborate the current findings. Future research should also consider the use of more sensitive assessment tools to track progress in reading and writing attainment across the ten week intervention and should consider incorporating a longer follow up.

2.4.7 Conclusions

Overall, the present study suggests that the therapeutic story writing intervention was associated with a significant reduction in child-rated anxiety and a trend for an increase in verbal working memory capacity of anxious children, when compared to the control group. Although the effect of the intervention on reading and writing attainment was not statistically significant, the pattern of change over time was positive with somewhat more gains made by the intervention group. This was not statistically significant, however it is possible that the form of assessment used (i.e. NC levels) was not sensitive enough to track the changes in academic attainment associated with the intervention. As far as the author is aware, this is the first study to explore the impact of the therapeutic story writing intervention on anxiety and verbal working memory in a sample of anxious children and these findings therefore represent a novel contribution to the research literature.

Despite the high prevalence rate of anxiety disorders in childhood, childhood anxiety remains under-recognised and thus many children are not offered the support that they need in their school-aged years (Pine, Helfinstein, Bar-Haim, Nelson & Fox, 2009). Although Cognitive Behavioural Therapy (CBT) is often recommended and has been shown to be effective in reducing anxious behaviour in children, CBT is resource-intensive and is not often accessed by these children for these reasons (Canino et al., 2004; Farmer, Stangl, Burns, Costello & Angold, 1999). As therapeutic story writing is a school-based intervention, which can be run by trained members of school staff, it could represent a more accessible and cost-effective intervention that could be utilised to support children that are currently experiencing elevated levels of anxious affect. It could also be used preventatively to support those that are showing the early signs of

not being able to manage their worries. However, further research is needed to confirm the positive effects with a larger sample and until then, caution needs to be exercised.

Appendix A

Summary table of studies included in the systematic search.

Study	Country	Participants	Intervention	Outcome Measures	Relevant findings
Boniel-Nissim, M., & Barak, A. (2013). The therapeutic value of adolescents' blogging about social–emotional difficulties. *Psychological Services*, 10(3), 333.	Israel	161 adolescents who were experiencing social and emotional difficulties, as measured by a peer relationship scale. Gender: 124 females, 37 males. Mean age: 15.5 years.	Participants were randomly assigned to one of six writing groups: an instructed blogging task or a free-writing blogging task (closed to readers), an instructed blogging task or a free-writing blogging task (open to readers), a free-writing diary task and a non-treatment control group. For the instructed blogging task, participants were asked to write about their deepest thoughts and feelings regarding their current difficulties and social circumstances. Duration: Participants in the writing groups were asked to write for a minimum of 15 minutes, twice a week for 10 weeks. Time points: Pre and post intervention. Two month follow up.	• Self-Esteem Scale (Rosenberg, 1965). • Peer Relationship (Hudson, 1982). • Interpersonal Activities Checklist • Judgment of social–emotional condition (Hartup & Stevens, 1999; Steinberg, 2008).	The researchers found that participants in the four blogging groups significantly decreased on all experimental measures, when compared with those that were asked to keep a diary and the non-writing control group. Participants who were instructed to blog about their thoughts and feelings regarding their current circumstance experienced the most gains. Participants who were assigned to the blogging condition which was open to readers experienced greater gains than those who were assigned to the blogging group that was closed to readers.

Bray, M. A., Kehle, T. J., Peck, H. L., Margiano, S. G., Dobson, R., Peczynski, K., Gardner a, K. , Theodore, L., & Alric, J. M. (2005). Written emotional expression as an intervention for asthma: a replication. *Journal of Applied School Psychology*, 22(1), 141-165.	America	Four participants: one in elementary school (14 year old female), two in middle (11year old male and 12 year old female), and one in high school (17 year old male), with chronic asthma.	All participants were assigned to the expressive writing group and were asked to write about a stressful or traumatic experience. Participants were told that they could not write about the same topic for more than three sessions. Duration: All participants were asked to write for 20 minutes over a three week period. Time points: This study employed a multiple baseline design in which data was collected across three phases: baseline, intervention and 6 month follow-up.	• Spirometry. • The State-Trait Anxiety Inventory for Children (Spielberger, 1970) • The Paediatric Asthma Quality of Life Questionnaire (Juniper, 1999) • The Piers-Harris Children's Self-Concept Scale-Second Edition (Piers & Herzberg, 2002) • Daily Asthma Diary. • Pennebaker's linguistic software program (Pennebaker, 2001).	The researchers found that the expressive writing intervention was associated with an increase in lung functioning and a decrease in physical factors (i.e., symptoms, asthma attacks, inhaler use). Participants also reported an improvement in their perceptions of their quality of life. A change in anxiety was not observed for any participants and only one participant reported improvements on the self-concept scale. Linguistic analysis of the content of participants writing suggested that participants tended to use more negative emotion words than positive emotion words.
Bray, M. A., Theodore, L. A., Patwa, S. S., Margiano, S. G., Alric, J. M., & Peck, H. L. (2003). Written emotional expression as an	America	Five participants: two high school-students (18 year old male, 17 year old female), two college	All participants were assigned to the expressive writing group and were asked to write about their most stressful experience. Participants were told that they could write about the same topic for three sessions or could write about a different stressful event each session.	• Spirometry. • The State-Trait Anxiety Inventory for Children (Spielberger, 1970) • The Paediatric Asthma Quality of Life Questionnaire (Juniper, 1999)	The majority of participants experienced an increase in their lung functioning and a decrease in anxiety as a result of the expressive intervention. The changes in state anxiety were relatively small.

intervention for asthma. *Psychology in the Schools*, 40(2), 193-207.		students (17 and 21 year old females) and one adult (51 year old female), with chronic asthma.	Duration: All participants were asked to write continuously for 20 minutes, on several occasions across a three week period. Time points: This study employed a multiple baseline design in which data was collected at baseline, intervention, and follow-up phases over a five month period.	• Daily Asthma Diary.	
Facchin, F., Margola, D., Molgora, S., & Revenson, T. A. (2014). Effects of Benefit-Focused Versus Standard Expressive Writing on Adolescents' Self-Concept During the High School Transition. *Journal of Research on Adolescence*, 24(1), 131-144.	Italy	201 high school students Gender: All male. Age range: 13-15 years old, with a mean age of 13.96 years.	Participants were randomly allocated to one of three writing conditions: expressive writing, benefit-focused expressive writing or factual writing (control group). The expressive writing group were asked to write about their deepest thoughts and feelings regarding the upcoming transition to high school. The benefit-finding group were asked to write about positive aspects of the transition. Duration: All participants were asked to write for 15 minutes for three consecutive days. Time points: Data was collected before the intervention and one week after the intervention. Follow up data was collected	• Multidimensional Self-Concept Scale (Bergamini & Pedrabissi, 2003). • Satisfaction with the New School (Likert scale 1 = not at all satisfied, and 5 = extremely satisfied) • The Linguistic Inquiry and Word Count software (Pennebaker, Booth, & Francis, 2007)	The researchers found that the altering of writing instructions did have an impact on outcomes. Linguistic analysis of the participants writing content suggested that those in the expressive writing condition used more negative emotion words, whereas those in the benefit-finding group used more positive emotion words. Overall, the benefit-focused group demonstrated the greatest gains in terms of academic self-concept relative to the standard expressive writing group and the control group. However, the significant

			two and four months after the last writing session.		effects were limited to this one subscale and to one time point (one week after writing). Furthermore, the effects of benefit-focussed were not sustained at two month follow up.
Fivush, R., Marin, K., Crawford, M., Reynolds, M., & Brewin, C. R. (2007). Children's narratives and well-being. *Cognition and Emotion*, 21(7), 1414-1434.	UK	112 school aged children Gender: 56 female, 59 males Age range: 9-13 years old.	Children were allocated to one of two groups: the emotional writing group and the non-emotional writing group. The children in the emotional writing group were asked to write about their deepest thoughts and feelings. The children in the non-emotional writing group were asked to write about how they spend a typical day Duration: Participants were asked to write quietly and independently for 15-20 minutes for three consecutive days in small groups of four. The writing took place in school. Time point: Pre and two week post intervention.	• The Birleson Depression Inventory (Birleson, 1981). • The Spence Children's Anxiety Scale (Spence, 1994) • The Children's Somatisation Inventory (Walker, Garber, & Greene, 1991). • The Strengths and Difficulties Questionnaire (Goodman, 1997).	Linguistic analysis of the participant's content of writing suggested that those who were in the expressive writing group wrote more about negative evaluations, problems, emotions, explanations and coping than children in the non-emotional writing group. Further analysis found that the more children wrote about coping, the lower their subsequent levels of somatic symptoms where. However the more children wrote about negative evaluations, problems and explanations, the higher their levels of anxiety, depression and difficulties were.
Frattaroli, J., Thomas, M., & Lyubomirsky, S. (2011). Opening	America	104 students about to take entrance exams.	Participants were invited to a laboratory setting nine days before the exam and were randomly allocated to the two groups. The expressive writing group were asked to	• General Health Questionnaire (Goldberg & Hillier, 1979),	The researchers found that writing about deepest thoughts and feelings about an upcoming exam significantly improved the

up in the classroom: Effects of expressive writing on graduate school entrance exam performance. *Emotion*, 11(3), 691.	Gender: 72 females, 32 males Mean age: 20.98 years	write about their deepest thoughts and feelings about their upcoming exam. The control group were asked to write about to write about the activities in which they had participated during the last 24 hrs. Duration: Participants were asked to write for 30 minutes nine days prior to the exam. Time points: Data was collected twenty seven days and three days prior to their exam. Follow up measures were taken eight days after the exam.	• Intrusive thoughts scale (Lepore, 1997). • Cognitive test anxiety (Cassady & Johnson, 2002). • Exam scores.	performance of students taking graduate school entrance exams. Further analysis also revealed a significant reduction in depressive symptoms shortly before the exam for those in the expressive writing group. Neither group differed on measures of test anxiety before or after the exam.
Gallant, M. D., & Lafreniere, K. D. (2003). Effects of an emotional disclosure writing task on the physical and psychological functioning of children of alcoholics. *Alcoholism Treatment Quarterly*, 21(4),	UK 53 children who self-identified as children of alcoholics. Gender: not stated Age range: 10-17 years old.	Participants were randomly assigned to one of three conditions: an emotional writing group who wrote about their thoughts and feelings about a stressful event, a non-emotional writing group who wrote descriptions about non-emotional events and a non-writing control group. Duration: Participants were asked to write for 25 minutes for three consecutive days. Time points: Data was collected before the intervention and four weeks after the intervention.	• Children of Alcoholics Screening test (Jones, 1983) • Impact of Events Scale (Horowitz et al., 1979) • Subjective Evaluation of the Essay (Greenberg, Wortman & Stone, 1996) • Internalising Symptoms Scale for Adolescents (Merrell, Crowley & Walters, 2002). • Positive and Negative	A general improvement over time across measures of internalising symptoms, affect and physical symptoms was observed for all groups. Expressive writing was not associated with any health benefits and actually associated with a decrease in positive affect over time. Linguistic analysis revealed that those in the expressive writing group used more cognitive, insight and casual related words after one session of writing. However the

55-66.				Affect Scale (Watson, Clark & Tellegen, 1988) • Linguistic Enquiry and Word Count (Pennebaker & Francis, 1996) • Strengths and Difficulties Questionnaire (Goodman, 1997) • The Pennebaker Inventory of Limbic Languidness (Pennebaker, 1982.	use of cause and insight words did not increase over time, which suggests that the intervention may not have been long enough to facilitate greater cognitive processing.
Giannotta, F., Settanni, M., Kliewer, W., & Ciairano, S. (2009). Results of an Italian school-based expressive writing intervention trial focused on peer problems. *Journal of adolescence*,	Italy	153 adolescents in middle school Gender: 81 female, 74 male. Mean age: 12.24 years old	Participants were randomly allocated to an emotional writing group or a trivial writing group. The emotional writing group were asked to write about a personal emotional events related to problems they recently experienced with peers. The trivial group were asked to write about a trivial topic. Duration: All participants were asked to write for 20 minutes, twice a week for two weeks (4 writing session in total)	• Social Experience Questionnaire (Crick & Grotpeter, 1995; for an Italian version see Gini, 2008) • Child Depression Inventory (Kovacs, 1981, 1985; Italian validated version: Camuffo, Cerutti, Lucarelli, & Mayer, 1988) • Revised Children's	The researchers found that the expressive writing intervention was not successful in reducing internalising or post-traumatic stress symptoms. However, the expressive writing intervention was associated with an increase in the use of positive cognitive reframing coping strategies. Peer victimisation was found to moderate the effect of the intervention on coping strategies.

32(6), 1377-1389.			Time points: Pre and two week post interventions.	Manifest Anxiety Scale (Reynolds & Richmond,1978) • Impact of Events Scale – revised (Weiss & Marmar, 1997). • Children's Coping Strategies Checklist (Ayers, Sandler,West, & Roosa, 1996)	Victimised youth were more likely to use positive reframing strategies, positive and optimistic thinking, to face problems with peers, than victimised youth in the control group.
Klein, K., & Boals, A. (2001). Expressive writing can increase working memory capacity. *Journal of Experimental Psychology:* General, 130(3), 520.	America	35 college students Gender: 47 female, 30 male Age range: 18-19 years old, with a mean age of 18.5 years.	In the expressive writing condition students were asked to write about their deepest thoughts and feelings about coming to college and to do their best to "tie it all together" at the end of their essays. The control group were asked to write about everything they had done that day and describe how they might have done a better job, concluding with a plea that their description be as objective as possible. Participants were randomly allocated to groups. Duration: Three writing periods lasting 20 min across two weeks. Time points: Pre and one and six weeks after last writing session.	• Arithmetic operation-word memory span task (Turner & Engle, 1989). • College Adjustment Test (Pennebaker et al., 1990)	Participants who wrote about their thoughts and feelings about coming to college demonstrated larger working memory gains 7 weeks, compared to those that wrote about trivial topic or a positive experience. An increase in cause and insight words was associated with greater WM gains. Increases in working memory were also associated with increase in grade point averages.

Kliewer, W., Lepore, S. J., Farrell, A. D., Allison, K. W., Meyer, A. L., Sullivan, T. N., & Greene, A. Y. (2011). A school-based expressive writing intervention for at-risk urban adolescents' aggressive behavior and emotional lability. Journal of Clinical Child and Adolescent Psychology, 40(5), 693–705.	America	258 secondary school aged children living in high-violence urban neighbourhoods. Gender: 141 females, 117 males. Age range: 12-13 years old, with a mean age of 12.5 years.	Class groups were randomly allocated to one of three groups: expressive writing condition, an enhanced writing condition or a non- emotional control writing condition. Those in the expressive writing condition were asked to write about their deepest thoughts and feelings related to violence. Those in the enhanced expressive writing group were given these instructions as well as being given the option to write stories, skits, songs, or poetry about violence in lieu of or in addition to a simple narrative account. The control group were asked to write about non-emotional topics such as how they spent their day. Duration: All participants wrote eight times over a five week period. Time points: Pre and one month post intervention. two and six month follow up.	• Physical Aggression subscale of the Problem Behavior Frequency Scales (Farrell, Kung, White, & Valois, 2000). • Teacher Report Form of the Achenbach System of Empirically Based Assessment (Achenbach, 1991). • Emotion Regulation Checklist (Shields & Cicchetti, 1995). • Survey of Children's Exposure to Community Violence (Richters & Saltzman, 1990). • Linguistic Inquiry Word Count program (Pennebaker, Francis, & Booth, 2007)	At two months post intervention, students in the standard expressive writing condition had lower levels of teacher-rated aggression and lability in comparison to controls. The beneficial effects of the writing interventions on aggression and lability were stronger for those living in communities with higher levels of violence. Youth self-report did not differ significantly between groups. The results also suggest that the standard expressive writing condition was more effective at reducing problem behaviour than the enhanced expressive writing condition.

Lumley, M. A., & Provenzano, K. M. (2003). Stress management through written emotional disclosure improves academic performance among college students with physical symptoms. Journal of Educational Psychology, 95(3), 641.	America	74 college students who scored highly on the somatic symptom checklist Gender: 52 females, 22 males Mean age: 19.5 years.	Participants were randomly allocated to a disclosure group, who were asked to write about the most traumatic and upsetting experience of their whole life or the control group, who were asked to write about time management and were instructed not to mention their feelings. Duration: Students were instructed to write for four consecutive days for 15 to 20 min daily. Time points: Mood rating scales were administered before and after each writing session.	• Somatization subscale of the Symptom Checklist (Derogatis, 1983) • Credibility Scale (Borkovec & Nau, 1972) • Mood rating scale • Grade point average	The researchers found that writing about general life stress for four days was associated with better grades in the subsequent semester and that this effect was significant when compared to controls. Furthermore, the improvement in grades was attenuated but not eliminated when examined for an additional semester after that. Those that wrote about general life stress also reported improved mood from the first to last writing sessions and these improvements in moods were predictive of improved grades.
Margola, D., Facchin, F., Molgora, S., & Revenson, T. A. (2010). Cognitive and emotional processing through writing among	Italy	20 high school students who had experienced a recent death of a classmate.	All participants were allocated to the expressive writing group and were asked to write about their deepest thoughts and feelings regarding the recent death of a classmate. Duration: All participants wrote for 15-20 minutes on three consecutive days,	• Impact of Events Scale – revised (Weiss & Marmar, 1997). • Linguistic Inquiry Word Count program (Pennebaker, Francis, & Booth, 2007)	Linguistic analysis of the participants' content of writing suggested that the participants writing changed across the three writing sessions. On the first day of writing participants tended to adopt a more factual perspective of the event, describing the context of the death. By the second and third

adolescents who experienced the death of a classmate. *Psychological Trauma: Theory, Research, Practice, and Policy*, 2(3), 250.		Gender: 13 females, 7 males. Mean age: 15 years.	beginning on the 15th day after the death. Time points: Data was collected the day before the writing session began, one week after the first writing session. Follow up at four and five months.		writing session the participants began to write less about the death and more writing about the meaning of the event and increased emotional processing and increased use of positive emotion words. Participants' writing was also more future orientated and included more references to coping with everyday life events. This suggests that as the intervention progressed participants demonstrated an increase in coping strategies and positive reframing of the event.
Parker, J. S., Stewart, G. S., & Gantt, C. (2006). Research and intervention with adolescents exposed to domestic violence. *Family Therapy*, 33(1), 45-52.	America	15 adolescents who had been exposed to domestic violence. Gender: All female. Age range: 12-17 years old, with a	Participants were allocated to one of two groups: a standard expressive writing group or expressive writing plus 'Positive Points.' Those in the standard expressive writing group were asked to write about a personal traumatic experience related to domestic violence. The other group were given the same instructions, plus a list of 'Positive Points' to include in their writing. These positive points were intended to encourage participants to recognise their positive characteristics in the face of adversity. Duration: All participants wrote for 15	• Adolescent Anger Rating Scale (Bumey, 2001). • Reynolds Adolescent Depression Scale, 2nd ed. (Reynolds, 1987). • Multidimensional Self-Concept Scale (Bracken, 199)2. • Dating attitudes (Parker, 2003). • Linguistic Inquiry and Word Count (Pennebaker, Francis, &	The researchers found that both groups demonstrated an overall increase in positive emotion ratings, suggesting that both writing groups were effective. Total scores for depression decreased pre-post for both writing groups. Linguistic analysis of the content of participants writing suggests that the group who used positive points alongside expressive writing demonstrated a decrease sad words

		mean age of 14.3 years.	minutes on four occasions. Time points: Pre and post intervention.	Booth, 2001),	and an increase in self-words, which suggests that the group expressed more personal emotion in their writings. However, their writing also demonstrated a decrease in positive words.
Reynolds, M., Brewin, C. R., & Saxton, M. (2000). Emotional disclosure in school children. *Journal of Child psychology and Psychiatry*, 41(02), 151-159.	UK	191 children currently attending primary or secondary school. Gender: 98 females, 93 males Age range: 8-13 years old.	Children were randomly assigned to one of three conditions: writing about negative events, writing about non-emotional events, and a non-writing control group. Those in the expressive writing group were asked to write about their deepest thoughts and feelings about an experience that they have found stressful or sad. The non-emotional writing group were asked to write in detail about all the things that they had done since getting up. Duration: All participants were asked to write for 15-20 minutes, four times a week for a single week. The children wrote in same-sex small groups. Time points: pre and post intervention and two month follow up.	• The Birleson Depression Inventory (Birleson, 1981). • The Spence Children's Anxiety Scale (Spence, 1994). • The Children's Somatisation Inventory (CSI: Walker, Garber, • & Greene, 1991; Walker & Greene, 1989, 1991). • The Strengths and Difficulties Questionnaire (SDQ: Goodman, • 1997). The Life Events Questionaire (LEQ: Masten, Neemann, & Andenas, 1994).	Groups did not differ significantly. Some of the children in the non-emotional writing group wrote about emotional issues and some of the children in the emotional writing group wrote about non-emotional issues. However removing these children from the analysis made no difference to overall results.

Soliday, E., Garofalo, J. P., & Rogers, D. (2004). Expressive writing intervention for adolescents' somatic symptoms and mood. Journal of Clinical Child and Adolescent Psychology, 33(4), 792-801.	Canada	106 students Gender: 53 female, 53 male Age range: 13 years old	Participants were randomly assigned to write about either an emotional or a neutral topic. Those in the emotional writing group were asked to really let go and explore their very deepest emotions and thoughts in their writing. The neutral writing group were asked to write about their plans for the weekend (Day 1), to describe the school building (Day 2), and to describe a recent class project (Day 3). Duration: All participants were asked to write for three consecutive days. Time points: Pre and post intervention. Two, four and six week follow up.	• Children's Somatization Inventory (Garber, Walker,&Zeman, 1991). • The Somatization scale of the Youth Self-Report Inventory (Achenbach, 1991). • Center for Epidemiological Studies Depression Scale (Radloff, 1977) • Positive affect scale (Laurent et al., 1999) • Children's Hope Scale (Snyder et al., 1997) • Life Orientation Test–Revised (Scheier, Carver, & Bridges, 1994) • Linguistic Inquiry and Word Count (LIWC; Pennebaker, Francis, & Booth, 2001)	The researchers found that participants' scores on measures of psychological distress decreased and positive disposition scores increased for adolescents writing about emotional topics, in comparison to those writing about neutral topics. They also found that the expressive writing groups' use of positive-emotion words and relativity increased from the first to third day of writing compared to the neutral writing students. Differences in somatic symptoms were no evident in either group.
Stice, E., Shaw, H., Burton, E., & Wade, E. (2006). Dissonance and	America	481 adolescent girls with body	Participants were randomly assigned to the dissonance intervention, healthy weight intervention, expressive writing control intervention, or assessment-only control	• Ideal-Body Stereotype Scale—Revised (Stice, Fisher, & Martinez, 2004).	Participants in the expressive writing condition showed significantly greater reductions on thin-ideal internalisation from pre-

healthy weight eating disorder prevention programs: A randomized efficacy trial. Journal of Consulting and Clinical Psychology, 74, 263–275.	dissatisfaction. Gender: All female. Age range: 14-19 years old, with a mean age of 17 years.	condition. Duration: Three individual weekly 45-minute writing sessions. Time points: Pre and post intervention. 6 month and one year follow ups.	• Satisfaction and Dissatisfaction With Body Parts Scale (Berscheid, Walster, & Bohrnstedt, 1973) • The Dutch Restrained Eating Scale (Van Strien, Frijters, Van Staveren, Defares, & Deurenberg, 1986) • Positive Affect and Negative Affect Scale—Revised (Watson & Clark, 1992). • Eating Disorder Examination (Fairburn & Cooper, 1993) • Body Mass Index • Social Adjustment Scale (Weissman & Bothwell, 1976)	test to 6-month follow-up and on bulimic symptoms only from pre-test to 1-year follow-up relative to assessment-only controls. However, dissonance participants showed significantly greater reductions in eating disorder risk factors and bulimic symptoms than healthy weight, expressive writing, and assessment-only participants. This suggests that although expressive writing did demonstrate some positive effects for this participant sample, it was not the most effective intervention.

Taylor, L. A., Wallander, J. L., Anderson, D., Beasley, P., & Brown, R. T. (2003). Improving health care utilization, improving chronic disease utilization, health status, and adjustment in adolescents and young adults with cystic fibrosis: A preliminary report. Journal of Clinical Psychology in Medical Settings, 10, 9–16.	America	39 participants with a diagnosis of cystic fibrosis. Age range: 15-29 years. The majority of participants were aged between 15-18 years old.	Participants in the expressive writing group were asked to write about an important emotionally distressing issue of personal significance. Participants in the control condition received standard care alone. Participants were randomly allocated to groups Duration: Participants wrote for 20 minutes on three occasions. Time points: Pre and post intervention.	• Lung functioning • Body Mass Index • Patient Health Questionnaire (Spitzeret al., 1994). • Visit Specific Satisfaction Questionnaire (Ware & Hays, 1988).	The researchers found that those that wrote about an emotionally distressing event, spent less days in hospital over the next three month period. There was no impact on lung functioning or subjective markers of health status.
Warner, L. J., Lumley, M. A., Casey, R. J., Pierantoni, W., Salazar, R., Zoratti, E. M., &	America	50 adolescents with asthma. Gender: 29 females, 21	Participants were randomly allocated two one of two groups. The emotional writing group where instructed to write about a trauma or problem and were asked to write about the same event for three days. The control group were asked to write a factual	• Positive and Negative Affect Schedule for Children (Laurent et al., 1999).The 9-item Asthma Sum Scale (Wahlgren et al., 1997)	Compared to adolescents who wrote about neutral topics, those who wrote about stressful events reported more positive affect and fewer internalising behaviours at follow up. Disclosure was also

Simon, M. R. (2006). Health effects of written emotional disclosure in adolescents with asthma: A randomized, controlled trial. Journal of Pediatric Psychology, 31(6), 557-568.		males Age range: 12-17 years old	account of how they manage their time. The control group were asked to write about a different topic each time and were told not to write about their feelings. Duration: All participants were instructed to write for 15-20 minutes on three consecutive days. Time points: Pre and five week post intervention.	• Child Behavior Checklist (CBCL) and by youth on the Youth Self Report of the CBCL (Achenbach, 1991). • Linguistic Inquiry and Word Count (SLIWC; Pennebaker, Francis, & Booth, 2001). • Functional Disability Inventory (FDI; Walker & Greene, 1991). • Spirometry	associated with a reduction in self-reported asthma symptoms and functional disability at follow-up. However, this was only found for participants who had elevated symptoms at baseline. Linguistic analysis suggested that the most improvements were seen for participants whose writing included more causal or insight words.
Wong, Y. J., & Rochlen, A. B. (2009). Potential benefits of expressive writing for male college students with varying degrees of restrictive emotionality. Psychology of Men & Masculinity,	America	158 male college students. Gender: All male. Mean age: 21.64 years.	Participants were randomly allocated to the expressive writing group or the control group. Those in the expressive writing group were asked to write about one's best possible emotional connectedness with a romantic partner and to discuss their feelings accordingly. The control participants were asked to write topics that were intended to be intellectually demanding but impersonal and non-emotional. Duration: All participants wrote for 20	• Linguistic Inquiry and Word Count (Pennebaker, Francis, & Booth, 2001). • Restrictive Emotionality Scale (O'Neil et al., 1986). • Positive Relations With Others Scale and the Personal Growth Scale (Ryff, 1989),	The results suggest that writing about one's best possible emotional connectedness with a romantic partner was associated with a reduction in psychological distress (in comparison to the control group).

10(2), 149.	minutes each day for three days Time points: pre and four week post intervention.

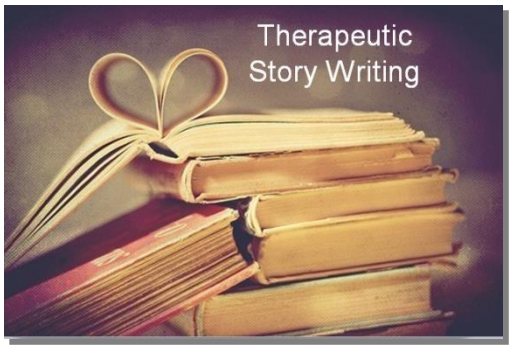
Appendix B

Parent consent form and information sheet

Parent/Carer CONSENT FORM (*Version 1, 06/08/14*)

Study title: An exploration of the Therapeutic Story writing (TSW) intervention as a means of reducing anxiety and enhancing working memory and the academic attainment of anxious children.

Researcher name: Jerricah Holder-Spriggs
Ethics reference: 10544



Please initial the box(es) if you agree with the statement(s):

I have read and understood the participant information sheet (version 1, 06/08/14) and can contact the researcher or school if I require any further information.	☐
I agree that my child can take part in the TSW group and in the research project.	☐
I understand that participation is voluntary and I may withdraw at any time without my legal rights being affected.	☐
I understand that all data will be anonymised and stored on a password protected computer.	☐
I am happy for the researcher to contact me via the telephone number provided in order to complete the parent rated anxiety measure.	☐

Name of child (print name)…….

Signature of legal guardian……

Parent telephone number……

Parent/Carer Information Sheet
(*Version 1, 06/08/14*)

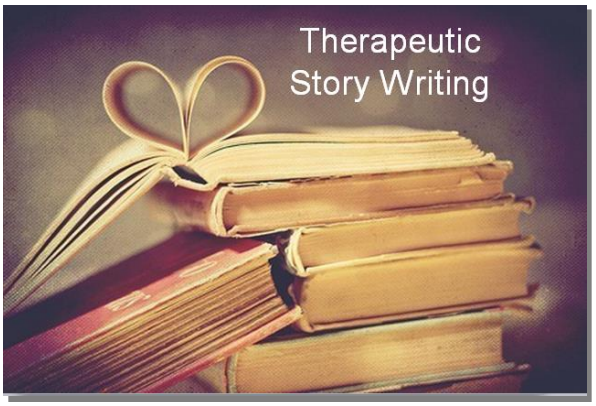
Please read this information carefully before deciding to take part in this research. If you are happy to participate you will be asked to sign a consent form.

Study Title: An exploration of the Therapeutic Story writing (TSW) intervention as a means of reducing anxiety and enhancing working memory and the academic attainment of anxious children.

Researcher: Jerricah Holder-Spriggs (Trainee Educational Psychologist)
Ethics number: 10544

What is the research about?

I am a trainee Educational Psychologist studying at the University of Southampton. I am currently evaluating the effectiveness of a school-based Therapeutic Story Writing (TSW) intervention.



Why has my child been chosen?

We are asking all schools in the local area to be involved in this research project. Your child has been identified as a young person who would benefit from the opportunity to be involved in a Therapeutic story writing group.

What is Therapeutic Story Writing?

Therapeutic story writing is a group based writing intervention that aims to support children's reading and writing skills, as well as their social and emotional development. Pupils are encouraged to write stories in which they can project their own worries and concerns onto story characters. By working through the emotional safety of story metaphor, pupils are able to discuss and process feelings that might otherwise be overwhelming (Waters, 2004).

The group will run for ten weeks and each session lasts approximately one hour. The group will be carried out by a member of school staff who has attended the three day training.

What will happen if my child takes part?

- Firstly, the young person will be asked if they would like to participate in the Therapeutic story writing group and the research project.
- The Therapeutic story writing group will be happening in school and will be carried out by a member of school staff.
- To measure the interventions effectiveness the child and their teacher will be asked to complete some measures, before and after the intervention. The child's parent will also be asked to complete a parent measure of childhood anxiety.

Are there any benefits to taking part?

- Through your involvement in the research project you will be supporting the Educational Psychology team to evaluate the effectiveness of TSW for this group of children and support its future development.
- Although the young person will not benefit directly from participating in the research project, it is hoped that they will benefit from being part of a TSW group.

Are there any risks involved? Some of the scales require the child to rate themselves on items that may be considered to be of a sensitive nature (e.g. I worry a lot). Wherever possible, a member of school staff who the child feels comfortable with and who knows the child well, will be asked to complete these scales with the child. A member of school staff will also be on hand if the child becomes upset or experiences any anxiety. At the end of each session the researcher and child will play a five minute mood lifting game to ensure the meeting has a positive end and the child will receive a certificate to thank them for their involvement.

Will my participation be confidential? Yes. All written records of the young person's information and data collected will anonymised. Data will be held in strictest confidence and stored securely on password-protected computers.

What happens if I change my mind? You are free to withdraw the child from the research project at any time, without giving a reason. Withdrawal from the research will in no way effect the young person's access to the intervention and data can be destroyed at your request.

APPENDICES

What happens if something goes wrong? In the unlikely case of concern or complaint, please contact the chair of the Ethics Committee: Psychology, University of Southampton, SO17 1BJ, UK. Phone: 02380 593856; Email: fshs-rso@soton.ac.uk.

Where can I get more information? Please keep this information sheet for your records. If you would like more information about the project please feel free to contact the researcher using the contact details below. A summary report on the research findings will be available from July 2015. If you would like further copies of this report please contact the young person's school or the researcher.

Jerricah Holder Spriggs (Researcher): jmhs1g12@soton.ac.uk

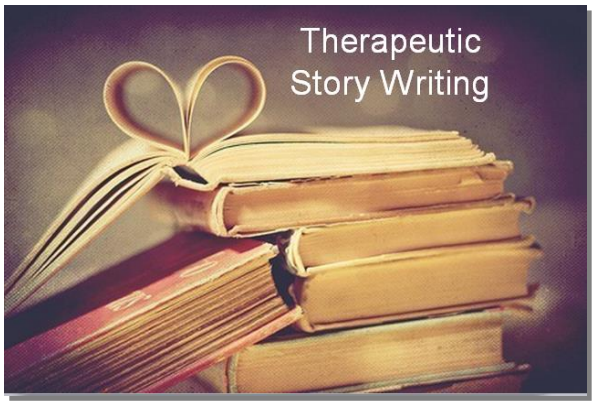
Appendix C

School consent form and information sheet

School CONSENT FORM (*Version 1, 06/08/14*

Study title: An exploration of the Therapeutic Story writing (TSW) intervention as a means of reducing anxiety and enhancing working memory and the academic attainment of anxious children.

Researcher name: Jerricah Holder-Spriggs
Ethics reference: 10544

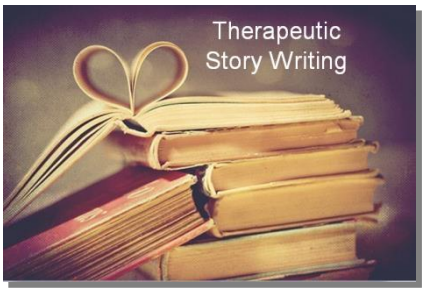


Please initial the box(es) if you agree with the statement(s):

I have read and understood the participant information sheet (version 1, 06/08/14) and have had the opportunity to ask any questions.	☐
I agree that the school is willing to support this research project and the children within the school can participate in the research project (subject to parent/carer consent also).	☐
I understand that participation is voluntary and that the school may withdraw at any time without their legal rights being affected.	☐
I understand that all data will be anonymised and stored on a password protected computer.	☐

Name: (print name)……

Signature: ……..



School Information sheet
(*Version 1, 06/08/14*)

Please read this information carefully before deciding to take part in this research. If you are happy to participate you will be asked to sign a consent form.

Study Title: An exploration of the Therapeutic Story writing (TSW) intervention as a means of reducing anxiety and enhancing working memory and the academic attainment of anxious children.

Researcher: Jerricah Holder-Spriggs (Trainee Educational Psychologist)
Ethics number: 10544

What is the research about?

I am a trainee Educational Psychologist studying at the University of Southampton. I am currently evaluating the effectiveness of a school-based Therapeutic Story Writing (TSW) intervention for anxious children.

TSW is an innovative and creative way to support children whose emotional difficulties are getting in the way of their academic learning. Pupils are encouraged to write stories in which they can project their own worries and concerns onto story characters. By working through the emotional safety of story metaphor, pupils are able to discuss and process feelings that might otherwise be overwhelming. As children are engaged in the process of writing stories, the intervention also promotes children's motivation to write and engagement with the writing process (Waters, 2004).

I am also interested in the effect of the intervention on the children's working memory capacity and academic attainment. Evidence suggests that anxious children may underperform at school because their anxiety reduces the capacity of their working memory (Eysenck et al., 2007; Klein & Boals, 2011). Their worries compete for attentional resources and may prevent them from concentrating fully in school.

Why has my school been chosen?

We are asking all schools in the local area to be involved in this research project and would very much appreciate your support in enabling the researcher to explore the impact of TSW for anxious children.

What will happen if my school takes part?

1. The TSW intervention will be happening in school and will be carried out by a member of school staff as usual.

2. The school's SENCo will be asked to identify children within the school who they believe to be experiencing anxious affect. These children will then complete the Spence children's anxiety scale, to identify children with the highest anxiety levels.

3. Based on the Anxiety scores, the children will be allocated to either the intervention group, who will receive the intervention straight away, or the waiting list control group, who will receive the intervention the following term.

4. The school will be asked to send out a parental anxiety measure, parent consent letters and a research information sheet on behalf of the researcher. The children will also be asked if they would like to participant in the research project.

5. The following pre and post measurements will need to be completed before and after the intervention:

    - Childhood anxiety measure (teacher, child and parent version)
    - Working memory measure (administered by the researcher)
    - National Curriculum Levels in Reading and Writing (to be provided by the school)

Are there any benefits to taking part?

- The school will be provided with a summary report of the findings, which could contribute to their own evaluations of TSW and effective interventions for this vulnerable group of children.
- Further to this, through your involvement in the research project you will be supporting the Educational Psychology team to evaluate the effectiveness of TSW for this group of children and support its future development.
- Although the young person will not benefit directly from participating in the research project, it is hoped that they will benefit from being part of a TSW group.

Are there any risks involved? Some of the scales require the child to rate themselves on items that may be considered to be of a sensitive nature (e.g. I worry a lot). Wherever possible, a member of school staff who the child feels comfortable with and who knows the child well, will be asked to complete these scales with the child. A member of school staff will also be on hand if the child becomes upset or experiences any anxiety. At the end of each session the researcher and child will play a five minute mood lifting game to ensure the meeting has a positive end and the child will receive a certificate to thank them for their involvement.

Will my participation be confidential? Yes. All written records of the young person's information, including the name of the school, and the data collected will anonymised. Data will be held in strictest confidence and stored securely on password-protected computers.

What happens if I change my mind? The school is free to withdraw from the research project at any time, without giving a reason. Withdrawal from the research will in no way effect the young person's access to the TSW group and data can be destroyed at request.

What happens if something goes wrong? In the unlikely case of concern or complaint, please contact the chair of the Ethics Committee: Psychology, University of Southampton, SO17 1BJ, Phone: 02380 593856; Email: fshs-rso@soton.ac.uk.

APPENDICES

Where can I get more information? Please keep this information sheet for your records. If you would like more information, please feel free to contact the researcher using the contact details below. A summary report on the research findings will be available from July 2015.

Jerricah Holder Spriggs (Researcher): jmhs1g12@soton.ac.uk
Tel: 07532376707

Appendix D

Email confirming ethical approval had been obtained

From: ERGO [mailto:ergo@soton.ac.uk]
Sent: 03 September 2014 12:34
To: Kreppner J.
Subject: Ethics ID:10544 has been reviewed and approved

Submission Number :10544
Submission Name :TSW research
This is email is to let you know one of your student submissions has been reviewed and approved by the ethics committee.

They can begin their research unless they are still awaiting specific Health and Safety approval (e.g. for a Genetic or Biological Materials Risk Assessment)

ERGO : Ethics and Research Governance Online
http://www.ergo.soton.ac.uk

DO NOT REPLY TO THIS EMAIL

APPENDICES

Appendix E

Assent script used to facilitate process of obtaining informed assent from the children.

“Hello (insert child name), how are you today? My name is Jerricah and I was hoping to work with you today. I have a funny long title. I’m an Educational Psychologist and I work with lots of different children in lots of different schools. I am interested in how children think, feel and learn and am always looking for ways in which we can make school better for children. Today I’m carrying out a research project for my University course and I wondered if you could help me?

Shall I tell you a little bit about what we will be doing and then you can decide and tell me if you are happy to carry on or if you would like to go back to class. So, we are going to be filling out this questionnaire and I will be asking you about worrying. We all have worries and that’s normal. I’m interested in the different worries that children have and how we might be able to help. We are also going to play some games with numbers and see how many numbers you can remember. We will be here for about 30 minutes and I will come back in 8 weeks and we will do it all over again and see how you are getting on. I will be collecting all the different answers from all the different children and putting them all together for my research. I won’t be mentioning any of the children’s names so nobody will now which scores are yours. Do you think this is something that you would like to do? Remember you can go back to class at any time, just let me know.”

Appendix F

Table 8: Table of participant National Curriculum (NC) Levels and achievement range according to age expectations for the intervention group.

Participant number	NC Writing	Range	NC Reading	Range
1	3c	Average	3b	Average
2	4b	Average	4a	Average
3	3c	Below average	3b	Average
4	2b	Below average	2b	Below average
5	3c	Below average	4c	Average
6	2b	Below average	2b	Below average
7	2b	Below average	2a	Below average
8	3b	Average	4c	Average
9	3c	Below average	3b	Below average
10	2b	Below average	2a	Below average
11	2a	Below average	3a	Below average
12	3c	Below average	3a	Below average
13	3a	Below average	3c	Below average
14	2a	Below average	3b	Below average
15	3c	Below average	3b	Below average
16	4c	Average	3b	Below average

Table 9: Table of participant National Curriculum (NC) Levels and achievement range according to age expectations for the control group.

Participant number	NC Writing	Range	NC Reading	Range
17	2b	Below average	2a	Below average
18	2b	Below average	2a	Below average
19	2b	Below average	3b	Average
20	2c	Below average	2c	Below average
21	2b	Below average	2c	Below average
22	1a	Below average	1a	Below average
23	3c	Below average	3c	Below average
24	2b	Below average	3b	Average
25	3b	Average	4c	Average
26	3b	Average	4c	Average

References

Akobeng, A. K. (2005). Understanding randomised controlled trials. *Archives of disease in childhood*, *90*(8), 840-844.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: American Psychiatric Association.

Aronen, E. T., Vuontela, V., Steenari, M. R., Salmi, J., & Carlson, S. (2005). Working memory, psychiatric symptoms, and academic performance at school. *Neurobiology of Learning and Memory*, *83*(1), 33-42.

Ashcraft, M. H., & Krause, J. A. (2007). Working memory, math performance, and math anxiety. *Psychonomic Bulletin & Review*, *14*(2), 243-248.

Bachelor, J., Murray, G., Warhurst, A., & Maclean, G. (2013). *Therapeutic Story Writing Groups: Forces children*. Hampshire: Hampshire service report

Barry, L. M., & Singer, G. H. (2001). Reducing maternal psychological distress after the NICU experience through journal writing. *Journal of Early Intervention*, 24(4), 287- 297.

Baum, E. S., & Rude, S. S. (2013). Acceptance-Enhanced Expressive Writing Prevents Symptoms in Participants with Low Initial Depression. *Cognitive therapy and research*, 37(1), 35-42.

Beesdo, K., Knappe, S., & Pine, D. S. (2009). Anxiety and anxiety disorders in children and adolescents: developmental issues and implications for DSM-V. *Psychiatric Clinics of North America*, *32*(3), 483-524.

REFERENCES

Bernstein, G. A., & Borchardt, C. M. (1991). Anxiety disorders of childhood and adolescence: A critical review. *Journal of the American Academy of Child & Adolescent Psychiatry, 30*(4), 519-532.

Birmaher, B., Khetarpal, S., Brent, D., Cully, M., Balach, L., Kaufman, J., & McKenzie Neer, S. (1997). The Screen for Child Anxiety Related Emotional Disorders (SCARED): scale construction and psychometric characteristics. *Journal of the American Academy of Child and Adolescent Psychiatry,* 36, 545–553.

Boniel-Nissim, M., & Barak, A. (2013). The therapeutic value of adolescents' blogging about social–emotional difficulties. *Psychological Services,* 10(3), 333.

Bray, M. A., Kehle, T. J., Peck, H. L., Margiano, S. G., Dobson, R., Peczynski, K., Gardner a, K. , Theodore, L., & Alric, J. M. (2005). Written emotional expression as an intervention for asthma: a replication. *Journal of Applied School Psychology*, 22(1), 141-165.

Bray, M. A., Theodore, L. A., Patwa, S. S., Margiano, S. G., Alric, J. M., & Peck, H. L. (2003). Written emotional expression as an intervention for asthma. *Psychology in the Schools*, 40(2), 193-207.

Burton, C. M., & King. L. A. (2004). The health benefits of writing about intensely positive experiences. *Journal of Research in Personality,* 38, 150–163.

Cameron, L. D., & Nicholls, G. (1998). Expression of stressful experiences through writing: Effects of a self-regulation manipulation for pessimists and optimists. *Health Psychology*, 17(1), 84.

Campbell, D.T., & Fiske, D.W. (1959). Convergent and discriminate validation by the multitrait-multimethod matrix. *Psychological Bulletin,* 56(2), 81-105.

Canino, G., Shrout, P. E., Rubio-Stipec, M., Bird, H. R., Bravo, M., Ramirez, R., & Martinez-Taboas, A. (2004). The DSM-IV Rates of Child and Adolescent

Disorders in Puerto Rico: Prevalence, Correlates, Service Use, and the Effects of Impairment. *Archives of General Psychiatry, 61*(1), 85-93.

Cattanach, A. (1994). *Play therapy: Where the sky meets the underworld*. Jessica Kingsley Publishers.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Costello, E. J., Egger, H., & Angold, A. (2005). 10-year research update review: the epidemiology of child and adolescent psychiatric disorders: I. Methods and public health burden. *Journal of the American Academy of Child & Adolescent Psychiatry*, 44(10), 972-986.

Critical Appraisal Skills Programme (CASP). (n.d.). *Critical Appraisal Skills Programme (CASP)*. Retrieved Jan 27, 2014, from http://www.casp-uk.net/

Dalton, J. J., & Glenwick, D. S. (2009). Effects of expressive writing on standardized graduate entrance exam performance and physical health functioning. *The Journal of psychology*, 143(3), 279-292.

Davis, T. E., Ollendick, T. H., & Nebel-Schwalm, M. (2008). Intellectual ability and achievement in anxiety-disordered children: A clarification and extension of the literature. *Journal of Psychopathology and Behavioral Assessment*, *30*(1), 43-51.

de Moor, C., Sterner, J., Hall, M., Warneke, C., Gilani, Z., Amato, R., & Cohen, L. (2002). A pilot study of the effects of expressive writing on psychological and behavioral adjustment in patients enrolled in a Phase II trial of vaccine therapy for metastatic renal cell carcinoma. *Health Psychology*, 21(6), 615.

Derakshan, N., & Eysenck, M. W. (1998). Working memory capacity in high trait-anxious and repressor groups. *Cognition and Emotion, 12*, 697–713.

REFERENCES

Elliman, N. A., Green, M. W., Rogers, P. J., & Finch, G. M. (1997). Processing-efficiency theory and the working-memory system: Impairments associated with sub-clinical anxiety. *Personality and Individual Differences, 23,* 31–35.

Essau, C., & Ollendick, T. (2013). *Treatment of Childhood and Adolescent Anxiety Disorders*. London: Wiley-Blackwell.

Eysenck, M. W., & Calvo, M. G. (1992). Anxiety and performance: The processing efficiency theory. *Cognition & Emotion, 6*(6), 409-434.

Eysenck, M. W., Derakshan, N., Santos, R., & Calvo, M. G. (2007). Anxiety and cognitive performance: attentional control theory. *Emotion, 7*(2), 336.

Facchin, F., Margola, D., Molgora, S., & Revenson, T. A. (2014). Effects of Benefit-Focused Versus Standard Expressive Writing on Adolescents' Self-Concept During the High School Transition. *Journal of Research on Adolescence,* 24(1), 131-144.

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39,* 175-191.

Farmer, E. M., Stangl, D. K., Burns, B. J., Costello, E. J., & Angold, A. (1999). Use, persistence, and intensity: patterns of care for children's mental health across one year. *Community mental health journal*, *35*(1), 31-46.

Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. London: Sage.

Field, A. & Hole, G. (2003). *How to design and report experiments.* London: Sage.

Fivush, R., & Haden, C. (1997). Narrating and representing experience: Preschoolers' developing autobiographical recounts. In P. van den Broek, P. A. Bauer, & T. Bourg (Eds.), *Developmental spans in event comprehension and representation:*

Bridging fictional and actual events (pp. 169_198). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Fivush, R., Marin, K., Crawford, M., Reynolds, M., & Brewin, C. R. (2007). Children's narratives and well-being. *Cognition and Emotion*, *21*(7), 1414-1434.

Fivush, R., & Sales, J. M. (2006). Coping, attachment, and mother-child reminiscing about stressful events. *Merrill-Palmer Quarterly,* 52, 125-150.

Francis, M. E., & Pennebaker, J. W. (1992). Putting Stress into Words: The Impact of Writing on Physiological, Absentee, and Self-Reported Emotional Weil-Being Measures. *American Journal of Health Promotion*, 6(4), 280-287.

Frattaroli, J. (2006). Experimental disclosure and its moderators: a meta-analysis. *Psychological bulletin*, *132*(6), 823.

Frattaroli, J., Thomas, M., & Lyubomirsky, S. (2011). Opening up in the classroom: Effects of expressive writing on graduate school entrance exam performance. *Emotion*, 11(3),691.

Frisina, P. G., Borod, J. C., & Lepore, S. J. (2004). A meta-analysis of the effects of written emotional disclosure on the health outcomes of clinical populations. *The Journal of nervous and mental disease,* 192(9), 629-634.

Gallant, M. D., & Lafreniere, K. D. (2003). Effects of an emotional disclosure writing task on the physical and psychological functioning of children of alcoholics. *Alcoholism Treatment Quarterly*, 21(4), 55-66.

Gathercole, S. E., & Pickering, S. J. (2000). Assessment of working memory in six-and seven-year-old children. *Journal of Educational Psychology*, *92*(2), 377.

REFERENCES

Giannotta, F., Settanni, M., Kliewer, W., & Ciairano, S. (2009). Results of an Italian school-based expressive writing intervention trial focused on peer problems. *Journal of adolescence*, 32(6), 1377-1389.

Goldman, N., Dugas, M. J., Sexton, K. A., & Gervais, N. J. (2007). The Impact of Written Exposure on Worry A Preliminary Investigation. *Behavior modification*, 31(4), 512- 538.

Gortner, E. M., Rude, S. S., & Pennebaker, J. W. (2006). Benefits of expressive writing in lowering rumination and depressive symptoms. *Behavior therapy*, 37(3), 292-303.

Greenberg, M. A., & Stone, A. A. (1992). Emotional disclosure about traumas and its relation to health: Effects of previous disclosure and trauma severity. *Journal of Personality and Social Psychology*, 63, 75–84.

Greenberg, M. A., Wortman, C. B., & Stone, A. A. (1996). Emotional expression and physical health: Revising traumatic memories or fostering self-regulation? *Journal of Personality and Social Psychology*, 71, 588– 602.

Habermas, T., & Bluck, S. (2000). Getting a life: The emergence of the life story in adolescence. Psychological Bulletin, 126, 748_769.

Hadwin, J. A., Brogan, J., & Stevenson, J. (2005). State anxiety and working memory in children: A test of processing efficiency theory. *Educational Psychology*, *25*(4), 379- 393.

Hamilton-West, K. E., & Quine, L. (2007). Effects of written emotional disclosure on health outcomes in patients with ankylosing spondylitis. *Psychology and Health*, 22(6), 637- 657.

Harris, A. H. (2006). Does expressive writing reduce health care utilization? A meta-analysis of randomized trials. *Journal of consulting and clinical psychology*, *74*(2), 243.

Harris, L. (2013). Evaluating the Impact of Therapeutic Storywriting on Childrens' Resilience and Emotional and Behavioural Adjustment. Submitted for publication.

Horowitz SM, Leaf PJ, Leventhal JM (1998) Identification of psychosocial problems in pediatric primary care: do family attitudes make a difference? *Arch Pediatric Adol Med* 152:367–371

Howard, G.S. (1994). Why do people say nasty things about self-reports? *Journal of Organizational Behavior*, 15, 399-404.

Huberty, T. J. (2012). *Anxiety and depression in children and adolescents: Assessment, intervention, and prevention*. New York: Springer Science & Business Media.

Klein, K., & Boals, A. (2001). Expressive writing can increase working memory capacity. *Journal of Experimental Psychology: General*, 130(3), 520.

Kliewer, W., Lepore, S. J., Farrell, A. D., Allison, K. W., Meyer, A. L., Sullivan, T. N., & Greene, A. Y. (2011). A school-based expressive writing intervention for at-risk urban adolescents' aggressive behavior and emotional lability. *Journal of Clinical Child and Adolescent Psychology*, 40(5), 693–705.

King, L. A., & Miner, K. N. (2000). Writing about the perceived benefits of traumatic events: Implications for physical health. *Personality and social psychology bulletin*, *26*(2), 220-230.

Lanahan, L., McGrath, D. J., McLaughlin, M., Burian-Fitzgerald, M., & Salganik, L. (2005). Fundamental problems in the measurement of instructional processes:

Estimating reasonable effect sizes and conceptualizing what is important to measure. *Washington, DC: American Institutes for Research,* 2007- 3835

Lepore, S. J., & Greenberg, M. A. (2002). Mending broken hearts: Effects of expressive writing on mood, cognitive processing, social adjustment and health following a relationship breakup. *Psychology and Health*, 17(5), 547-560.

Lepore, S. J., Greenberg, M. A., Bruno, M., & Smyth, J. M. (2002). Expressive writing and health: Self-regulation of emotion-related experience, physiology, and behavior. In S. Lepore & J. Smyth (Ed) T*he writing cure: How expressive writing promotes health and emotional well-being*, (pp. 99-117). Washington, DC, US: American Psychological Association.

Lepore, S. J., Ragan, J. D., & Jones, S. (2000). Talking facilitates cognitive–emotional processes of adaptation to an acute stressor. *Journal of personality and social psychology*, 78(3), 499.

Lumley, M. A., & Provenzano, K. M. (2003). Stress management through written emotional disclosure improves academic performance among college students with physical symptoms. *Journal of Educational Psychology*, *95*(3), 641.

Lyneham, H.J., Street, A., Abbott, M.J., & Rapee, R.M., (2008). Psychometric Properties of the School Anxiety Scale - Teacher Report (SAS-TR). *Journal of Anxiety Disorders*, 22 (2), 292-300.

MacLeod, C., & Donnellan, A. M. (1993). Individual differences in anxiety and the restriction of working memory capacity. *Personality and Individual Differences, 15,* 163–173.

Muris, P., Merckelbach, H., Ollendick, T., King, N., & Bogie, N. (2002). Three traditional and three new childhood anxiety questionnaires: Their reliability and

validity in a normal adolescent sample. *Behaviour research and therapy*, *40*(7), 753-772.

Margola, D., Facchin, F., Molgora, S., & Revenson, T. A. (2010). Cognitive and emotional processing through writing among adolescents who experienced the death of a classmate. *Psychological Trauma: Theory, Research, Practice, and Policy*, 2(3), 250.

Mazzone, L., Ducci, F., Scoto, M. C., Passaniti, E., D'Arrigo, V. G., & Vitiello, B. (2007). The role of anxiety symptoms in school performance in a community sample of children and adolescents. *BMC Public Health*, *7*(1), 347.

Meads, C., Lyons, A. C., & Carroll, D. (2003). *The impact of the emotional disclosure intervention on physical and psychological health: A systematic review*. University of Birmingham, Department of Public Health and Epidemiology.

Mesman, J., & Koot, H. M. (2001). Early preschool predictors of preadolescent internalizing and externalizing DSM-IV diagnoses. *Journal of the American Academy of Child & Adolescent Psychiatry*, *40*(9), 1029-1036.

Nauta, M. H., Scholing, A., Rapee, R. M., Abbott, M., Spence, S. H., & Waters, A. (2004). A parent-report measure of children's anxiety: psychometric properties and comparison with child-report in a clinic and normal sample. *Behaviour research and therapy*, *42*(7), 813-839.

Ng, E., & Lee, K. (2010). Children's task performance under stress and non-stress conditions: A test of the processing efficiency theory. *Cognition and Emotion*, *24*(7), 1229-1238.

Nicholson, C., Irwin, M., & Dwivedi, K. N. (Eds.). (2010). *Children and Adolescents in Trauma: Creative Therapeutic Approaches* (Vol. 18). Jessica Kingsley Publishers.

REFERENCES

Ollendick, T. H., & King, N. J. (1998). Empirically supported treatments for children with phobic and anxiety disorders: Current status. *Journal of Clinical Child Psychology, 27*(2), 156-167.

Owens, M., Stevenson, J., Hadwin, J. A., & Norgate, R. (2012). Anxiety and depression in academic performance: An exploration of the mediating factors of worry and working memory. *School Psychology International*, *33*(4), 433-449.

Owens, M., Stevenson, J., Norgate, R., & Hadwin, J. A. (2008). Processing efficiency theory in children: Working memory as a mediator between trait anxiety and academic performance. *Anxiety, Stress, & Coping*, *21*(4), 417-430.

Parker, J. S., Stewart, G. S., & Gantt, C. (2006). Research and intervention with adolescents exposed to domestic violence. *Family Therapy*, 33(1), 2006, 45-52

Pennebaker, J. W. (1989). Confession, inhibition, and disease. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 22, pp. 211–244). San Diego, CA: Academic Press.

Pennebaker, J. W. (1993). Putting stress into words: Health, linguistic, and therapeutic implications. *Behaviour research and therapy*, 31(6), 539- 548.

Pennebaker, J. W. (1997). Writing about emotional experiences as a therapeutic process. *Psychological science,* 8(3), 162-166.

Pennebaker, J. W. (2004). *Writing to heal: A guided journal for recovering from trauma & emotional upheaval*. US: New Harbinger Publications.

Pennebaker, J. W., & Beall, S. K. (1986). Confronting a traumatic event: toward an understanding of inhibition and disease. *Journal of abnormal psychology*, 95(3), 274.

Pennebaker, J. W., Colder, M., & Sharp, L. K. (1990). Accelerating the coping process. *Journal of personality and social psychology*, 58(3), 528.

Pennebaker, J. W., & Francis, M. E. (1996). Cognitive, emotional, and language processes in disclosure. *Cognition & Emotion*, 10(6), 601-626.

Pennebaker, J. W., Kiecolt-Glaser, J. K., & Glaser, R. (1988). Disclosure of traumas and immune function: health implications for psychotherapy. *Journal of consulting and clinical psychology*, 56(2), 239.

Pennebaker, J. W., Mayne, T. J., & Francis, M. E. (1997). Linguistic predictors of adaptive bereavement. *Journal of personality and social psychology*, *72*(4), 863.

Pennebaker, J. W., & O'Heeron, R. C. (1984). Confiding in others and illness rate among spouses of suicide and accidental-death victims. *Journal of abnormal psychology*, 93(4), 473.

Pennebaker, J. W., & Seagal, J. D. (1999). Forming a story: The health benefits of narrative. *Journal of clinical psychology*, 55(10), 1243-1254.

Petrie, K. J., Booth, R. J., Pennebaker, J. W., Davison, K. P., & Thomas, M. G. (1995). Disclosure of trauma and immune response to a hepatitis B vaccination program. *Journal of consulting and clinical psychology*, 63(5), 787.

Pickering, S., & Gathercole, S. E. (2001). *Working memory test battery for children (WMTB-C)*. Psychological Corporation.

Pine, D. S., Helfinstein S. M., Bar-Haim, Y., Nelson, E., & Fox, N. A. (2009). Challenges in developing novel treatments for childhood disorders: lessons from research on anxiety. *Neuropsychopharmacology*, 34(1):213–28.

Pocock, S. J., Assmann, S. E., Enos, L. E., & Kasten, L. E. (2002). Subgroup analysis, covariate adjustment and baseline comparisons in clinical trial reporting: current practice and problems. *Statistics in medicine*, *21*(19), 2917-2930.

REFERENCES

Putwain, D. W. (2008). Deconstructing test anxiety. *Emotional and Behavioural Difficulties*, *13*(2), 141-155.

Ramirez, G., & Beilock, S. L. (2011). Writing about testing worries boosts exam performance in the classroom. S*cience*, *331*(6014), 211-213.

Range, L. M., & Jenkins, S. R. (2010). Who benefits from Pennebaker's expressive writing paradigm? Research recommendations from three gender theories. *Sex Roles*, *63*(3-4), 149-164.

Rapee, R. M. (1993). The utilization of working memory by worry. *Behaviour Research and Therapy*, *31,* 617–620.

Rapee, R. M., Schniering, C. A., & Hudson, J. L. (2009). Anxiety disorders during childhood and adolescence: origins and treatment. *Annual Review of Clinical Psychology*, *5*, 311-341.

Rey, J. M., Schrader, E., & Morris-Yates, A. (1992). Parent-child agreement on children's behaviours reported by the Child Behaviour Checklist (CBCL). *Journal of adolescence*, *15*(3), 219-230.

Reynolds, M., Brewin, C. R., & Saxton, M. (2000). Emotional disclosure in school children. *Journal of Child Psychology and Psychiatry*, *41*(02), 151-159.

Richards, H. J., & Hadwin, J. A. (2011). An exploration of the relationship between trait anxiety and school attendance in young people. *School Mental Health*, *3*(4), 236-244.

Riordan, R. J. (1996). Scriptotherapy: Therapeutic writing as a counseling adjunct. *Journal of Counselling & Development*, *74*(3), 263-269.

Roberts, C., & Torgerson, D. J. (1999). Understanding controlled trials: baseline imbalance in randomised controlled trials. *British Medical Journal,* 319(7203), 185.

Sales, J.M., & Fivush, R. (2005). Social and emotional functions of mother_child conversations about stressful events. *Social Cognition*, 23, 66_88.

Schwartz, G. E. (1990). Psychobiology of repression and health: A systems approach. In J. L. Singer (Ed.), *Repression and dissociation* (pp. 4034). Chicago: University of Chicago Press.

Schoutrop, M. J., Lange, A., Hanewald, G., Davidovich, U., & Salomon, H. (2002). Structured writing and processing major stressful events: a controlled trial. *Psychotherapy and psychosomatics*, 71, 151–157.

Simon, E., & Bögels, S. M. (2009). Screening for anxiety disorders in children. *European child & adolescent psychiatry*, *18*(10), 625-634.

Sloan, D. M., & Marx, B. P. (2004). Taking pen to hand: Evaluating theories underlying the written disclosure paradigm. *Clinical Psychology: Science and Practice,* 11(2), 121- 137.

Sloan, D. M., Marx, B. P., Epstein, E. M., & Dobbs, J. L. (2008). Expressive writing buffers against maladaptive rumination. *Emotion*, 8(2), 302.

Smyth, J. M. (1998). Written emotional expression: effect sizes, outcome types, and moderating variables. *Journal of consulting and clinical psychology*, 66(1), 174.

Soliday, E., Garofalo, J. P., & Rogers, D. (2004). Expressive writing intervention for adolescents' somatic symptoms and mood. *Journal of Clinical Child and Adolescent Psychology*, 33(4), 792-801.

Spence, S. H. (1998). A measure of anxiety symptoms among children. *Behaviour research and therapy*, *36*(5), 545-566.

REFERENCES

Spence, S. H., Barrett, P. M., & Turner, C. M. (2003). Psychometric properties of the Spence Children's Anxiety Scale with young adolescents. *Journal of anxiety disorders*, *17*(6), 605-625.

Stice, E., Shaw, H., Burton, E., & Wade, E. (2006). Dissonance and healthy weight eating disorder prevention programs: A randomized efficacy trial. *Journal of Consulting and Clinical Psychology*, 74, 263–275.

Seipp, B. (1991). Anxiety and academic performance: A meta-analysis of findings. *Anxiety Research*, *4*(1), 27-41.

Taylor, L. A., Wallander, J. L., Anderson, D., Beasley, P., & Brown, R. T. (2003). Improving health care utilization, improving chronic disease utilization, health status, and adjustment in adolescents and young adults with cystic fibrosis: A preliminary report. *Journal of Clinical Psychology in Medical Settings*, 10, 9–16.

Thurmond, V. A. (2001). The point of triangulation. *Journal of nursing scholarship*, *33*(3), 253-258.

Trabasso, T., & Rodkin, P. C. (1994). Knowledge of goals/plans: A conceptual basis for narrating ''Frog where are you?''. In R. A. Berman & D. I. Slobin (Eds.), *Relating events in narrative: A cross linguistic developmental study* (pp. 85_106). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Tracey, S. A., Chorpita, B. F., Douban, J., & Barlow, D. H. (1997). Empirical evaluation of DSM-IV geralized anxiety disorder criteria in children and adolescents. *Journal of Clinical Child Psychology*, *26*(4), 404-414.

Van der Broek, P. W. (1997). Discovering the cement of the universe: The development of event comprehension from childhood through adulthood. In P. W. van der Broek, P. Bauer, & T. Bourg (Eds.), *Developmental spans in event comprehension*

and representation: Building fictional and actual events (pp. 321_342). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Warner, L. J., Lumley, M. A., Casey, R. J., Pierantoni, W., Salazar, R., Zoratti, E. M., & Simon, M. R. (2006). Health effects of written emotional disclosure in adolescents with asthma: A randomized, controlled trial. *Journal of Pediatric Psychology*, 31(6), 557-568.

Waters, T. (2004). *Therapeutic storywriting: A practical guide to developing emotional literacy in primary schools*. Hove: Routledge.

Waters, T. (2008). The use of Therapeutic Storywriting Groups to support pupils with emotional difficulties. *Support for Learning*, 23 (4), 187-192.

Wong, Y. J., & Rochlen, A. B. (2009). Potential benefits of expressive writing for male college students with varying degrees of restrictive emotionality. *Psychology of Men & Masculinity*, 10(2), 149.

Woodward, L. J., & Fergusson, D. M. (2001). Life course outcomes of young people with anxiety disorders in adolescence. *Journal of the American Academy of Child & Adolescent Psychiatry*, *40*(9), 1086-1093.

www.therapeuticstorywriting.com

Yogo, M., & Fujihara, S. (2008). Working memory capacity can be improved by expressive writing: A randomized experiment in a Japanese sample. *British journal of health psychology*, *13*(1), 77-80.