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University of Southampton

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**An Investigation into the Effects of Gratitude Interventions for School-Aged
Children**

by

Abigail Sharpe

Thesis for the degree of Doctorate in Educational Psychology

June 2020

University of Southampton

Abstract

Faculty of Human and Mathematical Sciences

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This paper examines the utility of using gratitude interventions with school-aged children. A systematic review of the existing literature revealed that there is currently insufficient evidence to advocate for universally using 'light touch' gratitude interventions with school-aged children; further research is needed to assess whether there are optimum conditions for delivering these interventions. Initial research examining an intervention designed to educate children about the social-cognitive appraisals involved when receiving benefits from other people has had more promising results. More research is required to assess whether interventions of this kind could be beneficial for diverse populations. The empirical study investigated using a gratitude diary intervention with a sample of pupils in years 5 and 6 ($n = 154$) from three UK primary schools. Overall, participants' change in gratitude was not significant but a significant increase was experienced by a sub-sample of participants ($n = 46$) who had lower pre-intervention gratitude scores. Other results indicated that any change in gratitude was not related to children's pre-existing enjoyment of writing, their enjoyment of keeping a gratitude diary, how hard they found it to think of things to write in their diary or the amount they wrote. Content analysis of a sample of diaries ($n = 27$) indicated that there were no significant differences in what children wrote about in their diary whether they experienced a change in gratitude or not. Participants' feedback on the intervention offers valuable insights into how children experienced keeping a gratitude diary. In line with this feedback, future research could adopt a less-prescriptive and more flexible intervention.

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Research Thesis: Declaration of Authorship

Print name: Abigail Sharpe

Title of thesis: An Investigation into the Effects of Gratitude Interventions for School-Aged Children

I 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.

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

Signature: Date:.....

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Definitions and Abbreviations

α	Cronbach's Alpha
η^2	Eta squared
η_p^2	Partial eta squared
χ^2	Chi-squared
ANCOVA	Analysis of covariance
ANOVA	Analysis of variance
BMSLSS	Brief Multidimensional Students' Life Satisfaction Scale
CC	Comparison condition
<i>d</i>	Cohen's <i>d</i> (measure of effect size)
<i>df</i>	Degrees of freedom
EWB	Emotional wellbeing
ERIC	Education Resources Information Center
GAC	Gratitude Adjective Checklist
GC	Gratitude condition
GQ-6	Gratitude Questionnaire- 6
HJC	Hassles journal condition
LS	Life satisfaction
<i>M</i>	Mean
<i>Mdn</i>	Median
MHC-SF	The Mental Health Continuum- Short Form
<i>n</i>	Size of a group of participants
NA	Negative affect

Definitions and Abbreviations

NT	Nice Thinking! An Educational Intervention that Teaches Children to Think Gratefully
p	Probability value
PA	Positive affect
PANAS-C	Positive and Negative Affect Scale for Children
PWB	Psychological wellbeing
r	Pearson's r
SD	Standard deviation
SOGI	Socially Oriented Gratitude Intervention
SoSB	Sense of school belonging
SWB	Social wellbeing
SPANE	Scale of Positive and Negative Experience
TGT	Three Good Things intervention
YYB	You at Your Best intervention

Chapter 1 What are the Effects of Gratitude Interventions for School-Aged Children?

1.1 Introduction

Over the last 20 years researchers have become increasingly interested in ‘positive youth psychology’ (Renshaw & Olinger Steeves, 2016) and exploring how experiences can be enhanced for all children. A leading theoretical model underpinning this move is Fredrickson’s (2004b) broaden-and-build theory which suggests not only that experiencing positive emotions is enjoyable within the moment but that these experiences may help to develop and maintain personal resources, which increase resilience when experiencing other, less desirable, emotions. One construct that Fredrickson (2004a) notes may broaden one’s thinking and build upon social and personal resources is gratitude. This review will consider how gratitude is defined and why being grateful could be of benefit to children. It will then focus on the question, of “What are the effects of gratitude interventions for school-aged children?”

1.1.1 Defining Gratitude

As Emmons and McCullough (2003) summarise, conceptualisations of gratitude are highly variable. It can be defined as: “an emotion, an attitude, a moral virtue, a habit, a personality trait or a coping response” (Emmons & McCullough, 2003, p.377). There is also much debate over how, and whether, gratitude can be considered a unique construct (McCullough, Emmons, & Tsang, 2002), with some exploring the philosophical differences between gratitude and concepts such as gladness or appreciation (Adler & Fagley, 2005; Rush, 2019).

The studies included in this review examine gratitude as an affective trait or a disposition. When using this conceptualisation, researchers are concerned with measuring how intensely and how frequently individuals experience gratitude and the concurrent number of people, or things, a person feels grateful for at a given point in time (McCullough et al., 2002). Gratitude is considered to be “experienced when people receive something beneficial” (Froh, Kashdan, Ozimkowski, & Miller, 2009) and is defined as “a sense of thankfulness and joy in response to receiving a gift” (Emmons, 2004, p.554).

1.1.2 Gratitude in Youth

Whilst research into youth populations is still in its infancy, initial correlational studies suggest that children's gratitude levels may be related to a host of other positive attributes including: autonomous motivation, engagement and academic achievement (King & Datu, 2018), positive affect, life satisfaction, optimism, pro-social behaviour, social support and less physical symptoms (Froh, Yurkewicz, & Kashdan, 2009), team satisfaction, life satisfaction and less athlete burnout (Chen & Kee, 2008) and reduced materialism (Chaplin, John, Rindfleisch, & Froh, 2019). This has led researchers to consider whether gratitude can be enhanced via intervention and, if so, whether participants also experience increases in other positive factors.

This review will consider what effects children experience from engaging in a gratitude intervention. For the purpose of this review a gratitude intervention is defined as an intervention where gratitude is the sole focus. This can vary from interventions designed to enhance the amount of gratitude a child expresses to those designed to teach children about the concept of gratitude. In order to isolate gratitude from other characteristics, interventions where other constructs also form part of the studied intervention have been excluded.

1.2 Review Methodology

This review will examine "What are the effects of gratitude interventions for school-aged children?".

1.2.1 Search Strategy

After completing a number of scoping searches, systematic searches were conducted on three electronic databases. Databases included: PsycINFO, Education Resources Information Center (ERIC) and Web of Science. Search terms were selected to ensure that all outcome-based studies where school-aged children were asked to engage in a gratitude intervention were captured. This included searching for the terms: pupil*, student*, youth, adolescen*, child* or teen* and interven* or experiment* and grateful* or gratitude or blessing* within the abstract or titles. Table 1 shows the search syntax used on each database.

Table 1 *Databases and Search Syntax Used*

Database	Search syntax
Education Resources Information Center (ERIC)	AB, TI(Pupil* OR Student* OR Youth OR Adolescen* OR Child* OR teen*) AND AB, TI(Interven* OR Experiment*) AND AB, TI(Grateful* OR Gratitude OR Blessing*)
PsycINFO	TI ((Pupil* OR Student* OR Youth OR Adolescen* OR Child* OR teen*) AND (Interven* OR Experiment*) AND (Grateful* OR Gratitude OR Blessing*)) OR AB ((Pupil* OR Student* OR Youth OR Adolescen* OR Child* OR teen*) AND (Interven* OR Experiment*) AND (Grateful* OR Gratitude OR Blessing*))
Web of Science	TOPIC: ((Pupil* OR Student* OR Youth OR Adolescen* OR Child* OR teen*) AND (Interven* OR Experiment*) AND (Grateful* OR Gratitude OR Blessing*))

1.2.2 Inclusion and Exclusion Criteria

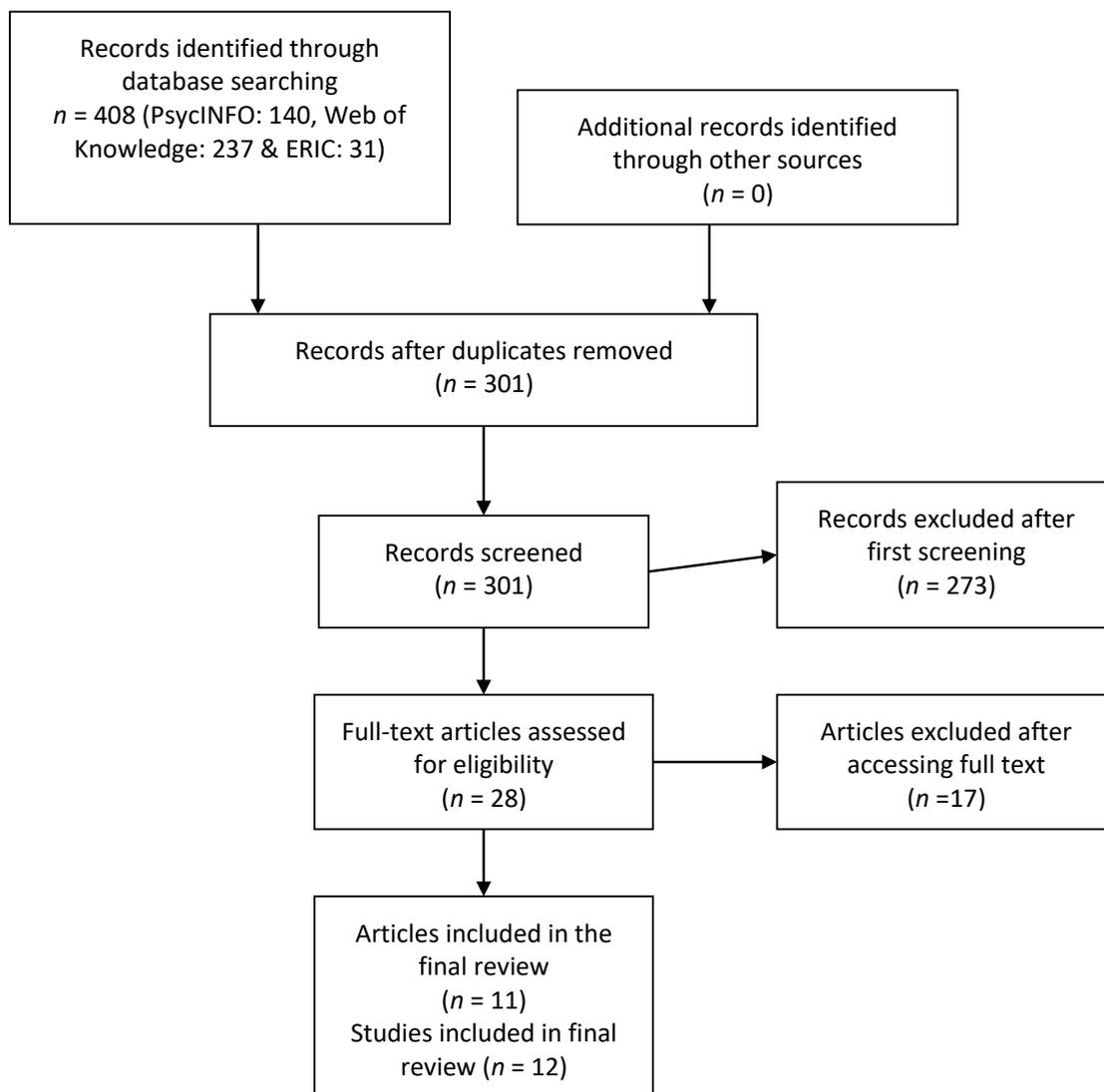
Table 2 outlines the inclusion and exclusion criteria which were applied to all papers retrieved via the systematic searches. Titles and abstracts were screened and any papers which did not meet the inclusion criteria were excluded. Full-texts of any papers which could meet the inclusion criteria were obtained and these were further screened for eligibility. A list of full-text papers accessed but excluded can be found in Appendix A.

Table 2 *Inclusion and Exclusion Criteria for Systematic Searches*

	Inclusion criteria	Exclusion criteria
Participants	Participants are aged between 5 and 16 years old or the mean age of participants is 16 years or below.	All participants are aged 16 and over or the mean age of the participants is above 16 years old.
Type of research	An empirical study examining the effects of intervention published in an academic journal.	Correlational designs. Review articles, discussion pieces, books or dissertations.
Type of intervention	At least some of the participants must have received an intervention where gratitude is the sole focus.	Gratitude is only one element of the intervention with other concepts involved.
Outcomes	Some outcome measures recorded.	No outcome measures recorded.
Language/country	Any (with translation available).	No translated version available.
Date	2007 onwards (as no earlier studies found via scoping searches).	Published before 2007.

The procedure of the systematic search is shown in the following PRISMA diagram (Figure 1). 11 journal articles were identified which met the inclusion criteria. Of these, one reported two studies which are assessed separately; therefore 12 studies are included in this review.

Figure 1 Flow Chart of Process of Systematic Searches



A data extraction table outlining key characteristics of each study can be found in Appendix B. Within this, each study has been assigned a number (provided in the first column, alongside the article citation). For ease, this number will be used to reference studies throughout this review.

1.2.3 Quality Assessment

The quality of included studies was assessed using an amended version of The University of Manchester's 2017 review framework for quantitative investigation research; see Appendix C for details of amendments and the list of questions used. In addition, the scoring options were expanded to allow greater depth of analysis. Each item was scored as: adequately addressed, partially addressed, not adequately addressed, not stated or not applicable. The rating each study received for each item can be found in the table in Appendix D. As papers have not been given a

summative score for quality (Boland, Cherry, & Dickson, 2017), the relative strengths and weaknesses of the studies will form part of the discussion. While no papers were excluded on the basis of quality, the process of quality assessment guided how much value to assign to each set of conclusions.

1.3 Description of Data Extraction

1.3.1 Study and Participant Characteristics

Table 3 outlines the key characteristics of the examined studies. The majority of studies ($n = 8$) were carried out in the United States of America (2, 4, 5, 6, 7, 8, 11 and 12), two in India (9 and 10), one in Singapore (1) and one in England (3). For nine of the studies, participants were recruited from schools and the interventions were delivered during the school day (1, 3, 4, 5, 6, 7, 8, 9 and 10). Participants for the remaining three studies were recruited from: summer day camps or after school care (12), summer programs (2) and residential group homes for youth offenders (11).

In total, across the 12 studies, there were 2,431 participants. The number of participants included in a single study ranged from $n = 25$ to $n = 1,017$, $M = 203$. 11 studies reported either age range or mean age (1, 2, 3, 5, 6, 7, 8, 9, 10, 11 and 12) with participants aged between 5-19 years. The remaining study (4) recruited 9th and 10th graders who are typically aged 14-16 years.

Participants' gender was recorded in all but one study (4). Ten of the remaining studies (1, 2, 3, 5, 6, 7, 8, 9, 10 and 12) had a close to equal split of males and females: on average 51% of participants were male. For the remaining study (11), participants were all male. Three studies did not report on the ethnicity of participants (3, 9 and 10). Of the studies that did, eight were conducted in the USA (2, 4, 5, 6, 7, 8, 11 and 12) and, on average, 70% of participants were described as Caucasian or European American. The remaining study was conducted in Singapore (1); 76% of participants were Chinese or Malay.

Table 3 Key Study and Participant Characteristics

Study	Study characteristics			Participant characteristics	
	Country	Site of intervention	No. participants	Age	Gender (% male)
1. Caleon et al. (2017)	Singapore	1 secondary school	103	<i>M</i> age of two sets of classes = 12.97 & 14.97	48
2. Chaplin, John, Rindfleisch, & Froh (2019)	USA	Summer programs	61	11-17 (<i>M</i> = 14.38, <i>SD</i> = 2.08)	48
3. Diebel, Woodcock, Cooper & Brignell (2016)	England	1 primary school	100	7-11 (<i>M</i> = 9.4)	51
4. Fritz, Armenta, Walsh, & Lyubomirsky (2019)	USA	4 high schools	1,017	Not reported. 9 th & 10 th graders	Not reported
5. Froh et al. (2014); Study 1	USA	Elementary School	122	8-10 (<i>M</i> = 9.03, <i>SD</i> = 0.33)	48.4
6. Froh et al. (2014); Study 2	USA	Elementary School	82	8-11 (<i>M</i> = 9.50, <i>SD</i> = 0.63)	54.9
7. Froh, Kashdan, Ozimkowski, & Miller (2009)	USA	1 parochial school	89	8-19 (<i>M</i> = 12.74, <i>SD</i> = 3.48)	49.4
8. Froh, Sefick, & Emmons (2008)	USA	Middle school	221	<i>M</i> = 12.17, <i>SD</i> = .67	49.8
9. Khanna & Singh (2016)	India	2 schools	177	11-14 (<i>M</i> = 14.97, <i>SD</i> = 0.67)	58
10. Khanna & Singh (2019)	India	2 schools	372	11-13 (<i>M</i> = 12.73, <i>SD</i> = 0.98)	56
11. Long & Davis (2011)	USA	3 residential group homes for youth offenders.	25	13-17 (<i>M</i> = 15, <i>SD</i> = 1.26)	100
12. Owens & Patterson (2013)	USA	3 after-school care sites & 2 summer day camp programs	62	5-11 (<i>M</i> = 7.35, <i>SD</i> = 1.73)	48.4

1.3.2 Intervention

Table 4 outlines key characteristics of the interventions in each study. Overall, interventions lasted for between five days and six weeks, with the frequency of intervention ranging from daily to weekly. The type of intervention experienced by the gratitude condition (GC) can be roughly divided into three categories: gratitude diaries (2, 3, 8 and 11), gratitude letters (4, 7 and 10) and gratitude-based curricula (1, 5, 6 and 9). In addition, one study involved a picture drawing intervention (12). Study 4 was the only study to have several GCs; these included writing to benefactors to express gratitude for: help with health, help with academics or doing something kind. These three groups were combined for analysis.

All of the studies had some form of neutral or inactive comparison condition (CC). Four studies (8, 10, 11 and 12) also had one or more other active CC. In three studies (10, 11 and 12) these conditions included interventions focussed on other areas of positive psychology, e.g., Using Signature Strengths. In study 8, a hassles journal condition (HJC) was used, where participants were instructed to list daily hassles.

The way in which participants were allocated to conditions varied across studies. In four studies, participants were randomly allocated to condition at the individual level (2, 3, 4 and 7) and in six studies, random allocation occurred at the level of classrooms (1, 5, 6, 8, 9 and 10). In one study (12), two methods of allocation were used; each after-school care site was randomly allocated to a condition whereas participants recruited from summer day camps were randomly allocated at the individual level. In one study (11), non-random allocation was made at the level of residential home so that residential home managers were given their preference of condition.

Table 4 *Key Characteristics of Interventions*

Study	Type of gratitude intervention	Comparison condition(s)	Length	Frequency	Time spent
1	Socially Oriented Gratitude Intervention	Curriculum as usual	2 weeks	Not reported	4 periods over a total of 140 minutes
2	Gratitude journal	Activities journal	2 weeks	Daily	Not reported
3	Gratitude diary	Event diary	4 weeks	Each school day	10 minutes
4	Three gratitude letter conditions with additional activities (related to health, academics or doing something kind).	List activities	4 weeks	Weekly	Unclear
5	Nice Thinking! Curriculum	Neutral curriculum	1 week	Daily	30 minutes
6	Nice Thinking! Curriculum	Neutral curriculum	5 weeks	Weekly	30 minutes
7	Gratitude letter	Event journal	2 weeks	Every other school day	10-15 minutes
8	Gratitude journal	Hassles journal & non-active control	2 weeks	Each school day	Not reported
9	Nice Thinking! Curriculum	Neutral curriculum	5 weeks	Weekly	30 minutes
10	Gratitude letter	Three Good Things, You at Your Best, Using Signature Strengths, Using Signature Strengths in a new way & placebo control (recalling earlier memories)	1 week	In own time	Not reported
11	Gratitude journal	Life goals & expectations for tomorrow journals	5 days	Daily	15 minutes
12	Gratitude focused picture drawing	Best possible selves & happy and interested focused picture drawing	4-6 weeks	Weekly	Not reported

1.3.3 Measures

Almost all measures used across studies were self-report measures. Gratitude was the most commonly measured construct, with nine studies utilising either the Gratitude Adjective Checklist (GAC, McCullough et al., 2002) (5, 6, 7, 8 and 9) or the Gratitude Questionnaire- 6 (GQ-6, McCullough et al., 2002) (1, 2, 3 and 4). In addition, one study (5) also used the number of thank you cards written by participants as a behavioural measure of gratitude and in three studies, (5, 6 and 9), benefit-appraisal vignettes were used to assess the social-cognitive perceptions underlying gratitude; participants were asked to imagine themselves in three 'helping situations' and asked to rate the following: the degree to which the benefactor acted with intent, the cost to the benefactor, the benefit to them as the beneficiary and, finally, their degree of gratitude.

Life satisfaction (LS) was measured in six studies; five of these (6, 8, 9, 10 and 12) used the Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS, Seligson, Huebner, & Valois, 2003), whilst one (11) used the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). One study (8) used two additional questions to rate life satisfaction. Positive and negative affect was measured in six studies: four studies (6, 7, 9 and 12) used the Positive and Negative Affect Scale for Children (PANAS-C, Laurent et al., 1999), one (4) used Diener and Emmon's (1984) Affect-Adjective Scale and one (8) used Well-Being Ratings as used by Emmons & McCullough (2003). Two studies (9 and 10) used both The Mental Health Continuum- Short Form (MHC-SF, Keyes, 2005) and the Scale of Positive and Negative Experience (SPANE, Diener et al., 2010).

All other measures were only used in a single study. These included measures of: relatedness with parents, teachers and peers (1), materialism (2), belonging (3), diet (4), indebtedness (4), connectedness (4), elevation (feeling positive, uplifting emotions) (4), humility (4), physical symptoms (8), reactions to aid (8), pro-social behaviour (8), happiness (10), depression (10), hope (11) and mood (11). Finally, one study (2) used a behavioural measure of generosity by measuring how much of a \$10 participation fee was donated to charity.

Most studies took measures at only two time points: pre- and post-intervention (1, 2, 3, 5, 9, 10, 11 and 12). Four studies also collected follow-up data (4, 6, 7 and 8); this occurred at varying lengths of time including: three weeks (8), 3 months (4), 2, 7 and 15 weeks (6) and 1 and 2 months (7) post-intervention.

1.3.4 Results

Results are summarised by outcome type. Outcomes which were measured by more than one study are synthesised together, with additional results listed separately.

1.3.4.1 Gratitude and associated measures

Gratitude was measured in nine studies. Six of these found significant effects of the intervention on gratitude for the GC relative to the CC. In four of these, ANOVAs or ANCOVAs were employed yielding the following results: study 2; $F(1, 59) = 27.58, p < .01, d = 1.35$, study 3; $F(1, 96) = 15.94, p < .001, \eta_p^2 = 0.14$, study 5; $F(1, 95) = 4.25, p = .05, \eta^2 = 0.04$ and study 9; $F(1,174) = 9.24, p = .003, \eta_p^2 = 0.05$. In study 8, a significant difference only existed between the GC and the HJC, $F(1,213) = 6.63, p = .01$, not between the GC and non-active CC. These differences were still present at three weeks post-intervention, $F(1,213) = 7.97, p < .01$. In study 6, hierarchical linear modelling was used; there was a significant intervention effect on the linear slope, $t(df = 80) = 1.68, p = .05, r = 0.18$, which led to significant differences in gratitude at seven weeks post-intervention GC > CC, $t(df = 80) = 1.82, p = .04, d = 0.41$ and 15 weeks post-intervention GC > CC, $t(df = 80) = 2.14, p = .02, d = 0.48$.

Post-intervention differences in gratitude between the GC and the CC were not significant in two studies (1 and 7). However, in study 7 when hierarchical regression models were run, pre-intervention PA moderated the effects of the experimental condition on post-intervention levels of gratitude; in a separate analysis of participants who had pre-intervention PA at one SD below the whole cohort mean, the GC significantly predicted more post-intervention gratitude than the CC, $t(85) = -2.71, p = 0.01$. These differences were not maintained to follow-up. Gratitude was also measured in study 4 but only after the first intervention activity; at this time the GCs, when combined, reported significantly higher gratitude than the CC, $t(962) = 2.80, p < .01, r = 0.09$. The study reported that being in a GC predicted increased gratitude throughout the study but did not provide supporting statistics.¹

Three studies used benefit-appraisal vignettes. In studies 5 and 9 the GC reported significantly stronger benefit appraisals post-intervention than the CC: study 5; $F(1, 98) = 5.88, p = .05, \eta^2 = 0.06$ and study 9; $F(1, 174) = 18.60, p = .001, \eta_p^2 = 0.01$. In study 6, there was a significant intervention effect on linear slope, $t(df = 80) = 3.09, p = .001, r = 0.33$ which led to significant differences between the GC and the CC at 7 weeks $t(df = 80) = 2.39, p = .01, d = 0.53$ and 15 weeks $t(df = 80) = 3.31, p = .001, d = 0.74$ post-intervention. In study 5, it was also found that condition and the writing of thank you cards was significantly related, $\chi^2(1, N = 122) = 4.65, p < .05$, Cramer's $V = 0.20$, with 43.5% of the GC writing thank you cards compared to 25% of the CC.

¹ The study's authors recommended that readers refer to supplementary materials for additional statistics. These were requested from the publisher. However, a copy was not held on file.

1.3.4.2 Life satisfaction

Life satisfaction (LS) was measured in six studies. Significant post-intervention differences between groups were found in two studies: study 9; GC > CC, $F(1, 174) = 18.41, p = .001, \eta_p^2 = 0.1$ and study 10 GC > Three Good Things intervention (TGT), $p = .02$. In four studies (6, 8, 11 and 12), there were no significant differences in LS between the GC and the CC. In study 8, there were significant post-intervention differences in LS between the non-active CC and the HJC ($p < .05$) and the GC reported greater satisfaction with school than both CCs ($p < .05$).

1.3.4.3 Positive affect

Positive affect (PA) was measured in six studies. In study 9, the GC had significantly higher PA post-intervention than the CC, $F(1, 174) = 7.65, p = .006, \eta_p^2 = 0.04$. In study 6, there was a significant intervention effect on linear slope, $F(df = 80) = 2.72, p = .004, r = 0.29$ which led to significant differences in PA between the GC and the CC at 7 weeks ($t(df = 80) = 1.77, p = .04, d = 0.40$) and 15 weeks ($t(df = 80) = 2.46, p = .008, d = 0.55$) post-intervention. In study 4, PA was described as being measured “at each time point”; however, it is unclear precisely when this was measured. It appears that it was first measured after the initial intervention activity; at this time, they found that the GCs, when combined, reported higher PA than the CC, $t(958) = 2.73, p < .01, r = 0.09$. It is also noted that being in a GC predicted increased PA throughout the study, however supporting statistics are not reported. There were no significant differences in PA between the GC and the CC in three studies (7, 8 and 12). However, in study 7, when pre-intervention PA was used as a moderator of the effects of experimental condition on PA, there were significant interactions for PA at post-intervention, $p = .04$ and 2 month follow up, $p = .03$.

1.3.4.4 Negative affect

Negative affect (NA) was measured in six studies. There were no significant differences in self-reported NA between the GC and the CC in four studies (6, 7, 9 and 12). In study 6, NA decreased for the whole sample.

In study 8, both the GC and the non-active control reported lower levels of NA than the HJC at post-intervention (GC < HJC $F(1,216) = 5.05, p < .05$; non-active CC < HJC $F(1,216) = 6.85, p < .01$) and follow-up (GC and non-active CC < HJC $F(1,214) = 12.03, p < .01$).

In study 4, it appears NA was initially measured after the first intervention activity. At this time point, they found that the GCs, when combined, reported lower NA than CC, $t(958) = 2.26, p < .05, r = 0.07$. They also report that being in a GC predicted reduced NA over time but do not

provide supporting statistics. Mediation analysis indicated that reductions in NA predicted better eating behaviours at post-test ($b = 0.07, p < .05$) and 3 month follow-up ($b = 0.08, p < .05$).

1.3.4.5 Mental health continuum

Two studies (9 and 10) used the Mental Health Continuum- Short Form (MHC-SF, Keyes, 2005). In study 9, there were significant differences between the GC and the CC for the MHC-SF overall $F(1, 174) = 9.51, p = .002, \eta_p^2 = 0.05$ and the subscale of psychological wellbeing (PWB) $F(1, 174) = 12.81, p = .001, \eta_p^2 = 0.07$. In study 10, there were no significant differences between the GC and the placebo CC, but significant differences were found between the GC and TGT for overall MHC-SF, $p = .05$ and PWB, $p = .03$. No significant results were found in relation to the subscales of emotional wellbeing (EWB) or social wellbeing (SWB) in either study 9 or 10.

1.3.4.6 Positive and negative experiences

Two studies (9 and 10) used the Scale of Positive and Negative Experience (SPANE, Diener et al., 2010). In study 9 there was a significant difference between the GC and the CC in the overall scores $F(1, 174) = 6.20, p = .01, \eta_p^2 = 0.03$ and in positive experiences $F(1, 174) = 11.92, p = .001, \eta_p^2 = 0.06$ but not negative experiences. In study 10, there were no significant differences between the GC and the placebo CC, but significant differences were found between the GC and TGT for positive experiences $p = .01$. There were no significant differences in the overall score or negative experiences.

1.3.4.7 Other results

Five studies used unique outcome measures; the results from these studies will be summarised in turn. In study 1, differences in the GC and the CC overall relatedness were non-significant. However, there were significant differences between the GC and the CC in relatedness with parents, $F(1, 101) = 4.61, p = .03, \eta^2 = 0.04$ and relatedness with friends $F(1, 101) = 3.31, p = .07, \eta^2 = 0.03$. In study 2, the GC reported lower levels of materialism post-intervention than the CC $F(1, 59) = 3.03, p < .01, d = 0.45$ and displayed significantly more generosity when given the option to donate some of their research fee to charity, $F(1, 59) = 11.23, p < .01, d = 0.86$.

In study 3, sense of school belonging (SoSB) significantly increased over time for the GC, $F(1,96) = 29.41, p < .001, \eta_p^2 = 0.24$. SoSB also correlated with increases in gratitude, $r(100) = .350, p < .001$. In study 4, multilevel growth curve modelling was used and revealed that the GCs, when combined, reported healthier eating behaviour overtime than the CC, $\gamma_{11} = 0.28, p < .05, d = 0.54$.

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Being in the GCs also predicted increased elevation, connectedness and indebtedness² however, no statistics are reported alongside these claims. Results for humility were non-significant.

In study 8, feelings of 'gratitude in response to aid' significantly correlated with PA, LS over the past few weeks, optimism about the upcoming week and overall LS, $p < .01$. They found that both the GC and the non-active control reported significantly more gratitude in response to aid than the hassles condition at three weeks post-intervention, $p < .01$. Further analysis was conducted to assess whether gratitude in response to aid mediated changes in general gratitude. Data for the non-active CC was removed. The authors report that, when controlling for intervention group, gratitude in response to aid, when measured at 3 weeks post-intervention, predicted general gratitude, also measured at 3 weeks post-intervention. As these measures were taken at the same time point, they cannot rule out that the nature of the effect was reversed, i.e., general gratitude was the mediator. No significant differences between groups were found in relation to physical symptoms or pro-social behaviour.

In study 10, the GC significantly differed from the TGT and You at Your Best (YYB) conditions on happiness (GC > TGT $p = .02$ and GC > YYB $p = .02^3$) but there were no significant results between any of the conditions in relation to depression. In study 11, the GC did not fare better than either of the other two conditions (the life goals journal or expectations for tomorrow journal) on either hope or mood, but there were significant main effects on both measures for the participants as a whole: mood, $F(1,19) = 17.88$, $p < .001$, $\eta^2 = 0.485$ and hope, $F(1,17) = 8.38$, $p = .01$, $\eta^2 = 0.33$. In study 12, the only significant result was a significant increase in self-esteem for the best possible future selves' condition. There were no significant results relating to the GC.

1.4 Discussion

A systematic search of the literature identified 12 studies which examined the effects of using gratitude interventions with school-aged participants. These studies employed a range of interventions. For those using similar interventions, there are variations in the age of participants, duration and frequency of intervention and participant sampling. The quality and clarity of study design and methodology was also variable. The results of the examined papers will be synthesised

² The paper states that "expressing gratitude predicted reduced negative affect, as well as greater elevation, connectedness, and elevation" (Fritz, Armenta, Walsh, & Lyubomirsky, 2019, p.10). It has been assumed that this is an error and they meant to include indebtedness in this list.

³ The paper notes "MB and GV" significantly differed. It has been assumed that this was meant to say 'YB' (the adopted acronym for the You at Your Best condition).

and discussed within the four broad groups of gratitude interventions: gratitude diaries, gratitude letters, gratitude-based curricula and a picture drawing intervention.

1.4.1 Gratitude Diaries

Four of the examined studies asked participants in the GC to keep a gratitude diary (2, 3, 8 and 11). Three of these studies (2, 3 and 8) found significant post-intervention differences between the GC and at least one CC. However, detailed inspection of data reveals that the nature of these differences is inconsistent. There is also substantial variation in the clarity and detail with which both the intervention and the findings are reported. These strengths and weaknesses need to be taken into account when considering the implications of each study's conclusions.

In study 8 it is reported that "counting blessings was associated with enhanced self-reported gratitude, optimism, life satisfaction and decreased negative affect" (Froh et al., 2008, p.213). However, inspection of the data does not appear to fully support these claims and key pieces of information are missing which make it challenging to clearly assess the implications of their findings. The study employed both a non-active CC and a hassles journal condition (HJC). In terms of gratitude, there were no significant differences between the GC and non-active CC at any time point, however there were significant differences between the GC and HJC at post-test ($F(1,213) = 6.63, p = .01$) and follow-up ($F(1,213) = 7.97, p < .01$). Pre-intervention scores are not provided for any of their measured outcomes, meaning it is not possible to confirm the nature of the change that has taken place for any group from pre-to-post intervention, or to confirm that gratitude was enhanced for the GC. 8-day aggregate scores are reported for each outcome measure. These combine data from all intervention days excluding pre, post and follow-up data. Gratitude scores follow a consistent pattern, with the non-active CC having higher mean gratitude than both the GC and the HJC at each time point (8-day aggregate, post-test and follow-up). The GC then report the second highest scores and the HJC report lower scores than both the other groups. Despite this pattern, the non-active CC's scores are not found to be significantly different to either group at any time point. This may be a function of using pre-intervention scores as a covariate however this cannot be concluded from the available data. A similar pattern is found in relation to negative affect; both the GC and non-active control report significantly lower NA than the HJC at post-test and follow up. Without pre-intervention scores, it cannot be confirmed whether this relates to a reduction in NA for the GC and non-active control or an increase in NA for the HJC.

The study also reports that, post-intervention, the GC significantly differed in satisfaction with school in comparison to both the HJC ($p < .05$) and the non-active CC ($p < .05$). Satisfaction

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with school is a single question from the BMSLSS. The GC did not fare better than either of the other two groups on overall BMSLSS scores or the other four items of the measure. As satisfaction with school does not appear to have formed part of the authors' initial hypothesis, it is conceivable that the decision to conduct this depth of analysis was made post-data collection. One conclusion that can be safely drawn from this study is that the GC and the non-active CC reported higher mean gratitude and lower mean NA than the HJC at post-intervention and 3 week follow-up. However, what this means for implementing a gratitude diary intervention is unclear.

Study 3 found a significant interaction between time and condition in relation to gratitude, $F(1, 96) = 15.94, p < .001, \eta_p^2 = 0.14$. However, the authors acknowledge that this difference was driven by a large decrease in GQ-6 scores for the CC (mean decrease for females of 2.6 and males of 4.4) and that increases in the GC were only experienced by males (mean increase of 2.5) and not females (mean decrease of 0.2). There was also a significant interaction between time and intervention for sense of school belonging (SoSB), $F(1,96) = 28.30, p < .001, \eta_p^2 = 0.23$. Unlike with gratitude, this difference represented a significant increase in the GC (mean increase of 2.54) and a non-significant decrease in the CC (mean decrease of -0.927). This suggests that keeping a gratitude diary may be more effective at enhancing SoSB than gratitude. Increases in gratitude were also found to correlate with increases in SoSB ($r(100) = .350, p < .001$). This finding falls in line with correlational research which has found that an increase in gratitude often co-occurs with increases in other wellbeing measures. However, the conclusion that SoSB appears to have been universally enhanced whilst gratitude only increased for males, suggests that the relationship between these variables may be more complex than assuming that an increase in gratitude acted as a catalyst for increasing SoSB. It is a considerable strength of the study design that individuals were randomly allocated to condition, as it is less likely that the observed effects occurred due to between group differences. However, as participants were only recruited from a single school the results are not widely generalisable. This study provides some initial evidence that gratitude diaries, when delivered with 7-11 year olds in a school setting, may be effective in increasing male participants' gratitude and SoSB for all participants.

In study 2, keeping a gratitude diary was successful in enhancing gratitude for those in the GC in comparison to the CC. The groups did not significantly differ on pre-intervention gratitude ($F(1, 59) = .16, p > .69, d = 0.10$) but significantly differed at post-intervention ($F(1, 59) = 78.19, p < .01, d = 2.26$) with a large effect size. Inspection of the data indicates that mean GQ-6 scores reduced slightly for the CC (-0.28 points) and increased for the GC (+1.27 points). The GC also displayed less materialism ($F(1, 59) = 3.03, p < .01, d = 0.45$) and more generosity ($F(1, 59) = 11.23, p < .01, d = 0.86$) than CC at post-intervention. As with study 3, a strength of the study is that random allocation to condition was at the level of individuals. However, some aspects of the

design are less clear: they do not report how many participants formed the GC and CC, do not provide details on how long participants were given to write their diaries or when and how this took place. Further details of how the intervention was delivered may have offered some insight as to why these results differ with those in other studies. As no correlational or mediator analysis was conducted, we cannot speculate on how enhancements in gratitude and generosity and reductions in materialism were related to one another. There are key differences in this study that may have contributed to their results. Firstly, participants were slightly older (M age = 14.38) than those in other studies (study 3; M age = 9.4 and study 8; M age = 12.17). While there is limited empirical research into the developmental trajectory of gratitude, researchers have theorised that the experiences of gratitude may emerge between the ages of 7 and 10 (Froh, Kashdan, et al., 2009). It is possible that older participants may be more practised in the act of being grateful and therefore more susceptible to benefiting from keeping a gratitude diary. In addition, whilst studies 8 and 3 recruited participants from school settings, participants in this study were recruited from summer programmes. Whilst no details are given regarding the nature of the summer programmes, it is conceivable that some aspect of this environment may have been more conducive to enhancements in measures than those interventions delivered in school settings, for example, children may have been involved in more novel or exciting activities that generated more feelings of gratitude than engaging in school-based tasks.

Study 11 was the only study to recruit youth offenders; a unique group and arguably one who could greatly benefit from interventions to enhance wellbeing. However, there are substantial limitations to the research design; allocation to condition was not randomised, the sample size ($n = 25$) is the smallest of the examined studies and the authors do not report on the internal consistency of their measures. The intervention was designed to last five days; however, due to issues at their particular home, participants in the GC wrote for four non-consecutive days. The study's authors found that the GC did not experience any statistically significant differences in relation to either CC (life goals journal or expectations for tomorrow journal). However, there were significant main effects on both hope ($F(1,17) = 8.38, p = .01, \eta^2 = 0.33$) and mood ($F(1,19) = 17.88, p < .001, \eta^2 = 0.485$) from pre- to post-intervention for the participants as a whole. As mean scores are not provided for each group, we cannot tell the degree of benefit experienced by the GC. However, this preliminary finding suggests the act of keeping a diary, not specifically expressing gratitude, may have been beneficial for these young offenders.

Headline findings from these studies indicate that gratitude diary intervention groups have experienced some benefits over controls in relation to gratitude (2, 3 and 8), generosity (2), SOSB (3), satisfaction with school (8) and materialism (2). However, on closer examination, some of these significant results are, at least in part, a function of deterioration in mean scores of the CC.

By a similar token, despite not finding any significant differences between groups, results in study 11 suggest the GC, along with the other diary conditions, may have increased in both hope and mood. As it stands, there is insufficient evidence to conclude that keeping a gratitude diary will be universally beneficial for school-aged children. There are countless avenues for further research to pursue, including examining if, and why, young males experience greater benefits than females, whether gratitude tends to mediate enhances in other measures, such as reduced materialism and enhanced generosity, and whether hope and mood can be enhanced by keeping a gratitude diary.

1.4.2 Gratitude Letters

In three of the examined studies (4, 7 and 10), participants in the GC were asked to write a letter expressing gratitude to another. As with studies examining the effects of keeping a gratitude diary, there is variation in research designs and the studies' findings are inconsistent.

Study 7 took measures of gratitude, PA and NA at four time points: pre-intervention, post-intervention, 1 month post-intervention and 2 months post-intervention. It was the only study in this group to take a pre-intervention measure of gratitude. Overall, no significant main effect of condition was found for any outcome measures. However, subsequent analysis found that when only including participants one SD below the mean for pre-intervention PA, the GC predicted significantly more gratitude than the CC directly post-intervention ($t(85) = -2.71, p = 0.01$) and significantly more PA at 2 months post-intervention ($t(85) = -2.78, p < 0.01$). Differences on measures at all other time points did not reach statistical significance. The authors report that, directly prior to completing post-intervention measures, participants in the GC met to discuss their intervention experiences. They concede that this experience could have influenced how participants scored on post-intervention measures. This was the first study to examine whether existing individual differences in wellbeing could influence how much participants benefit from a gratitude intervention. This preliminary finding suggests that gratitude interventions may be more effective when used with targeted groups, such as those with low in positive affect.

Study 4 has a number of methodological advantages over other studies; the sample size is the largest examined in this review ($n = 1,017$) and includes participants recruited from a mixture of public and independent schools ($n = 4$), helping to ensure findings are more widely generalisable. In addition, participants were randomised to condition at the individual level which helps to control for differences between schools and classes. However, aspects of the reporting are unclear and the authors do not provide full statistics for all analyses. Whilst the study's

authors frequently suggest referring to 'supplementary materials' for additional statistics, a copy of these was not available from the publisher.

The study employed three GCs, including gratitude for: help with health, help with academics or doing something kind; these groups were combined for most analyses. Alongside writing a letter, additional activities were added to help strengthen the gratitude induction. This included: reading testimonies of peers about the benefits of expressing gratitude, writing about the intentions, benefits and costs their benefactor experienced or writing about how expressing gratitude leads to feelings of connectedness or indebtedness. They were also asked to do something to "improve themselves" in a specific aspect of their life during the week.

Whilst it is not explicitly stated, it appears that gratitude, PA and NA were only measured for the first time after an initial intervention activity had taken place; this suggests that pre-existing between-group differences in these variables were not controlled for. However, the authors found that after this initial activity GCs reported higher gratitude ($t(962) = 2.80, p < .01, r = 0.09$), higher PA ($t(958) = 2.73, p < .01, r = 0.09$) and lower NA ($t(958) = 2.26, p < .05, r = 0.07$) than the CC. They also report that being in the GCs predicted greater elevation (feeling positive, uplifting emotions), connectedness, and indebtedness throughout the study but do not provide supporting statistics. The primary focus of this study was to investigate the impact of expressing gratitude on healthier eating. Through multilevel growth curve modelling they found that the GCs reported healthier eating over time, $\gamma_{11} = 0.28, p < .05, d = 0.54$. Interestingly, follow-up mediation analysis indicated that healthier eating was not mediated by changes in gratitude at either post-intervention ($b = 0.02, p = .46$) or at 3 month follow-up ($b = 0.03, p = .36$) but rather reductions in NA predicted better eating behaviours at post-test ($b = 0.07, p < .05$) and 3 month follow-up ($b = 0.08, p < .05$). This finding highlights the complex processes that may be underpinning some of the observed effects of gratitude interventions and calls into doubt the assumption that increases in wellbeing are always causally linked to increases in gratitude. As no mean values are reported for any variables, we cannot comment on the degree of change experienced by any individual group.

Study 10 compared five positive psychology interventions (PPIs), including writing a gratitude letter, with a CC which involved recalling early memories. The study aimed to assess the effectiveness of PPIs used with a sample of children in India. The procedure is clearly reported and, to ensure accessibility for all participants, the authors provided versions of measures translated into Hindi. Reliability for most measures was acceptable ($\alpha \geq 0.70$), however for the SPANE $\alpha = 0.67 - 0.77$, suggesting the reliability of some aspects of the measure may be questionable.

ANCOVA results found significant overall effects for social wellbeing ($F(5, 365) = 2.49$, $p = .03$, $\eta_p^2 = .03$), psychological wellbeing ($F(5, 365) = 2.85$, $p = .02$, $\eta_p^2 = .04$), overall mental health ($F(5, 365) = 2.79$, $p = .02$, $\eta_p^2 = .04$), positive experiences ($F(5, 365) = 2.89$, $p = .01$, $\eta_p^2 = .04$), life satisfaction ($F(5, 365) = 2.88$, $p = .01$, $\eta_p^2 = .04$) and happiness ($F(5, 365) = 4.47$, $p = .01$, $\eta_p^2 = .06$). Whilst there were no significant post-intervention differences between the GC and the CC, the GC did significantly differ to two other interventions on some measures: psychological wellbeing (GC > TGT, $p = .03$), MHC (GC > TGT, $p = .05$), positive experiences (GC > TGT, $p = .01$), life satisfaction (GC > TGT, $p = .02$) and happiness (GC > TGT & YYB, $p = .02$). On each of these measures, the GC's mean scores increased however, many of these significant findings were also affected by decreases in measures for the comparison groups. For measures of psychological wellbeing, MHC and positive experiences the mean decreases experienced by the comparison condition were greater than the mean increases experienced by the GC.

Results from these studies paint a complex picture of the potential effects of writing a gratitude letter. Findings from study 10 indicate that the GC fared no better on a range of well-being measures than the CC. There were also no significant differences found between the GC and the CC when taken as a whole in study 7. However, differences begin to emerge when selecting those children low in PA prior to the intervention, suggesting that writing a gratitude letter could be a beneficial targeted intervention for this group of children. Study 4 was the only gratitude letter study to find significant outcomes for the GCs overall relative to the CC. In this study, whilst writing a gratitude letter was the main focus, the supplementary activities in which participants engaged may be partly responsible for this significant result. In addition, the intervention was conducted over the longest period of time (4 weeks) but with less frequency of intervention sessions (weekly) when compared to the other studies. Further research is needed to consider the degree to which duration and frequency of intervention may influence outcomes.

1.4.3 Gratitude-Based Curricula

Four studies involved combined, or curriculum-based, interventions specifically developed to elicit gratitude (1, 5, 6 and 9). Study 1 used a "Socially Oriented Gratitude Intervention (SOGI)", with studies 5, 6 and 9 using *Nice Thinking! An Educational Intervention that Teaches Children to Think Gratefully* (NT). As the results arising from these two interventions differ greatly, they will be examined in turn.

SOGI was designed to be a four week intervention. It incorporates a range of activities including counting everyday blessings, gratitude card, mental subtraction of blessings, and gratitude collage. The authors of study 1 describe a number of ways intervention fidelity was

compromised; instead of lasting four weeks, SOGI was delivered in four sessions over a two week period and, due to time constraints, participants completed some activities at home. The authors also note that post-intervention measures were not taken until four weeks after the intervention finished, during which time the participants completed final-year examinations. This may have impacted the magnitude of results.

There were no significant differences in gratitude or overall relatedness between the GC and CC. There was a significant difference in relatedness with parents ($F(1, 101) = 4.61, p = .03, \eta^2 = 0.044$) and the authors also report what they describe as a significant difference in relatedness with peers ($F(1, 101) = 3.31, p = .07, \eta^2 = 0.032$); due to a reportedly small sample size ($n = 103$) the authors choose to consider p values of less than .10 as significant. However, studies examined with comparable, or smaller, samples did not employ this rule. It is also pertinent that only four items were used to measure relationships with three sets of social partners and so each sub-category was likely measured by a single item. In both cases the CC experienced a greater decrease in relatedness (mean difference of -0.23 points in relation to parents and -0.22 in relation to peers) than the increase experienced by the GC (mean difference of +0.05 points in relation to parents and +0.11 in relation to peers). This suggests that whilst the intervention may have protected participants from a decrease in relatedness, the actual increase in relatedness was not significant.

The NT intervention consists of five 30 minute lesson plans which are intended to educate students about the social-cognitive appraisals involved when receiving benefits from others (see Froh et al., 2014 for an overview). NT sessions were delivered each school day for one week in study 5 and weekly for five weeks in studies 6 and 9. In study 9, some materials were adapted to suit an Indian population. In all three studies, an attention control curriculum was used as a comparison condition (see Froh et al., 2014 for details).

Significant intervention effects on gratitude were found in all three studies. ANCOVAs were used in studies 5 and 9; in both the GC reported more gratitude than the CC post-intervention: study 5; $F(1, 95) = 4.25, p = .05, \eta^2 = 0.04$ and study 9; $F(1, 174) = 9.24, p = .003, \eta_p^2 = .05$. In study 6, hierarchical linear modelling was used; there was a significant intervention effect on the linear slope, $t(df = 80) = 1.68, p = .05, r = 0.18$. Inspection of graphs indicates that whilst the CC's gratitude remained relatively stable over time, the GC increased, on average, 0.072 points on the GAC each week. This led to significant differences in gratitude at seven weeks ($t(df = 80) = 1.82, p = .04, d = 0.41$) and 15 weeks ($t(df = 80) = 2.14, p = .02, d = 0.48$) post-intervention. In addition to increases in gratitude, all three studies found significant differences between the GC and the CC on their perceptions of the intention, costs and benefits underpinning helpful acts (as

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measured by benefit-appraisal vignettes). In studies 5 and 9, the GC reported significantly stronger benefit appraisals post-intervention than CC: study 5; $F(1, 98) = 5.88, p = .05, \eta^2 = 0.06$ and study 9; $F(1, 174) = 18.60, p = .001, \eta_p^2 = 0.01$. In study 6, benefit appraisals followed a similar pattern to the effects found on gratitude; there was a significant intervention effect on linear slope, $t(df = 80) = 3.09, p = .001, r = 0.33$, with the participants in the GC experiencing an average weekly increase of 0.196 points. This led to significant differences between the groups at 7 weeks ($t(df = 80) = 2.39, p = .01, d = 0.53$) and 15 weeks ($t(df = 80) = 3.31, p = .001, d = 0.74$) post-intervention; again the magnitude of the differences between groups grew over time. Across the NT studies, alongside increases in mean scores for the GC, the CC's scores also increased or remained stable for both measures of gratitude. This indicates that the significant results represent true increases in gratitude for the GC. In study 5, a behavioural measure of gratitude was also used; participants were given the opportunity to write a thank you card. 43.5% of participants in the GC wrote a thank you card compared to 25% of participants in the CC. Condition and the writing of thank you cards was significantly related, $\chi^2(1, n = 122) = 4.65, p < .05$, Cramer's $V = 0.20$, with a small to medium effect size.

PA, NA and life satisfaction were measured in two studies (6 and 9). Both found significant intervention effects for PA. In study 9, GC had significantly higher PA post-intervention than the CC, $F(1, 174) = 7.65, p = .006, \eta_p^2 = 0.04$. In study 6, there was a significant intervention effect on linear slope, $F(df = 80) = 2.72, p = .004, r = 0.29$ which led to significant differences in PA between the GC and CC at 7 weeks ($t(df = 80) = 1.77, p = .04, d = 0.40$) and 15 weeks ($t(df = 80) = 2.46, p = .008, d = 0.55$) post-intervention. Intervention effects on NA were not significant in either study, however in study 6 a significant mean linear slope for NA was present for the whole sample, indicating that NA reduced for all participants. In terms of LS, a significant difference between GC and CC was found in study 9 ($F(1, 174) = 18.41, p = .001, \eta_p^2 = 0.1$) but not in study 6 (where LS increased for the whole sample). Study 9 was the only study to measure EWB, SWB, PWB and positive and negative experiences. The GC reported significantly higher PWB ($F(1, 174) = 12.81, p = .001, \eta_p^2 = 0.07$) and positive experiences ($F(1, 174) = 11.92, p = .001, \eta_p^2 = .06$) post-intervention than the CC but there were no significant differences in EWB, SWB or negative experiences.

There are a few limitations that need to be considered when interpreting the results of these three studies. Firstly, a number of the measures from study 9 had poor to questionable internal consistency: SPANE; $\alpha = 0.67 - 0.77$, GAC; $\alpha = 0.58$ and PANAS-C; $\alpha = 0.61 - 0.63$ and, in study 6, some aspects of the BMSLSS, $\alpha = 0.65 - 0.77$ were also below desirable levels. Tavakol and Dennick (2011) suggest that low alpha values may mean a scale is not measuring a unidimensional concept. In the case of study 9, it could be that some items did not clearly

translate for use with an Indian population. In addition, the samples were not fully representative of wider populations; in studies 5 and 6 participants were recruited from an affluent area and in study 9 the authors note that their participants represented a limited demographic profile of Indian youths. Therefore, further research is needed to assess whether NT is as effective with a more diverse sample of participants.

Overall, studies examining the NT intervention consistently report increases in gratitude and grateful thinking for the GC (5, 6 and 9). There is also preliminary support that NT could lead to enhanced PA (6 and 9), positive experiences (9), mental health (9), PWB (9), life satisfaction (9) and greater expressions of gratitude (5). Interestingly, this is the only intervention examined where the main aim was not to give children more opportunities to express gratitude, but rather to help children to understand what underpins grateful acts. In fact, it is explicitly stated in study 5 that gratitude was never mentioned to those delivering the intervention. It is also interesting that, in study 6, differences between the GC and the CC increased over time for gratitude, grateful thinking and PA. This suggests that the intervention may have acted as a catalyst for these changes but that these were enhanced over time. This falls in line with Fredrickson's broaden-and-build theory (2004b) that positive experiences help to build positive resources over time. In terms of the SOGI, results from study 1 do not provide sufficient evidence to suggest this intervention is beneficial. However, the authors faced a number of issues which influenced how the intervention was delivered and evaluated (the duration of the intervention was halved and post-intervention measures were not taken until 4 weeks after the programme finished); further, more rigorous, studies examining SOGI would be beneficial.

1.4.4 Picture Drawing

The final study examined (12) involved a group-based picture drawing intervention; participants engaged in weekly sessions where they drew something that they were grateful for and then described this to the intervention facilitator. There are a number of inconsistencies in participant recruitment and intervention delivery. Participants were recruited from two types of settings and allocation to condition varied between them; for participants recruited from summer day camps, allocation was random at the individual level and those recruited from after school care were allocated by site. There were also inconsistencies in group size (3 - 10 participants per group) and the number of sessions available to participants (4 - 6 depending on site). Taken together, these inconsistencies suggest participant experiences could have been highly variable. The GC did not experience significant post-intervention differences in any of the measured variables, PA, NA, LS or self-esteem, when compared to other conditions.

1.5 Conclusions, Implications and Future Research

A systematic search was conducted and twelve studies exploring the effects of gratitude interventions for school-aged children were identified. These studies included a relatively wide range of interventions. However, with limited replication of studies and great variation in the quality and clarity of research, only a limited number of firm conclusions that can be drawn from the existing literature.

Seven of the examined studies employed what can be described as 'light touch' gratitude interventions (2, 3, 7, 8, 10, 11 and 12), where children were asked to complete the same task on several occasions. These included participants expressing gratitude in writing (in a diary (2, 3, 8 and 11) or a letter (7 and 10)) or through drawing a picture (12), with limited, or no, additional prescribed activities. Findings from these studies are inconsistent and, taken together, they do not provide sufficient evidence to advocate for the universal use of 'light touch' gratitude interventions with school-aged children. However, they do open up a number of questions which could be addressed by further research.

One possible avenue would be to explore whether these types of interventions would yield greater effects for specific populations. Study 7 found that children low in positive affect pre-intervention experienced significant increases in gratitude and positive affect after writing a gratitude letter, when the wider participant sample did not. In addition, study 3 found that keeping a gratitude diary had a greater effect on gratitude for boys. Further research could explore the degree to which intervention effect varies by gender and whether pre-existing scores on wellbeing measures influence the degree of benefit children experience. It is interesting that, following a diary intervention, participants from study 2 experienced increases in gratitude, reduced materialism and displayed greater generosity than controls. This could be due to participants being slightly older or keeping a diary outside of a school setting. Research could also explore whether either of these factors (age or location) impact the effectiveness of intervention.

Putting these 'light touch' interventions aside, another strand of research has offered some promising results. The Nice Thinking! intervention differs from traditional 'light touch' interventions. The aim of this program was not to make children express more gratitude but to educate them about the social-cognitive appraisals involved when one receives a benefit from another. The three studies using this programme report positive outcomes for the GC relative to the CC; this included increases in gratitude and grateful thinking (5, 6 and 9), greater expressions of gratitude (5) and enhanced: positive affect (6 and 9), positive experiences (9), mental health (9), psychological wellbeing (9) and life satisfaction (9). Interestingly, one of the other studies with positive results, study 4, included some activities with a similar focus to the Nice Thinking!

intervention. Whilst the core intervention was writing a gratitude letter, additional activities were designed to promote children to consider the costs, intentions and benefits in relation to their benefactor. The authors report that children had healthier eating behaviours over time and greater elevation (feeling positive, uplifting emotions), connectedness, and indebtedness in comparison to the CC. Results from these studies (4, 5, 6 and 9) suggest that a shift in direction may be required. Interventions which serve to actively teach children about why one might experience feelings of gratitude may be more effective than those which simply ask them to be more grateful. This would be in keeping with the notion that just saying thank you does not necessarily equate to experiencing a feeling of gratitude (Baumeister & Ilko, 1995; Gordon, Musher-Eizenman, Holub, & Dalrymple, 2004). It is possible that when a child is asked to “count their blessings”, or express gratitude to another, some of their expressions may come from an understanding of the societal norms of politeness rather than truly feeling thankful. It could be that teaching children to understand, and appreciate, the intentions of others who act for their benefit might be a more effective way of inducing feelings of gratitude. Interestingly, study 6, one of the only studies to take measures at numerous time points, found that gratitude increased gradually over time post-intervention and peaked at the final time point (20 weeks post-intervention). This suggests that, in line with Fredrickson’s (2004a) theory, gratitude may indeed broaden-and-build over time. It would be advisable for future studies to take longitudinal measures to further test this theory. A limitation of the literature examining the Nice Thinking! intervention is the lack of diversity within participant groups. Further research should look to offer interventions where children are educated on the costs, intentions and benefits underpinning social acts to a wider, more representative, sample of the population.

Finally, results from two of the studies suggest that there may be complex mechanisms which underpin the positive effects experienced from engaging in a gratitude intervention. In study 4, multilevel growth modelling and mediation analyses were used. Results indicated that increases in healthier eating behaviour, following a gratitude letter intervention, were predicted by reductions in negative affect, not by changes in gratitude. In study 3, a gratitude diary intervention resulted in non-significant increases in gratitude but significant increases in sense of school belonging. These two studies suggest that it is not necessarily the case that increases in gratitude are the catalyst for enhances in other wellbeing measures. Further research should examine the potential mediating and moderating effects of a range of outcomes, e.g., reduced negative effect and enhanced belonging, and consider whether these have a causal role in enhancing children’s wellbeing.

In summary, academic research examining gratitude interventions for school-aged children is in its infancy. Existing studies do not yet provide conclusive evidence that light touch

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interventions, such as writing a gratitude diary or letter, will be universally beneficial for children. Further research is needed to establish the optimum conditions for delivering these interventions. A small body of studies provide initial evidence that educating children about the appraisal of benefit exchanges or, the potential costs experienced when someone intentionally acts for their benefit, may lead to enhanced wellbeing. Conducting further research to establish if these effects are found with more diverse groups of children should be a priority.

Chapter 2 How Does the Approach and Engagement of Children with the Task of Keeping a Gratitude Diary Affect Change in Gratitude?

2.1 Introduction

Gratitude is a concept that has intrigued philosophers for many decades (Rush, 2019). However, research into gratitude from a psychological perspective has only begun to emerge over the last 20 or so years. A new wave of psychological research coined the *positive psychology movement* has led researchers to consider how to improve quality of life and encourage people to thrive (Seligman & Csikszentmihalyi, 2000). Studies have found that gratitude correlates with some other wellbeing measures and research has begun to examine whether gratitude can be enhanced via intervention. One example of an intervention designed to enhance gratitude is the keeping of a gratitude diary, also known as a ‘counting blessings’ intervention. The current study seeks to investigate whether how children engage with the task of keeping a gratitude diary affects the change in gratitude they experience.

2.1.1 Defining Gratitude

Definitions of gratitude vary. Within intervention studies, it is often defined as an affective trait which is experienced by people when they receive a benefit or gift (Emmons, 2004; Khanna & Singh, 2016). There are philosophical arguments about what constitutes an expression of gratitude and whether different forms of expression are all of equal value. An ongoing debate centres around whether gratitude can only be experienced when there is a targeted benefactor, or ‘agent’ (McAleer, 2012). Within this debate, a distinction is drawn between dyadic gratitude where only two components are required, that *a* (a beneficiary) is grateful for *x* (a benefit), and triadic gratitude where three components are needed, that *a* (a beneficiary) is grateful to *b* (a benefactor) for *x* (a benefit). In the case of triadic gratitude, there is the requirement of an agent to which the gratitude is directed (Rush, 2019). Theorists are divided as to whether triadic expressions of gratitude are of greater value than dyadic expressions of gratitude (McAleer, 2012).

2.1.2 Gratitude Diaries and the Effect on Gratitude

Emmons and McCullough (2003) conducted a series of 'counting blessings' studies with adult samples. Participants were asked to think back over the past week and write down up to five things in their life for which they were grateful or thankful. Results indicated that this intervention was partially successful at inducing gratitude. In their first two studies, undergraduate students who kept gratitude diaries experienced significantly more gratitude than a hassles journal condition but not in comparison to an events journal or a social comparison condition. It has been argued that keeping a hassles journal could induce negative affect, arguably making it a less reliable control condition (Diebel et al., 2016; Wood, Froh, & Geraghty, 2010). In the third study in the series, Emmons and McCullough (2003) found adults with neuromuscular diseases who kept a gratitude diary reported significantly more gratitude than those who completed measures only. This set of studies sparked a series of gratitude diary studies with adult populations and, over time, a small number of studies using youth samples have also appeared in the literature.

A systematic search (see Chapter 1) revealed three studies which have examined the effect of keeping a gratitude diary on self-reported gratitude for school-aged children. As with Emmons and McCullough (2003), all of these have found significant post-intervention differences in gratitude between the gratitude condition (GC) and at least one control condition. However, the nature of these significant results has varied. For one study, this difference only existed between the GC and a hassles journal condition, and not the non-active control (Froh et al., 2008). For another, the significant difference largely related to decreases in gratitude for the event diary condition and increases in gratitude were only experienced by male participants in the GC (Diebel et al., 2016). The final study, conducted by Chaplin, John, Rindfleisch, & Froh (2019) found a significant difference between the GC and a control group who kept an activities diary with a large effect size ($d = 2.26$). Inspection of data indicates that, whilst the control group experienced a small reduction in mean gratitude scores, the GC experienced a greater mean increase. It is unclear why their results differ from other studies.

These findings do not lead to a clear conclusion on the effectiveness of gratitude diaries and some researchers have considered whether gratitude interventions may be more effective for a sub-sample of participants. However, only one known study to date has intentionally examined whether a pre-existing difference between participants could influence the degree of benefit children experience when engaging in a gratitude intervention. Froh, Kashdan, Ozimkowski, & Miller (2009) found no overall significant effect on gratitude for a gratitude letter intervention group relative to controls. However, additional analyses found that when only including children

low in positive affect before the intervention begun, those in the GC reported more gratitude post intervention than those in the control group. This significant result was not maintained at follow-up. The current study aimed to expand this area of research by examining whether a range of individual factors including: enjoyment of writing, enjoyment of keeping a gratitude diary and how hard they found it to think of things to write in their diary, might affect whether children benefit from keeping a gratitude diary.

2.1.3 Content of Gratitude Diaries

Researchers have also suggested that examining the content of children's gratitude diaries may give insights into how children engage with this task (Diebel et al., 2016). However, this area is under-researched and, to date, only two known studies have sought to analyse what children write about when they are asked to keep a gratitude diary. Long and Davis (2011) analysed gratitude diary entries written by youth offenders in America with the aim of identifying recurring themes. Themes included: privileges, personal accomplishments, family, program activities/goals, education and basic care/hygiene. In Göcen's (2016) study, conducted in Turkey, the contents of gratitude diaries of 11 and 12 year olds were analysed. They found that the four most frequently occurring themes were basic needs, family, life-satisfaction or happiness and school success, teachers and school (Göcen, 2016).

In Göcen's (2016) study, and to a lesser degree Long and Davis' (2011) study, the content of diaries was explored under the premise that, when asked, children were expressing gratitude. However, pre and post measures of gratitude were not taken and the effects observed in quantitative studies suggest that keeping a gratitude diary may not always result in enhanced gratitude; one reason for this could be that children are not always fully engaged in the task of thinking gratefully. The current study aimed to extend this area of research by considering whether children whose self-reported gratitude enhanced through intervention wrote about different things to those children whose gratitude did not increase. To further shed light on children's views of keeping a gratitude diary, written feedback was sought from participants.

2.2 Research Questions and Hypotheses

The existing research suggests that gratitude diary interventions do not always result in an increase in gratitude for all children; however, these findings alone offer little explanation for why this is the case. This study aimed to explore what factors might impact whether children experience an increase in gratitude when asked to keep a gratitude diary. Research questions

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were addressed in three distinct stages. The first four research questions were correlational in nature and asked, when children are given the opportunity to keep a gratitude diary:

RQ1: what is the relationship between a child's pre-existing enjoyment of writing and their change in gratitude?

RQ2: what is the relationship between how hard children find it to think of things to write about in their diary and their change in gratitude?

RQ3: what is the relationship between how much children enjoyed keeping a gratitude diary and their change in gratitude?

RQ4: what is the relationship between how much on average a child writes each day and their change in gratitude?

It is theorised that if participants enjoy and engage with an activity, they are more likely to benefit from it. Therefore, it was hypothesised that those participants who had a higher pre-existing enjoyment of writing would:

1. enjoy keeping a gratitude diary,
2. find it easier to think of things to write about and would write more in their diary
3. experience a greater increase in gratitude than children who:
 - a. did not like writing,
 - b. did not enjoy keeping a gratitude diary,
 - c. found it hard to think of things to write about, or
 - d. did not write as much in their diary.

No known studies have explored whether the contents of children's diaries vary depending on the change in gratitude they have experienced. It was hypothesised that children who experienced a change in gratitude when asked to keep a gratitude diary may have engaged with this task differently to those children who did not experience a change in gratitude, and that these differences may be evident in the manner in which they express their gratitude and the topics they write about. The fifth research question was designed to explore this:

RQ5: Do children who report an increase in gratitude write about different things than those who do not?

The final research question was exploratory in nature. It was identified that no known studies to date have asked children for their feedback on the experience of keeping a gratitude diary and that, if asked, children may be able to shed some light on how to make this intervention more successful. We aimed to fill this gap in the research by asking:

RQ6: What feedback do children give on the experience of keeping a gratitude diary?

2.3 Method

2.3.1 Participants

200 children aged between 9 and 11 were invited to participate. They were recruited from eight year 5 and 6 classes in three primary schools located in one county in the South of England. After exclusion criteria were applied, data for 154 participants were included in the final sample. As preliminary inspection of the data indicated that a large proportion of participants had scored at ceiling on our measure of gratitude before the intervention began, a number of analyses were also run using a smaller sample of participants. For the fifth research question two sub-groups were identified. See Figure 2 for details of participants included and excluded at each point of the study.

Figure 2 Breakdown of Included Participants

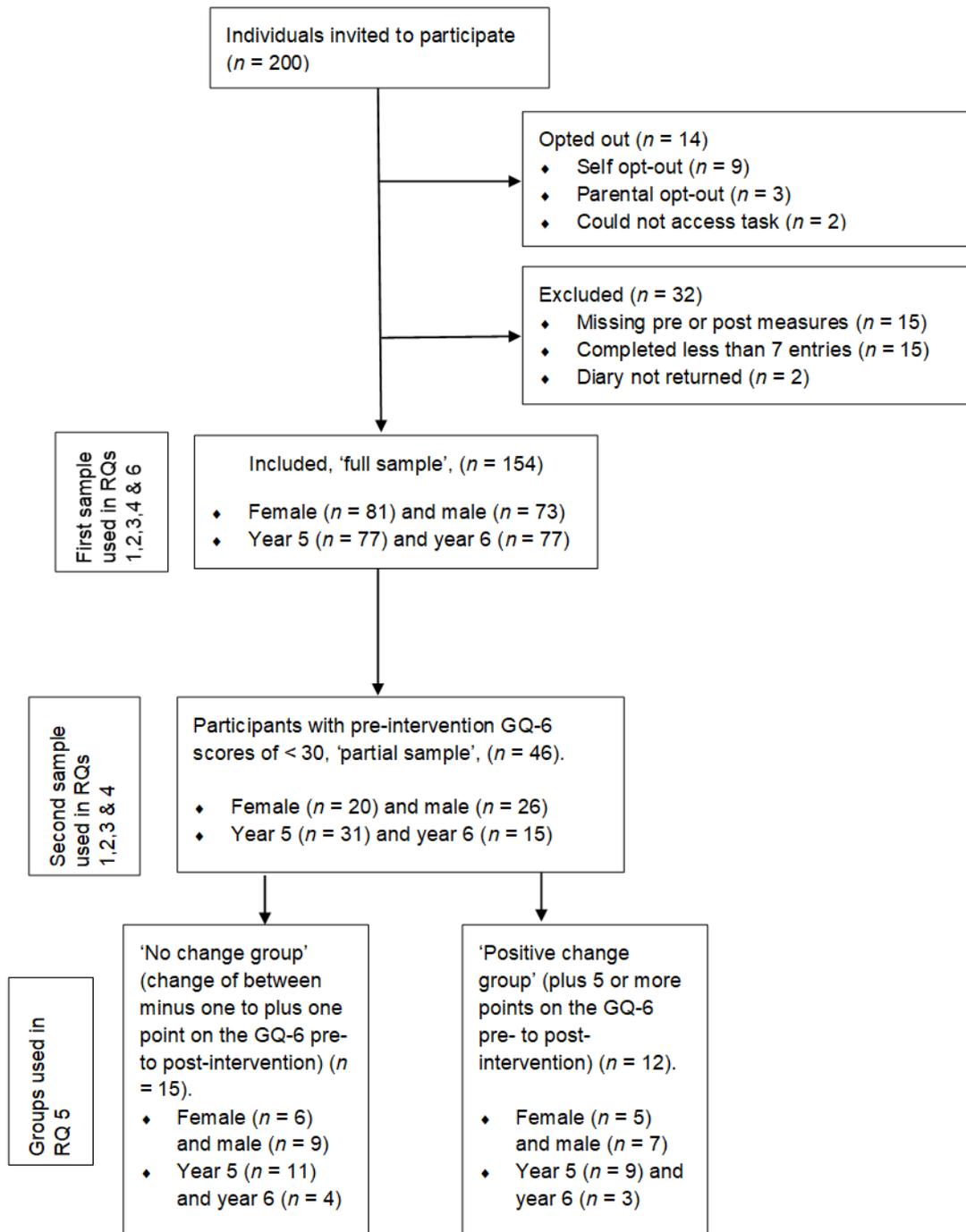


Table 5 shows the number of participants in each school and year group included at each stage of the study.

Table 5 *Numbers of Participants at Each School*

	Invited to participate (<i>n</i> = 200)	Full sample (<i>n</i> = 154)	Partial sample (<i>n</i> = 46)
School one	Year 5 = 42	Year 5 = 36	Year 5 = 11
School two	Year 6 = 59	Year 6 = 44	Year 6 = 4
School three	Year 5 = 49	Year 5 = 41	Year 5 = 20
	Year 6 = 50	Year 6 = 33	Year 6 = 11

2.3.2 Design

The study utilised a mixed methods design taken from a pragmatic standpoint. The study is broken down into three distinct stages. To answer research questions 1-4, a quantitative correlational design was used. For research questions 5 and 6, content analysis was used.

2.3.2.1 RQ1-4

Participants' gratitude was measured pre- and post-intervention. A 'gratitude change score' was calculated by subtracting participants' pre-intervention gratitude score from their post intervention gratitude score. This acted as the dependent variable. Independent variables included: participants' pre-existing enjoyment of writing, how hard they found it to think of things to write about in their diary, how much they enjoyed keeping a gratitude diary and how many words they wrote on average each day. Pearson *r* correlations were run to determine whether any significant relationships existed between variables.

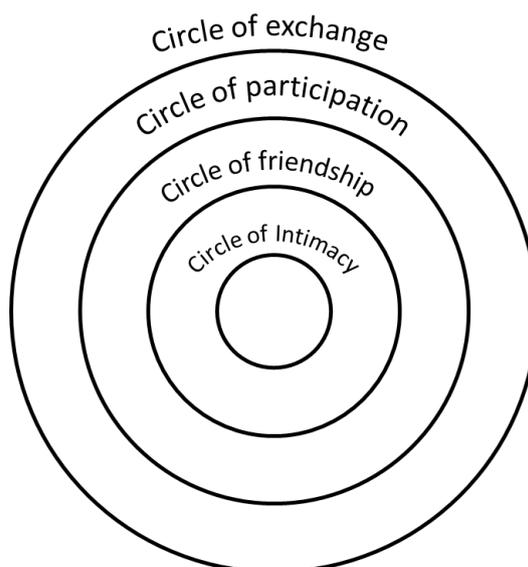
2.3.2.2 RQ5

Diary entries for a group of participants whose self-reported gratitude increased by five or more points from pre to post intervention were compared to the diary entries of a group of participants whose gratitude scores changed by less than one point. The content of all diaries was analysed by two coders (the lead researcher and a voluntary psychology undergraduate research assistant). A list of selected participants was given to the coders without reference to groupings; this ensured coders were blind to condition during analysis. The lead researcher transcribed the diaries and familiarised herself with the data. Initially, coding was approached inductively; however, as codes were generated, three existing theoretical models were identified as appropriate frameworks for coding and a deductive approach was adopted.

The first model concerns the difference between dyadic, or propositional, expressions of gratitude and triadic, or targeted, expressions of gratitude. As described by Rush (2019), dyadic gratitude requires two components: that a beneficiary (in this case the participant) is grateful for *x* (a benefit or benefactor). For example, one participant wrote “I am thankful for books” and another “I am thankful for my dad”. Triadic gratitude requires three components: that a beneficiary (the participant) is grateful to a benefactor for a benefit. It involves an agent to whom the gratitude is directed (Rush, 2019). For example, one participant wrote “I’m thankful for my dad because he makes my lunch for school”; in this instance their dad is the benefactor and having their lunch made for them is the benefit they received. During coding it was noted that participants had sometimes given a reason for why something, or someone, made them feel grateful. It was hypothesised that this may be indicative of greater depth of processing and therefore these were counted as ‘points of elaboration’. For example, one participant wrote “I’m grateful for [...] some money so I can buy things that I need”. In this instance the ability to buy things was seen as a point of elaboration. For this stage of coding, each participant ended up with three scores: the number of expressions of dyadic gratitude made, the number of expressions of triadic gratitude made and the number of points of elaboration made.

The second stage of coding was to classify the nature of the benefactors and benefits. Benefactors were coded according to the Circles of Relationships model (Newton & Wilson, 2005), in which relationships are seen as falling into four different levels based on the degree of closeness, see Figure 3. These circles include:

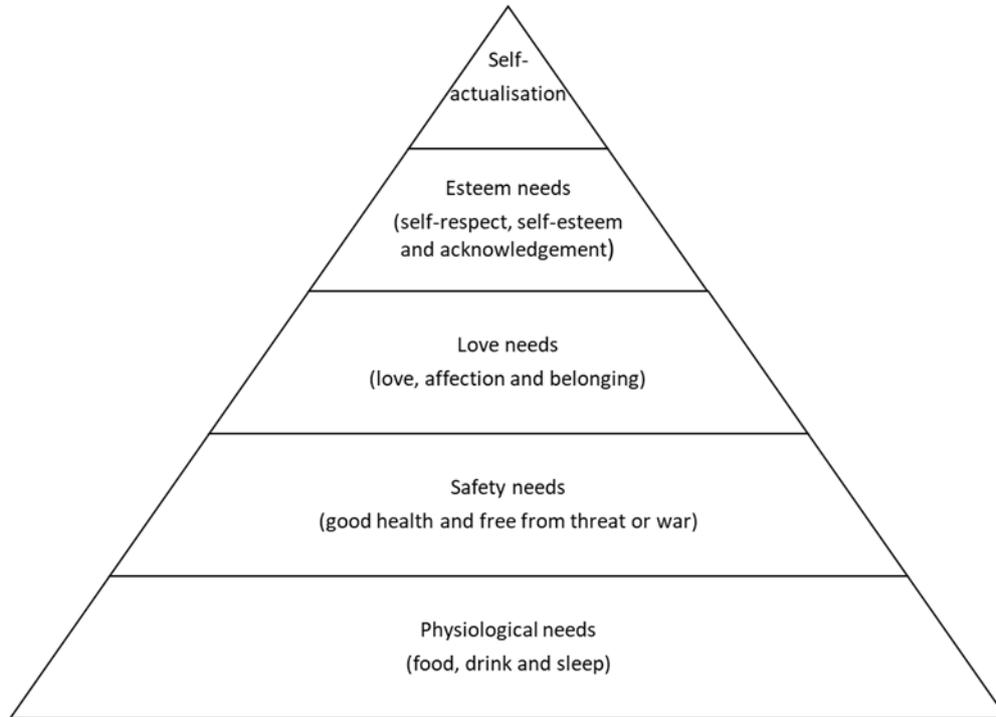
- the circle of intimacy (immediate family)
- the circle of friendship (friends and close relatives)
- the circle of participation (associates; people we see regularly who do not fall into the first two circles)
- the circle of exchange (people paid to be in our lives).

Figure 3 *Illustration of Newton and Wilson's (2005) Circles of Relationships Model*

Each time a person was mentioned, this was coded as a benefactor under the relevant circle. Each participant received a score for how many times they had mentioned benefactors from each circle. For example, if a participant mentioned their mother four times, their sister twice and their teacher three times, this would be recorded as benefactors from the circle of intimacy being mentioned six times and benefactors from the circle of participation being mentioned three times. On a few occasions, benefactors could not be coded, e.g., when a participant simply mentioned “a person”. These were recorded as ‘unable to code’.

Benefits were coded according to Maslow’s (1943) hierarchy of needs, see Figure 4. This model was adapted and expanded in line with codes emerging from the data. Six levels of benefit were defined. The first level combined the first two levels of Maslow’s model including physiological needs (such as hunger and thirst), and safety needs (such as the need to be healthy). The second level was love needs, including the need to belong and experience relationships. The third level was the need for esteem, including the desire for achievement and freedom as well as recognition from others. Two extra levels were added to the initial coding manual in line with themes identified in the data. This included the need for cognitive stimulation and to be occupied, and appreciation for the natural world. The final level was the need for self-actualisation which includes doing what you are destined to do or the desire for self-fulfilment. However, no items arose from the data which fulfilled this need. Each participant received a score for how many times they had mentioned benefits from each level of the model. At times, coders were unable to decipher participants’ handwriting or identify what they were grateful for; in these instances, these points were recorded as ‘unable to code’.

Figure 4 Maslow's (1943) Hierarchy of Needs



An initial code list was developed describing the three levels of coding as outlined above. The two coders conducted initial analysis separately and then met on two separate occasions to discuss codes and refine the code list. Once a code list was agreed upon (see Appendix E), each researcher coded all the diaries independently. There was a small discrepancy in the number of codes counted by each rater so that the lead researcher coded 1,072 points and the research assistant coded 1,069 points. In total there were 17 disagreements in the coding of items. These related to either how individual items were coded or how many items a single phrase was spliced into, for example one participant wrote “go to school and have an education”. One coder coded this as a single point of gratitude whilst the other coded this as two points: ‘school’ and ‘having an education’. Disagreements were resolved through discussion and 1,072 codes were agreed upon. Mean scores for each group at each level of coding were compared using independent samples t-tests. Corrected degrees of freedom have been reported for comparisons where Levene’s test for equality of variance was significant. To reduce the potential for bias, initial analysis was conducted whilst the lead researcher was still blind to the identity of the groups.

2.3.2.3 RQ6

Feedback from all participants on their experience of keeping a gratitude diary was collated. For the two closed questions (“How much did you enjoy keeping a gratitude diary?” and “How hard did you find it to think of things to write about in your diary?”), participants’ answers were reported as frequencies. For the three open-ended questions (“What did you like about keeping a gratitude diary?”, “What didn’t you like about keeping a gratitude diary?” and “What could have made keeping a gratitude diary better?”), participants’ answers were transcribed. Answers to each question were analysed separately using inductive content analysis in which categories were identified by grouping similar chunks of data (Morse, 2008; White & Marsh, 2006), see Appendix F for code list. A participant’s answer to a single question could be coded under multiple categories. In order to be classed as a category, comments on a topic needed to be made by at least five participants. Frequencies of the occurrence of comments in each category were then reported.

2.3.3 Measures

2.3.3.1 Gratitude

An adapted version of the Gratitude Questionnaire-Six Item Form (GQ-6, McCullough et al., 2002, see Appendix G) was used to assess participants’ levels of gratitude both pre- and post-intervention. In comparison to other measures, investigations of reliability and validity found this to be the most suitable measure to use with participants aged 10-13 (Froh et al., 2011). Internal consistency of the measure was deemed good for 10-11 year olds ($\alpha = .81$) and acceptable for 12-13 year olds ($\alpha = .76$). The GQ-6 is a self-report measure which consists of six questions which are answered on a seven-point Likert scale (1 = strongly disagree and 7 = strongly agree). Item 6 of the measure was excluded as it has been found to be unreliable for use with this age range (Froh et al., 2011). In the current study, the internal consistency of the GQ-6 was satisfactory; $\alpha = .76$ for questionnaires completed pre-intervention and $\alpha = .78$ for questionnaires completed post-intervention.

2.3.3.2 Enjoyment of writing

Pre-existing enjoyment of writing was measured by a single question, “How much do you enjoy writing?”, which participants rated on a Likert scale of 1-5 (1 = I hate it, 2 = I do not enjoy it, 3 = I think it is ok, 4 = I enjoy it and 5 = I really enjoy it), see Appendix H.

2.3.3.3 Intervention evaluation

Participants were asked to complete a short evaluation form (see Appendix I). This contained two questions which were rated on a Likert scale of 1-5 namely, “How much did you enjoy keeping a gratitude diary?” and “How hard did you find it to think of things to write about in your diary?”. These were followed by three open-ended questions which were used to gather qualitative data about the experience: “What did you like about keeping a gratitude diary?” “What didn’t you like about keeping a gratitude diary?” and “What could have made keeping a gratitude diary better?”

2.3.4 Procedure

Ethical approval to conduct the study was obtained from the University of Southampton’s Faculty of Environmental and Life Sciences’ Ethics and Research Governance Committee (Appendix J). Information regarding the study was sent to thirteen primary schools (Appendix K). The head teachers of three schools returned consent forms. Parents of pupils in participating classes were sent information regarding the study and a form which they could use to opt-out of their child’s data being collected (Appendix L).

Three or four days prior to the start of the intervention, the researcher introduced the project to participants following a semi-structured script (Appendix M) and pre-measures (GQ-6 and enjoyment of writing scale) were completed. During this session, pupils were provided with an opt-out form (Appendix N) which they could use to indicate if they did not want their data to be collected. They were also informed they could withdraw at any point during the intervention by talking to their teacher.

The intervention was designed to replicate the gratitude condition from Froh, Sefick and Emmons’ (2008) study. Participants were each given a gratitude diary (Appendix O) which contained the following instructions: *There are many things in our lives, both large and small, that we might be grateful for. Think back over the past day and write down on the lines below up to five things in your life that you are grateful or thankful for.* The intervention was designed to be completed daily as a class Monday-Friday, for two weeks. Teachers were given verbal and written guidance on running the intervention (Appendix P) and were instructed to give participants 10-15 minutes towards the end of each day to complete their diary.

In order to reduce the risk of social desirability bias, it was requested that the evaluation form was administered by the class teacher on the final day of the intervention, rather than the researcher. The researcher then returned four or five days after the completion of the

intervention to support participants to complete the post-intervention GQ-6, thank them for their participation and collect the diaries; a semi-structured script was also followed for this meeting (Appendix Q). All data were anonymised prior to leaving the school sites. There was evidence that aspects of the prescribed procedure were not always adhered to; this will be explored in depth in the limitations section.

2.4 Results

2.4.1 Initial Analysis

All data were entered into SPSS. Approximately 15% of the data were checked by a research assistant to ensure they were entered correctly; no errors were identified. Inspection of the data indicated that a number of participants scored at ceiling on the pre-intervention GQ-6, with 13% of participants ($n = 20$) scoring the maximum score of 35 and 70.1% of participants ($n = 108$) scoring 30 or higher. This meant that the scope for improving self-reported gratitude was limited for the majority of participants. Therefore, a smaller sub-sample of participants who had capacity to improve their GQ-6 scores was used for some analyses (as shown in Figure 1).

As GQ-6 data, both pre- and post-intervention, were negatively skewed, the Wilcoxon signed-rank test was used to analyse whether keeping a gratitude diary had the desired effect of increasing self-reported gratitude. When run with the whole sample ($n = 154$), the result was non-significant ($Z = -1.139$, $p = .26$). When analysis was re-run including only participants with pre-intervention GQ-6 scores of less than 30 ($n = 46$), the difference was statistically significant ($Z = -4.038$, $p < .001$). See Table 6 for pre- and post-intervention scores for the full and partial samples.

Table 6 Mean, Standard Deviation and Median of Pre- and Post-Intervention Scores for the Full Sample ($n = 154$) and the Partial Sample ($n = 46$)

	Pre-intervention <i>M (SD)</i>	Post-intervention <i>M (SD)</i>	Pre-intervention <i>Mdn</i>	Post-intervention <i>Mdn</i>
Full sample ($n = 154$)	30.57 (3.91)	30.81 (3.81)	31	32
Partial sample ($n = 46$)	25.59 (2.99)	27.87 (4.15)	26.5	28

2.4.2 RQs1- 4: Are Enjoyment of Writing, Enjoyment of Keeping a Gratitude Diary, Ease of Thinking of Things to Write About and Amount Written Related to Change in Gratitude?

Table 7 shows the mean values and standard deviations for the variables relevant to RQs 1, 2, 3 and 4; GQ-6 change scores, prior enjoyment of writing rating, enjoyment of keeping a gratitude diary rating, rating of how hard it was to think of things to write and average number of words per entry. All variables were normally distributed and Pearson *r* correlations were run to determine whether any significant relationships existed between variables.

Table 7 Mean and Standard Deviations of Variables for RQs 1, 2, 3 & 4

Measure	<i>M</i>	<i>SD</i>
Gratitude Questionnaire-6 change score ^a	0.27	3.27
Prior enjoyment of writing ^b	3.40	0.93
Enjoyment of keeping a gratitude diary ^b	3.10	1.01
How hard it was to think of things ^b	3.29	0.98
Average number of words per entry	25.60	13.10

^a maximum possible change + or – 30 points

^b measured on a Likert scale of 1-5

Table 8 shows the correlations between GQ-6 change scores and other variables relevant to RQs 1, 2, 3 and 4. There were no significant relationships between GQ-6 change scores and any of the other measured variables, rejecting the hypotheses that there is a relationship between a child's self-reported change in gratitude and any of a child's: prior enjoyment of writing; enjoyment of keeping a gratitude diary; difficulty in finding things to write in their diary or average number of words per diary entry.

However, there were significant relationships between all of the other variables: participants' prior enjoyment of writing, enjoyment of keeping a gratitude diary, how hard they found it to think about things to write in their diary and the average number of words written per entry all correlated with one another.

Table 8 *Pearson r Correlations for Variables for RQs 1, 2, 3 & 4 (n = 154)*

	GQ-6 change score	Prior enjoyment of writing	Enjoyment of keeping a gratitude diary	How hard it was to think of things	Average number of words per entry
GQ-6 change score	–				
Prior enjoyment of writing	-.07	–			
Enjoyment of keeping a gratitude diary	.10	.29*	–		
How hard it was to think of things	.09	.20*	.26*	–	
Average number of words per entry	-.14	.18*	.324**	.21**	–

* $p < 0.05$

** $p < 0.01$

When correlations were re-run using participants who scored less than 30 on the pre-intervention GQ-6, there was a small positive correlation between gratitude change scores and how hard participants found it to think of things to write in their diaries ($r = .37, n = 46, p = .01$) and a medium positive correlation between how much participants enjoyed keeping a gratitude diary and the average number of words written per day ($r = .41, n = 46, p = .005$). No other statistically significant results were present.

2.4.3 RQ5: Do Children Who Report an Increase in Gratitude Write About Different Things Than Those Who Do Not?

In order to isolate participants who had the potential to increase their gratitude score, data for participants with pre-intervention GQ-6 scores of 30 or higher were excluded. The *positive change group* ($n = 12$) was formed of all participants who reported an increase of 5 or more points on the GQ-6 from pre- to post-intervention ($M = 6.42, SD = 2.02$). The *no change group* ($n = 15$) was formed of all participants who reported a change of between minus one to plus one point on the GQ-6 from pre- to post-intervention ($M = -0.07, SD = 0.80$). The groups differed significantly in their GQ-6 change scores ($t(25) = -11.41, p < .005$). Content analysis was used to analyse the diaries of both groups and t-tests were conducted to establish whether any statistical differences existed between them. Where Levene's test for equality of variance was significant corrected degrees of freedom have been reported.

There was limited difference in the average number of entries written by participants in each group, with the no change group writing on average 9.53 entries and the positive change group writing on average 9.17 entries. The no change group wrote more words on average per entry at 23.47 words than the positive change group who wrote on average 18.25 words; however this difference was non-significant ($t(25) = -1.20, p = .24$).

Table 9 shows a breakdown of the mean number of times each level of benefactor and benefits was written about by participants in each group. The no change group mentioned benefactors slightly more often than the positive change group across all the categories; however, most of the differences were not statistically significant. The difference in the number of benefactors mentioned from the circle of participation just reached statistical significance, ($t(25) = 2.1, p = .049$); however this represented the no change group mentioning, on average, just 0.5 more benefactors in this category than the change group. Given the number of correlations run the likelihood of a type 1 error was high and this difference would not have reached statistical significance under the stringent test of a Bonferroni correction.

There was limited difference in the mean number of benefits participants listed in their diaries, with the no change group mentioning 0.45 more than the change group. There were trends towards each group writing about different categories of benefits however none of these reached statistical significance. On average, the no change group seemed to mention more benefits fulfilling the need for love, esteem and cognitive stimulation than the positive change group, while the positive change group seemed to mention more benefits falling into the physiological and safety needs and nature categories than the no change group. However, these differences were not statistically significant.

Table 9 Results of Analysis Comparing the Frequency of Mentions of Benefactors and Benefits in Each Group

Category	Sub-category	No change group (<i>n</i> = 15)		Positive change group (<i>n</i> = 12)		T-test	Cohen's D
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Benefactors	Circle of Intimacy	4.53	4.21	3.33	2.77	$t(25) = .85, p = .40$	0.34
	Circle of Friendship	3.27	4.32	2.67	2.50	$t(25) = .43, p = .67$	0.17
	Circle of Participation	0.67	0.82	0.17	0.39	$t(25) = 2.1, p = .049$	0.78
	Circle of Exchange	3.00	3.4	2.25	2.96	$t(25) = .60, p = .55$	0.24
	Unable to code	0.67	1.11	0.33	0.89	$t(25) = .84, p = .40$	0.34
	Total benefactors	12.13	10.06	8.75	4.62	$t(20.5) = 1.16, p = .26$	0.43
Benefits	Physiological/safety	4.80	3.36	7.58	7.43	$t(14.6) = -1.2, p = .25$	-0.48
	Love	5.87	6.00	3.42	4.44	$t(25) = 1.18, p = .25$	0.46
	Esteem	1.33	1.40	1.17	1.95	$t(25) = .26, p = .80$	0.09
	Cognitive stimulation	13.07	6.24	12.08	6.69	$t(25) = .39, p = .70$	0.15
	Nature	0.73	1.10	1.08	2.84	$t(25) = -.44, p = .66$	-0.16
	Unable to code	0.40	0.74	0.42	0.67	$t(25) = -.06, p = .95$	-0.03
	Total benefits	26.20	10.97	25.75	13.11	$t(25) = -.10, p = .92$	0.04

Table 10 shows the mean number of expressions of gratitude made by participants in each group and how these were divided between triadic and dyadic expressions of gratitude. There was limited difference in the average number of expressions of gratitude made by the two groups and no statistically significant differences in the type of gratitude expressed. However, there were trends towards the groups writing different types of expressions of gratitude. The no change group seemed to write, on average, more expressions of triadic gratitude and more points of elaboration than the positive change group, whereas the positive change group seemed to write, on average, more expressions of dyadic gratitude than the no change group.

Table 10 *Results of Analysis Comparing the Frequency of Types of Expressions of Gratitude Made in Each Group*

	No change group (<i>n</i> = 15)		Positive change group (<i>n</i> = 12)		<i>T</i> -test	<i>Cohen's D</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Triadic expressions	9.47	10.28	5.42	5.50	$t(22.2) = 1.31, p = .20$	0.49
Dyadic expressions	20.53	14.09	24.33	18.22	$t(25) = -.61, p = .55$	- 0.23
Points of elaboration	3.53	4.19	2.50	3.94	$t(25) = .65, p = .52$	0.25
Total expressions of gratitude	30.00	13.17	29.75	14.93	$t(25) = .05, p = .96$	0.02

2.4.4 RQ6: Participants' Feedback on Keeping a Gratitude Diary

2.4.4.1 Quantitative feedback

Each participant rated their enjoyment of keeping a gratitude diary. Figure 5 shows the frequency of each rating. The majority of participants (69.5%) said that they thought keeping a gratitude diary was either ok or they enjoyed it. Only 6.5% found it really enjoyable and almost a quarter of participants (24%) either hated it or did not find it enjoyable.

Figure 5 *Participants' Ratings of How Much They Enjoyed Keeping a Gratitude Diary*

Each participant also rated how hard they found it to think of things to write about in their diary; Figure 6 shows the frequency of each rating. The majority of participants (68.1%) said that they either found it ok or easy to think of things to write. A little over a fifth of participants (20.1%) found it really hard or quite hard and only 9.7% found it really easy.

Figure 6 *Participants' Ratings of How Hard They Found it to Think of Things to Write About in Their Diary.*

2.4.4.2 Qualitative feedback

Participants were asked “What did you like about keeping a gratitude diary?”; Table 11 shows the categories identified from their answers, in order of frequency. The most common category was having time in the day to think or reflect; some participants ($n = 17$) specified they liked time to think about the things they were grateful for, others ($n = 6$) liked thinking about good or nice things whilst some ($n = 18$) just liked time to think or reflect. The second most common category was that participants felt that keeping a gratitude diary led them to acknowledge things they were grateful for and increased how grateful they felt. The third category was ‘writing’; some participants ($n = 18$) specified they liked writing about what they were grateful for, whilst others ($n = 11$) just mentioned enjoying the process of writing.

Participants ($n = 19$) liked looking back over their diary as this acted as a reminder of what they had done and what they were grateful for. Participants were split on whether they wanted to keep their diary private or share this with others; eight participants said that they liked that no one would know or see what they had written whilst four participants specified that they liked sharing their thoughts with others. Finally, seven participants said that they found keeping a gratitude diary relaxing or calming.

Table 11 *Categories from Participants’ Answers to “What Did You Like About Keeping a Gratitude Diary?”*

Category	Frequency	Example quotes ^a
Time to think	$n = 41$ (26.6%)	<i>“I liked it because it gave you time to think”</i>
Feelings of gratitude	$n = 31$ (20.1%)	<i>“realising how grateful I am”</i>
Writing	$n = 29$ (18.8%)	<i>“I liked keeping a gratitude diary because I like writing”</i>
Acted as a reminder	$n = 19$ (12.3%)	<i>“I can look back on things I was grateful for”</i>
Privacy or sharing	$n = 12$ (7.8%)	<i>“I like that no one can look at it” or “I liked sharing thoughts”</i>
Relaxing or calming	$n = 7$ (4.5%)	<i>“It helped me keep calm”</i>

Note. In addition to the above, 11 participants made no comment or said ‘nothing’ and there were 25 comments which did not correspond to any category.

^a All quotations are reproduced verbatim from the children’s responses; no spelling or grammar errors have been corrected

Participants were asked “What didn’t you like about keeping a gratitude diary?”, Table 12 shows the categories identified in participants’ answers in order of frequency. The most common category was that participants found it hard to think of things to write about in their diary. Participants described not always knowing what to write and not always enjoying having to think of things. The next most common categories were that participants did not like doing the task every day and did not enjoy having to write. Participants also did not like how long the task lasted; some ($n = 6$) commented that it took too long, others ($n = 6$) said that they had too little time and some ($n = 5$) did not like that it went on for two weeks.

Some participants mentioned finding the task boring or that it felt like doing extra work. Participants from four classes mentioned that they did not like that they often forgot to write in their diary. Seven participants noted that keeping the gratitude diary took time away from doing other things, for example reading, drawing or schoolwork. Seven participants mentioned disliking being directed to write up to five things each day, some of these ($n = 4$) disliked only being allowed to write this many things, whilst others ($n = 3$) felt like this meant they had to write five things. Five participants mentioned that they disliked not having any help. However, it is worth noting that all of these participants were in the same class.

Table 12 *Categories from Participants' Answers to "What Didn't You Like About Keeping a Gratitude Diary?"*

Category	Frequency	Example quotes ^a
Hard to think of things to write about	<i>n</i> = 35 (22.7%)	<i>"It was sometimes hard to think of things"</i>
Doing it every day	<i>n</i> = 23 (14.9%)	<i>"I didn't like having to write every single day"</i>
Writing	<i>n</i> = 22 (14.3%)	<i>"It is writing and I don't really like writing"</i>
Task duration	<i>n</i> = 17 (11%)	<i>"It took to long"</i>
Boring and effortful	<i>n</i> = 15 (9.7%)	<i>"I found it a bit boring"</i>
Forgot to do it	<i>n</i> = 8 (5.2%)	<i>"We kept forgetting to do it"</i>
Time away from other activities	<i>n</i> = 7 (4.5%)	<i>"It took up time we could have been reading or something else"</i>
Limited to five things	<i>n</i> = 7 (4.5%)	<i>"You were only aloud to do up to five things"</i>
Not having help	<i>n</i> = 5 (3.2%)	<i>"Not being able to have help"</i>

Note. In addition to the above, 17 participants made no comment or said 'nothing' and there were 18 comments which did not correspond to any category.

^a All quotations are reproduced verbatim from the children's responses; no spelling or grammar errors have been corrected

Participants were asked "What could have made keeping a gratitude diary better?", Table 13 shows categories identified in participants' answers in order of frequency. The most common category was that participants would have liked to write their diaries at a different point in the day or in another location. Of the 28 participants who commented on this, 19 said they would have liked to take their diaries home whilst others suggested doing it in the mornings or just when they felt like it. The second most frequent suggestion was allowing participants to draw pictures instead of, or as well as, writing in their diary. Some participants (*n* = 19) also commented on the physical design of the diary and made suggestions on how this could be improved. This included making the diary more colourful, letting the participants decorate or personalise the diary, giving it a better front cover and not having lines on the paper. Two participants also suggested writing the diary entries on a computer.

Task duration and frequency were also common categories. There was no consensus on how to change the duration; some participants ($n = 8$) suggested having more time to write and others ($n = 3$) wanted to spend less time writing entries. Similarly, some participants ($n = 5$) suggested that the intervention should have run for less than two weeks whilst others ($n = 3$) suggested they would have liked it to go on for longer. In terms of frequency of the task taking place, all 16 participants who mentioned this felt that doing the diary every day was too often and they suggested doing it between once a week and once every two days.

Some participants wanted to write about other things in their diary. This varied from writing about what had happened in their day to writing about their thoughts and feelings. Participants noted that they would have liked some help to think of things to write in their diary; 10 of the 11 participants whose comments fell in this category came from a single class.

Participants suggested greater flexibility in the number of things they could write about. Four participants wanted to write more things, two wanted to write less and two suggested allowing children to write as much or as little as they wanted. A small number ($n = 7$) suggested changing or varying the instructions or tasks they were given. This included having a new quote each day or setting a different task for the children to do.

Table 13 *Categories from Participants' Answers to "What Could Have Made Keeping a Gratitude Diary Better?"*

Category	Frequency	Example quotes ^a
Time of day/ location	<i>n</i> = 28 (18.2%)	<i>"Doing it at a different time"</i>
Drawing pictures	<i>n</i> = 20 (13%)	<i>"I would have liked it more if we could draw pictures"</i>
Diary design	<i>n</i> = 19 (12.3%)	<i>"A more bright and jolly colour page??"</i>
Task duration	<i>n</i> = 19 (12.3%)	<i>"Making it shorter" or "continuing this diary longer"</i>
Task frequency	<i>n</i> = 16 (10.4%)	<i>"Only doing it once a week instead of having to do it every day"</i>
Writing about other things	<i>n</i> = 15 (9.7%)	<i>"Make it so you could write what was fun aswell as what you're gratefyl for"</i>
Help	<i>n</i> = 11 (7.1%)	<i>"If we had help from our teachers"</i>
Flexible length	<i>n</i> = 8 (5.2%)	<i>"You can write a little and as much as you want"</i>
Change task/instructions	<i>n</i> = 7 (4.5%)	<i>"Have something different to do each day"</i>

Note. In addition to the above, 17 participants made no comment or said 'nothing' and there were 26 comments which did not correspond to any category.

^a All quotations are reproduced verbatim from the children's responses; no spelling or grammar errors have been corrected

2.5 Discussion

This study aimed to explore what factors impact whether a gratitude diary intervention is effective in enhancing children's self-reported levels of gratitude. The finding that change in gratitude for the participants as a whole was non-significant was not surprising given the findings from previous studies; in Froh et al. (2008), the gratitude diary condition did not significantly differ from the non-active control and in Diebel et al. (2016) a significant difference in gratitude was present but was largely driven by decreases in gratitude for the control group. The null effect found in the current study could, at least partly, be explained by a large proportion of participants scoring at, or close, to ceiling on the GQ-6 prior to the start of the intervention.

The finding that keeping a gratitude diary was effective in significantly increasing gratitude for children with lower levels of pre-intervention gratitude is more novel. This suggests that keeping a gratitude diary may be more beneficial for those most lacking in gratitude at the onset. This is akin to Froh et al's (2009) study where a gratitude letter writing intervention was found to be more effective for participants low in positive affect prior to the start of the intervention. These findings raise the possibility that gratitude interventions might work best as a targeted intervention for some children, i.e., those low in well-being measures prior to the start of the intervention. The ability to boost the gratitude of these children, so that this is comparable with their peers, may offer an opportunity to reduce inequalities in wellbeing. However, it is recommended that this finding is interpreted cautiously. As this group's baseline scores were in the bottom third, and children with higher scores experienced a slight mean decrease, this may be an example of regression to the mean. Employing a control group could help to control for this possibility as, if a similar pattern of changes in scores was not observed in the control group, this would give greater confidence that increases in scores, for those lowest in gratitude, were an effect of the intervention.

It is also possible that the observed changes could be related to social desirability bias; research has found that people tend to score themselves higher on more desirable attributes, particularly when they are asked to complete measures in public (Paulhus, 1984). Participants in this study may have scored themselves higher on the GQ-6 due to an awareness that gratitude was being viewed as a desirable attribute. Alternatively, as participants were aware that they were being asked to keep a gratitude diary as part of a research project, they may have realised the researcher was assessing their gratitude scores and scored higher on the post-intervention measure as a result. Further research including the use of a control group is needed to assess whether these effects can be replicated and whether similar effects are found when gratitude diaries are delivered as part of a smaller group or whether the process of completing an activity as part of a whole class may have contributed to the benefits experienced. It is advised that future studies assessing whether gratitude diaries are effective for those lowest in gratitude prior to intervention employ a control group to avoid the possibility that changes are related to statistical phenomena or other unexamined environmental variables. It is also important that follow up measures are taken to assess whether changes in gratitude persist over time. As the current study did not take follow-up measures, no conclusion can be made on whether the observed changes were maintained.

Whilst it was identified that the intervention was more effective for children with lower gratitude, no other factors which might have impacted the effectiveness of the intervention were identified; there was no evidence to support the hypotheses that change in gratitude was related

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to children's pre-existing enjoyment of writing, their enjoyment of keeping a gratitude diary, how hard they found it to think of things to write in their diary or the amount they wrote. This suggests that these factors are not relevant to whether children experience a change in gratitude.

There were also limited differences in diary content between a group of participants whose gratitude increased and a group of participants whose gratitude stayed relatively stable pre- to post-intervention. This finding was unexpected. In addition, any trends which were identified in differences between the groups were not in the expected direction; children who did not experience a change in gratitude tended to write more, mention more benefactors, make more expressions of triadic gratitude and elaborate more on why they felt grateful. None of these trends were statistically significant. Anecdotally, whilst reading the children's diaries, the coders noted that some children tended to write more eloquently and appeared to have more actively engaged with the task of writing; interestingly many of these children were later identified as having experienced no change in gratitude. This suggests that neither the quality, nor quantity, of writing was related to changes in gratitude.

It is important to note that analysing the content of diaries cannot be assumed to be the same as capturing the internal processes participants went through when keeping a gratitude diary. When coding the diaries, coders were aware of the risk of coding subjectively based on their own experiences and so a consistent method of coding was rigorously applied. After an initial code list was developed (see Appendix E), two coders completed the coding independently and any disagreements were resolved through discussion. It is acknowledged that some of the children's diary entries contained ambiguous phrases that may have been misinterpreted. When coders came across challenges of interpretation, specific entries were discussed in thesis supervision sessions and compared and contrasted with the coding of other entries to ensure all of the children's entries were treated consistently. Future studies may like to adopt alternative ways to investigate how children engage with the process of keeping a gratitude diary. This could include engaging the children in verbal reflections on the process either one to one or as part of a focus group.

Perhaps the most compelling and unique contribution of this study is examining children's feedback on the intervention. These reports offer insight into how the children felt about keeping a gratitude diary and offer a range of suggestions on how to improve the intervention in the future. It is interesting that there were similarities between the categories of elements that the children liked, and those that the children did not like about keeping the diaries. The most common category arising from the question "What did you like about keeping a gratitude diary?" was having 'time to think' whereas the most common category for the question "What didn't you

like about keeping a gratitude diary?” was finding it ‘hard to think of things to write about’. Only eight participants commented that they liked having time to think but also found it hard to think of things to write about with the majority of participants ($n = 68$) making a comment which fell into either one category or the other. Another common theme across the two questions was ‘writing’, with some participants enjoying this aspect of the exercise and others disliking it. Only five of the 46 participants that made a comment on writing said that they both liked and disliked the writing element. These categories, amongst others, align with the quantitative data which indicated that participants were divided between some who enjoyed the activity and others who did not. Taken together this begins to suggest that perhaps one prescriptive intervention is not universally suitable, or enjoyable, for all children.

Delving into participant’s answers to the question “What could have made keeping a gratitude diary better?” offers greater insight into ways children feel their enjoyment of the intervention could have been enhanced. On the whole, children suggested a variety of modest changes to the intervention, such as allowing them to write their diary at a time, and in a place, that suited them and allowing flexibility over how they express gratitude, i.e., drawing pictures rather than writing. Children described ways they would have liked to amend the diary’s design including making it brighter or more personal. Psychologists have long advocated giving people, particularly children, greater autonomy over aspects of a task as this can lead to enhanced intrinsic motivation (Deci & Ryan, 2000). Whilst from a research perspective it is often beneficial to deliver a uniform intervention, children’s perspectives suggest that the prescriptive nature of the intervention in this study may have hindered their enjoyment. This in turn may have limited the benefits they experienced. This feedback serves as a reminder that often interventions are designed by adults for children. Further research studies could look to include children in the design and development phase of gratitude interventions with the hope that greater ownership could lead to greater benefits. It would be interesting to assess whether allowing children greater freedom over how and when they use their gratitude diary enhances the effectiveness of the intervention.

2.6 Limitations

This study has a number of limitations. The intervention was designed to be implemented consistently across settings and classes. To support this, teachers were provided with verbal and written guidance on how to implement the intervention. However, participant and teacher feedback indicate that this was not always followed. Participants expressed that they were often required to write more than one diary entry per day, did not always have the allotted 10 minutes to complete each entry and that they sometimes forgot to write their diary. Teachers from four

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out of the eight classes informed the researcher that children had not always been able to complete their diaries each day due to absence or other commitments (e.g., sporting events or transition days). They conceded that, at times, this meant children completed two diary entries on a single day. For two classes, evaluation forms were not completed on the final day of the intervention and the researcher supported the children to complete these during the post-intervention session. All participant feedback must be interpreted with these limitations in mind. In particular, comments on the duration and frequency of writing entries may not have been in reference to the prescribed intervention but a modified version that the children received. In future research, it would be appropriate for researchers to consider how to assess fidelity to intervention. This could include asking those delivering the intervention to complete a daily log of whether the intervention was completed and when.

As discussed, many participants scored highly on the GQ-6 prior to the intervention, with 13% of participants scoring the maximum score of 35. This could indicate that the participant pool consisted of a highly grateful group of children or could signal a measurement issue. Hussong et al. (2018) suggest that existing measures may not be able to capture a construct as complex as gratitude and Caleon et al. (2017) concluded that the GQ-6 may not be sensitive enough to capture subtle changes in children's gratitude levels. Further research dedicated to finding a viable alternative measurement of gratitude in children would be beneficial; I am aware that one of my supervisors, Colin Woodcock, is currently working with a University of Southampton Educational Psychology Trainee to develop such a measure and I look forward to its validation and publication. In addition, a number of the other variables (enjoyment of writing, enjoyment of the intervention and how hard they found the intervention) were measured using a single Likert scale question and therefore may have been less robust than more established measures. When designing the project, researchers were unable to locate established measures of enjoyment of writing or enjoyment of interventions. Scales were designed to be easy to administer and complete. Choices were limited to five scale points in line with research which suggests this yields higher quality data than scales with seven or 11 choices (Revilla, Saris, & Krosnick, 2014). Limiting the number of choices can also reduce the likelihood of participants becoming frustrated with the number of choices available. Due to time constraints it was not possible to validate the measure prior to the research taking place. It is recommended that in future research multi-item measures are developed and piloted. Principal components analysis should be conducted to assess the internal consistency and the measure should be amended in line with results.

It is a strength of the study that diaries were coded by two people. Using manifest content analysis, the researchers used the children's words as written to inform codes and did not intend to impose meaning onto these (Bengtsson, 2016). However, due to the sometimes ambiguous

nature of written expression, researchers could not guarantee they were accurately categorising content in line with the gratitude that participants intended to express.

2.7 Conclusions

This study aimed to explore whether a range of factors affect the change in gratitude children experience when keeping a gratitude diary. One notable finding is that keeping a gratitude diary was more effective at enhancing gratitude for those children lowest in gratitude at the onset. This suggests that gratitude diaries may hold promise as a targeted, rather than universal, intervention to help boost gratitude levels of those children who are most in need.

There was no evidence to support the hypotheses that change in gratitude was related to children's pre-existing enjoyment of writing, their enjoyment of keeping a gratitude diary, how hard they found it to think of things to write in their diary or the amount they wrote. There were also no significant differences in what children wrote about in their diaries between children who experienced a change in gratitude and those that did not.

Participant feedback provides valuable insights into children's views of keeping a gratitude diary. Children expressed that they would like greater flexibility and choice over how and when they keep a gratitude diary. Further research is needed to see whether implementing this feedback could result in a more effective intervention.

Appendix A Papers excluded after accessing full-text copies

Authors and titles	Rationale for exclusion
Akhtar & Boniwell (2012). Applying positive psychology to alcohol-misusing adolescents. A group intervention.	Intervention was not solely based on gratitude.
Al-Seheel, A. Y., & Noor, N. M. (2016). Effects of an Islamic-based gratitude strategy on Muslim students' level of happiness.	Incorrect age group
Arps, E. R., Friesen, M. D., & Overall, N. C. (2018). Promoting youth mental health via text-messages: A New Zealand feasibility study.	Incorrect age group
Baumsteiger, Mangan, Bronk, & Bono (2019). An integrative intervention for cultivating gratitude among adolescents and young adults.	Incorrect age group
Duthely, Nunn, & Avella (2017). A novel heart-centered, gratitude-meditation intervention to increase well-being among adolescents.	Intervention was not solely based on gratitude.
Haworth, Nelson, Layous, Carter, Bao, Lyubomirsky, & Plomin, (2016). Stability and change in genetic and environmental influences on well-being in response to an intervention.	Intervention was not solely based on gratitude.
Jaser, Patel, Rothman, Choi & Whittlemore (2014). Check it!: A randomized pilot of a positive psychology intervention to improve adherence in adolescents with type 1 diabetes.	Intervention was not solely based on gratitude.
Jaser, Whittlemore, Choi, Nwosu, & Russell (2019). Randomized trial of a positive psychology intervention for adolescents with type 1 diabetes.	Intervention was not solely based on gratitude.
King, R. B., & Datu, J. A. D. (2018). Grateful students are motivated, engaged, and successful in school: Cross-sectional, longitudinal, and experimental evidence.	Incorrect age group

Appendix A

Kwok, Gu, & Kit (2016). Positive psychology intervention to alleviate child depression and increase life satisfaction: A randomized clinical trial.	Intervention was not solely based on gratitude.
Noor, N. M., Rahman, N. D. A., & Zahari, M. I. A. M. (2018). Gratitude, gratitude intervention and well-being in Malaysia.	Incorrect age group
Ouweneel, E., Le Blanc, P. M., & Schaufeli, W. B. (2014). On being grateful and kind: Results of two randomized controlled trials on study-related emotions and academic engagement.	Incorrect age group
Rash, J. A., Matsuba, M. K., & Prkachin, K. M. (2011). Gratitude and well-being: Who benefits the most from a gratitude intervention?	Incorrect age group
Suldo et al. (2015) Increasing elementary school students' subjective well-being through a classwide positive psychology intervention: Results of a pilot study.	Intervention was not solely based on gratitude.
Sundar, Qureshi & Galiatsatos (2016). A positive psychology intervention in a Hindu community: The pilot study of the Hero Lab curriculum.	Intervention was not solely based on gratitude.
Wong, Y. J., McKean Blackwell, N., Goodrich Mitts, N., Gabana, N. T., & Li, Y. (2017). Giving thanks together: A preliminary evaluation of the Gratitude Group Program.	Incorrect age group
Yen, Ranney, Tezanos, Chuong, Kahler, Solomon & Spirito (2019). Skills to enhance positivity in suicidal adolescents: Results from an open development trial.	Intervention was not solely based on gratitude.

Appendix B Data extraction table of included studies

	Location	Participants <i>N</i> (% male)	Intervention G = Gratitude condition (<i>n</i>) C = Comparison conditions (<i>n</i>)	Design	Outcome measures	Analysis & significant results <i>ns</i> = not significant
1. Caleon et al. (2017)	Singapore 1 x school. 4 classes (2 x secondary school one classes, 2 x secondary school three classes)	N = 103 (48) Age: Secondary School One classes; <i>M</i> age = 12.97 and Secondary School Three classes; <i>M</i> age = 14.97 Drop out: 23% (absent at post- test)	G: (46) Socially Oriented Gratitude Intervention C: (57) curriculum as usual (wait-list control)	Allocation: Random at class level Length and frequency: 2 weeks, 4 periods (a total of 140 min) Time points: Pre (3 weeks before) and post (4 weeks after) intervention.	Gratitude Questionnaire-6 (GQ-6): (McCullough et al., 2002). $\alpha = .73 - .74$. Relatedness with parents, teachers and peers: Four items (referenced Furrer & Skinner (2003) but that study used 20 items so unclear how these were developed). $\alpha = .79 - .88$. Student feedback: Gathered after each session.	GQ-6: <i>ns</i> overall. Relatedness: <i>ns</i> overall. Follow-up analyses: Relatedness with parents: $G > C$ ($p = .03$) but represents a marginal increase for G & significant decrease for C. Relatedness with friends: $G > C$ ($p = .07$) but C decrease & G small increase. N.B. feedback thematically analysed
2. Chaplin, John, Rindfleisch, & Froh (2019)	USA: south-western and north-eastern Summer programs	N = 61 (48) Age range: 11-17 (<i>M</i> = 14.38, <i>SD</i> = 2.08)	G: (Not reported) gratitude journal C: (Not reported) activities journal	Allocation: Random at individual level Length and frequency: 2 weeks, daily (time given not specified)	Gratitude Questionnaire-6 (GQ-6): 4 items from the GQ-6 (McCullough et al., 2002) with adapted wording. $\alpha = .78$ & $.83$.	ANOVAs used Gratitude: $G > C$ ($p < .01$) Materialism: $G < C$ ($p < .01$)

	(number of settings not specified)	Drop out: Not reported		Time points: Pre and post intervention (not specified)	Youth Materialism Scale: (Goldberg, Gorn, Peracchio, & Bamossy, 2003) 2 items excluded. $\alpha = .79$. Generosity: How much of \$10 fee donated to charity.	Generosity: $G > C$ ($p < .01$)
3. Diebel, Woodcock, & Brignell (2016)	England: Southampton 1 x primary school	N = 100 (51) Age range: 7-11 ($M = 9.4$) Drop out: 13.8% (due to absence or less than 18 out of 20 diary entries written)	G: (49) Gratitude diary C: (51) Event diary	Allocation: Random allocation at individual level Length and frequency: 4 weeks, 10 minutes per school day Time points: Pre (2 days before) and post (directly after) intervention	The Belonging Scale: (Frederickson & Dunsmuir, 2009). $\alpha = .74$. Gratitude Questionnaire-6 (GQ-6): (McCullough et al., 2002) adapted to include word 'school' and rating scale 1-10. $\alpha = .74$	ANOVAs used GQ-6: sig interaction between time and condition ($p < .001$); C decreased on GQ-6 and G increased only for males. The Belonging Scale: sig interaction between time and condition ($p < .001$); Sig increase for G ($p < .001$) and <i>ns</i> decrease for C. Correlation between increase in GQ-6 and increase in The Belonging Scale ($p < .001$).
4. Fritz, Armenta, Walsh, & Lyubomirsky (2019) Study two	USA: Los Angeles area and New York City 4 x high schools (2 x	N = 1,017 (not reported) Age range: Not reported. 9 th & 10 th graders	G1: (Not reported) gratitude to another for helping with health G2: (Not reported) gratitude to another	Allocation: Random at individual level Length and frequency: 4 weeks, 1 session per week (5 minutes writing, time spent on	STC Diet questionnaire (STC): (Paxton et al., 2011) Affect-Adjective Scale: (Diener & Emmons, 1985). Subscales of Positive Affect (PA) and Negative	Multilevel growth curve modelling and mediation analysis used. G1, 2, 3 collapsed to a 'expressing gratitude' group (GA)

public & 2 x independent)	Drop out: Not reported	<p>for helping with academics</p> <p>G3: (Not reported) Gratitude to another for doing something kind.</p> <p>C: (Not reported) list daily activities.</p> <p>G1, G2 & G3 included gratitude letter + priming activities + 30 minutes per week spent improving themselves in target area.</p>	<p>addition reading and writing activities not specified & 30 minutes per week improving self)</p> <p>Time points: most measures taken at each intervention session (unclear whether before or after intervention, except GQ-6 which authors specify was completed after the writing activity), at post-intervention (time not specified) and 3 month follow up. STC only at pre-intervention, post-intervention and follow-up.</p>	<p>Affect (NA)</p> <p>Indebtedness: single-item</p> <p>Connectedness subscale of Balanced Measure of Psychological Needs: (Sheldon & Hilpert, 2012)- modified (no details on modifications given).</p> <p>Elevation: single-item</p> <p>Brief State Humility Scale: (Kruse, chancellor & Lyubomirsky, 2017)</p> <p>Gratitude Questionnaire-6 (GQ-6): (McCullough et al., 2002), modified (no details on modifications given).</p> <p>α – not reported</p>	<p>GQ-6: GA > C ($p < .01$) after first writing activity. GA predicted increased GQ-6 throughout the study but GQ-6 did not predict healthier eating behaviour at post-test ($p = .46$) or follow-up ($p = .36$)</p> <p>STC (healthier eating behaviours): GA > C ($p < .05$) over time ($d = 0.54$, medium effect). GA predicted healthier eating at post-test ($p < .01$) and marginally at follow-up ($p = .06$).</p> <p>PA: GA > C ($p < .01$) after writing prompt (unclear when this was). GA predicted increased positive affect throughout study however increased positive affect did not predict healthier eating behaviour at post-test ($p = .46$) or follow-up ($p = .36$).</p> <p>NA: GA < C ($p < .05$) after gratitude writing prompt (unclear when this was). GA predicted reduced negative affect overtime (no stats recorded) and reductions in negative affect predicted better</p>
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eating behaviour at post-test ($p < .05$) and follow-up ($p < .05$).

Elevation: GA predicted increased elevation (no stats reported) but elevation did not lead to healthier eating behaviour at post-test ($p = .79$) or follow-up ($p = .55$).

Connectedness: GA predicted increased connectedness (no stats reported) but connectedness did not lead to healthier eating behaviour at post-test ($p = .51$) and only marginally improved eating behaviour at follow-up ($p = .09$).

Indebtedness: (likely authors meant to say that GA predicted increased connectedness- error in paper as elevation is mentioned twice (no stats reported on this element). Indebtedness did not lead to healthier eating behaviour at post-test ($p = .45$) or at follow-up ($p = .39$).

						Humility: <i>ns</i>
5. Froh et al. (2014)	USA: affluent district	N = 122 (48.4)	G: (62) Nice Thinking! Curriculum	Allocation: random allocation at class level	Benefit-Appraisal Vignettes: vignettes and questions. $\alpha = .80 - .083$.	ANCOVAs: Benefit-appraisal: $G > C (p < .05)$
Study One	Elementary School. 6 x classes.	Age range: 8-10 ($M = 9.03, SD = 0.33$) Participation rate: 88%	C: (60) Attention-control, curriculum of neutral topics.	Length and frequency: 1 week, 30 minutes daily Time points: Pre (2 days before) and post (2 days after) intervention	Gratitude Adjective Checklist (GAC): (McCullough et al., 2002). $\alpha = .70 - .74$. Behavioural measure of gratitude: opportunity to make thank you cards.	GAC: $G > C (p < .05)$ Two-way contingency table analysis: Behavioural measure of gratitude: condition and the writing of thank you cards sig related ($p < .05$) $G = 43.5\%$ vs $C = 25\%$.
6. Froh et al. (2014)	USA: affluent district	N = 82 (54.9)	G: (44) Nice Thinking! Curriculum	Allocation: random allocation at class level	Benefit-Appraisal Vignettes: vignettes and questions. $\alpha = .80 - .091$.	Hierarchical linear modelling used
Study Two	Elementary School. 4 x school classes	Age range: 8-11 ($M = 9.50, SD = 0.63$) Participation rate: 84%	C: (38) Attention-control, curriculum of neutral topics.	Length and frequency: 5 weeks, 30 minutes per week Time points: Pre (directly before) and post (directly after) intervention. Follow up at; 2 weeks, 7 weeks and 15 weeks post-intervention	Gratitude Adjective Checklist (GAC): (McCullough et al., 2002). $\alpha = .81 - .93$. Positive and Negative Affect Scale for Children: (Laurent et al., 1999). Sub-scales for Positive Affect (PA) and Negative Affect (NA). $\alpha = .84 - .90$.	Benefit-appraisal: sig intercept for whole sample ($p < .001$). Intervention had sig effect on linear slope ($p = .001$). $G > C$ at 7 weeks ($p = .01$) and 15 weeks ($p = .001$) GAC: sig intercept for whole sample ($p < .001$). Intervention had sig effect on linear slope (p

					<p>Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS): (Seligson, Huebner & Valois, 2003). $\alpha = .65 - .77$.</p>	<p>= .05). G > C at 7 weeks ($p = .04$) and 15 weeks ($p = .02$)</p> <p>PA: sig intercept for whole sample ($p < .001$). Intervention had sig effect on linear slope ($p = .004$). G > C at 7 weeks ($p = .04$) and 15 weeks ($p = .008$).</p> <p>NA: sig intercept ($p < .001$) and sig linear slope ($p < .05$) for whole sample. Intervention effect on linear slope <i>ns</i>. (NA reduced for all).</p> <p>BMSLSS: sig intercept ($p < .001$) and sig linear slope ($p < .05$) for whole sample. Intervention effect on linear slope <i>ns</i>. (LS increased for all).</p>
7. Froh, Kashdan, Ozimkowski, & Miller (2009)	USA 1 x school (parochial)	N = 89 (49.4) Age range: 8-19 ($M = 12.74$, $SD = 3.48$) Drop out: Not reported	G: (44) gratitude letter C: (45) event journal	Allocation: Random allocation, participants matched by grade Length and frequency: 2 weeks, 10-15 every other school day. 5 days in total (Mon, Weds, Fri, Mon & Weds)	Gratitude Adjective Checklist (GAC): (McCullough et al., 2002). $\alpha = .80 - .84$. Positive and Negative Affect Scale for Children: (Laurent et al., 1999). Sub-scales for Positive Affect (PA) $\alpha = .84 - .91$ and Negative Affect (NA) $\alpha = .83 - .88$.	Three stages of analysis 1. Initial analysis: GAC, PA & NA: <i>ns</i> main effect for time or condition 2. Follow up analysis on PA as a moderator (condition x pre-intervention PA interactions): GAC: sig at post-intervention ($p < .01$), <i>ns</i> at 1 month follow-up

				<p>Time points: Pre (directly before) and post (directly after) intervention. Follow up at; 1 month and 2 month post-intervention</p>		<p>and approaching sig at 2 month follow-up ($p = .07$).</p> <p>PA: sig at post-intervention ($p = .04$), approaching sig at 1 month follow-up ($p = .06$) and sig at 2 month follow-up ($p = .03$).</p> <p>NA: <i>ns</i> at post-intervention, approaching sig at 1 month follow-up ($p = .06$), <i>ns</i> at 2 month follow-up.</p> <p>3. Effect analysis for PA 1 SD below mean at pre-intervention: G compared to C pre-intervention PA sig predicted increased GAC at post-intervention ($p = .01$) and PA at 2 month follow up ($p < .01$), approached sig predicting post-intervention PA ($p = .09$)</p>
8. Froh, Sefick, & Emmons (2008)	USA Middle school. 11 x classes	<p>N = 221 (49.8)</p> <p>Age: 6th & 7th grade ($M = 12.17$, $SD = .67$)</p> <p>Drop out: Not reported</p>	<p>G: (76) gratitude journal</p> <p>C1: (80) hassles journal</p> <p>C2: (65) non-active control</p>	<p>Allocation: Random at class level</p> <p>Length and frequency: 2 weeks, each school day (time given not specified)</p>	<p>Well-being Ratings: (Emmons & McCullough 2003) adapted to 25/30 items. Included 3 items which form Gratitude Adjective Checklist (GAC) (McCullough et al., 2002) $\alpha = .78 - .88$. Remaining 22 items summed into positive affect (PA), $\alpha = .90-$</p>	<p>GAC: G > C1 at post-test ($p = .01$) & at follow-up ($p < .01$).</p> <p>PA: <i>ns</i></p> <p>NA: sig results: During intervention; G & C2 < C1 ($p < .01$). Post-intervention; G < C1</p>

<p>Time points: Daily measures of well-being and prosocial behaviour (summed for 8-day composite score). All measures at pre & post intervention (time not specified) & follow up 3 weeks post-intervention</p>	<p>.91 and negative affect (NA), $\alpha = .91 - .92$.</p>	<p>($p < .05$) & C2 < C1 ($p < .01$). At follow-up G & C2 < C1 ($p < .01$).</p>
	<p>Life satisfaction: 2 items from Emmons & McCullough (2003) used as separate variables: rating of how participants felt about life 'in the past few weeks' and how they expected to feel in the 'next week'. Items from the Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS) (Seligson, Huebner & Valois, 2003) summed, $\alpha = .77 - .88$. (included items on family life, friendships, school experience, self and living environment).</p>	<p>Rating of life satisfaction in last few weeks: C2 > C1 ($p < .05$) & G > C1 approaching sig ($p = .063$).</p>
		<p>Satisfaction with school: G > C1 & C2 ($p < .05$)</p>
		<p>Physical symptoms: <i>ns</i></p>
		<p>Reactions to aid (4 grateful responses): sig correlated with PA, life satisfaction over the past few weeks, optimism about upcoming week and overall life satisfaction ($p < .01$).</p>
	<p>Physical symptoms: Check list of symptoms from Emmons & McCullough (2003) amended from piloting.</p>	<p>ANCOVA: post-intervention, <i>ns</i>. 3 week follow-up, G & C2 > C1 ($p < .01$).</p>
	<p>Reactions to aid: check list of how handled problems & how you felt from Emmons & McCullough (2003). Four items concerning gratitude summed, $\alpha = .77 - .88$.</p>	<p>Mediator analysis on G and C1: at 3 week follow-up condition was no longer a sig predictor of GAC when controlling for gratitude in response to aid (or vice versa!).</p>
		<p>Pro-social behaviour: <i>ns</i></p>

					Pro-social behaviour: similar items to Emmons & McCullough (2003) rate if they have helped people since yesterday.	
9. Khanna & Singh (2016)	North India: Chandigarh & New Delhi 2 x schools (one government, one private). 2 classes per school.	N = 177 (58) Age range: 11-14 (<i>M</i> = 14.97, <i>SD</i> = 0.67) Drop out: Not reported	G: (95) Nice Thinking! Curriculum C: (82) Attention-control, curriculum of neutral topics.	Allocation: Random allocation of one class per school to each condition Length and frequency: 5 weeks, 30 minutes per week Time points: Pre (day before) and post (day after) intervention	Mental health continuum-Short Form (MHC): (Keyes, 2005). Sub-scales for emotional well-being (EWB), social well-being (SWB) & psychological well-being (PWB). $\alpha = .80$ Scale of Positive and Negative Experience: (Diener et al., 2010). Sub-scales for positive items (SPANE P), negative items (SPANE N) and combined (SPANE B). $\alpha = .67- .77$ Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS): (Huebner, 1994). $\alpha = .70$. Benefit-Appraisal Vignettes: (Froh et al., 2014). $\alpha = .70$. Gratitude Adjective Checklist (GAC): (McCullough et al., 2002). $\alpha = .58$.	ANCOVAs used. PWB: $G > C$ ($p = .001$) MHC total: $G > C$ ($p = .002$) Benefit appraisal: $G > C$ ($p = .001$) PANAS P: $G > C$ ($p = .006$) GAC: $G > C$ ($p = .003$) SPANE P: $G > C$ ($p = .001$) SPANE B: $G > C$ ($p = .01$) BMSLSS: $G > C$ ($p = .001$) EWB, SWB, SPANE N and PANAS N: <i>ns</i>

					<p>Positive and Negative Affect Scale for Children (short version): (Ebesutani et al., 2011 adapted from Laurent et al., 1999) $\alpha = .61 - .63$. Sub-scales of positive affect (PANAS P) & negative affect (PANAS N)</p> <p>Brief feedback form: feedback from recipient of thank you card.</p>	
10. Khanna & Singh (2019)	India: National Capital Region 2 x schools (12 classes)	<p>N = 372 (56)</p> <p>Age range: 11-13 ($M = 12.73$, $SD = 0.98$)</p> <p>Drop out: 2%</p>	<p>G: (64) Gratitude visit (included writing a letter and delivering it)</p> <p>C1: (61) Three good things in life</p> <p>C2: (63) You at your best</p> <p>C3: (63) Using signature strengths</p> <p>C4: (60) Using signature strengths in a new way</p> <p>C5: (61) placebo control- recalling earlier memories</p>	<p>Allocation: Random at class level (one class per school allocated to each condition)</p> <p>Length and frequency: Over 1 week (in own time)</p> <p>Time points: pre (day before) and post intervention (time not specified)</p>	<p>Scales offered in both Hindi and English</p> <p>Mental health continuum-Short Form (MHC): (Keyes, 2005). Sub-scales for emotional well-being (EWB), social well-being (SWB) & psychological well-being (PWB). $\alpha = .80$.</p> <p>Scale of Positive and negative Experience: (Diener et al., 2010). Sub-scales for positive items (SPANE P), negative items (SPANE N) and combined score (SPANE B). $\alpha = .67 - .77$</p> <p>Brief Multidimensional Students' Life Satisfaction Scale</p>	<p>ANCOVAs used</p> <p>EWB: <i>ns</i></p> <p>SWB: Sig overall effect $p = .03$. <i>ns</i> at group level</p> <p>PWB: Sig overall effect $p = .02$. $G > C1$ ($p = .03$)</p> <p>MHC: Sig overall effect $p = .02$. $G > C1$ ($p = .05$)</p> <p>SPANE P: Sig overall effect $p = .01$. $G > C1$ ($p = .01$)</p> <p>SPANE N: <i>ns</i></p> <p>SPANE B: <i>ns</i></p>

					(BMSLSS): (Huebner, 1994). $\alpha = .70$.	BMSLSS: Sig overall effect $p = .01$. $G > C1$ ($p = .02$)
					Steen Happiness Index (SHI): (Seligman et al., 2005) $\alpha = .92$	SHI: Sig overall effect $p = .01$. $G > C1$ ($p = .02$) & $G > C2$ ($p = .02$)
					Centre for Epidemiological Studies- Depression Scale (CES): (Radloff, 1997) $\alpha = .85$	CES: <i>ns</i>
11. Long & Davis (2011)	USA: Missouri Three residential group homes for youth offenders.	N = 25 (100) Age range: 13-17 ($M = 15$, $SD = 1.26$)	G: (8) Gratitude journal C1: (10) Life goals journal C2: (7) Expectations for tomorrow journal	Allocation: non-random allocation by residential home (home managers preference given) Length and frequency: 5 days, 15 minutes per day (G only wrote for 4 non-consecutive days) Time points: Pre and post intervention (not specified)	Satisfaction with Life Scale (SWLS): (Diener, Emmons, Larsen & Griffin, 1985) Children's Hope Scale: (Snyder et al., 1997) The Full Range Mood Evaluation (FMRE): (Harrison & Davis, 2003) – one question removed as inappropriate for age range. α – not reported	SWLS: <i>ns</i> Children's Hope Scale: sig main effect for whole sample ($p = .01$). <i>ns</i> effect of condition. FRME: sig main effect for whole sample ($p < .001$). <i>ns</i> effect of condition. Essay length: $C1 > G$ & $C2$ ($p < .001$) Number of entries: G wrote for only 4 days. N.B. thematic analysis also conducted.
12. Owens & Patterson (2013)	USA: Midwestern suburban area	N = 62 (48.4)	G: (22) gratitude focused picture drawing	Allocation: school sites allocated by site. Summer day camp	Positive and Negative Affect Scale for Children (PANAS): (Laurent et al., 1999).	ANOVAs used. PA & NA: <i>ns</i>

3 x after-school care sites & 2 x summer day camp programs.	Age range: 5-11 <i>(M = 7.35, SD = 1.73)</i> Drop out: 22.5% (completed less than 4 sessions)	C1: (23) best possible selves focused picture drawing C2: (17) happy and interested focused picture drawing	attendees randomly allocated at individual level Length and frequency: 4-6 weeks (varied by site), weekly. Time points: Pre (not specified) and post (1 day to 1 week after completion) intervention	Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS): (Seligson, Huebner & Valois, 2003). Modified to be visual (face line drawings rather than verbal labels) Global subscale of Perceived Competence Scale for Children: (Harter, 1982) to measure self-esteem. α – not reported	BMSLSS: girls > boys ($p = .056$). Effect of condition: <i>ns</i> Self-esteem: C1 sig increase ($p = .004$). G & C2, <i>ns</i> .
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Appendix C Quality assessment questions

Data gathering

1. Clear research question or hypothesis e.g., well-defined, measurable constituent elements
2. Appropriate participant sampling e.g., fit to research question, representativeness.
3. Appropriate measurement instrumentation e.g., sensitivity; specificity
4. Comprehensive data gathering e.g., multiple measures used; context of measurement recorded (e.g., when at school vs at home)
5. Appropriate data gathering method used e.g., soundness of administration
6. Reduction of bias within participant recruitment/ instrumentation/ administration e.g., harder-to-reach facilitation; accessibility of instrumentation
7. Response rate/ completion maximised e.g., response rate specified; piloting; access options
8. Population subgroup data collected e.g., participant gender; age; location

Data analysis:

9. Missing data analysis e.g., level and treatment specified
10. Time trends identified e.g., follow-up data collected and changes over time analysed
11. Appropriate statistical analyses (descriptive or inferential) e.g., coherent approach specified, sample size justification.
12. Multi-level or inter-group analyses present e.g., comparison between participant groups by relevant location or characteristics

Data interpretation:

13. Magnitude of the findings are discussed in terms of impact as well as statistical significance e.g., are effects sizes reported and realistic implications for practice discussed

The following questions were removed from the original checklist as they did not add any valuable information to the quality assessment:

- Geographical considerations e.g., regional or subgroup analysis

Appendix C

- Clear criteria for rating of findings e.g., benchmarked/ justified evaluation of found quantitative facts
- Limitations of the research considered in relation to initial aims e.g., critique of method, generalizability estimate
- Implications of findings linked to rationale of research question e.g., implications for theory, practice or future research

Appendix D Quality assessment of included studies

✓ = adequately addressed, ✓x= partially addressed, x = not adequately addressed, NS= not stated & NA = not applicable

Study	Data gathering								Data analysis				Data interpretation
	1. RQs clear & stated	2. Appropriate participant sampling	3. Appropriate measurement instruments	4. Comprehensive data gathering	5. Appropriate data gathering method	6. Reduction of bias in recruitment/data gathering	7. Response rate maximised	8. Population sub-group data reported	9. Missing data analysed	10. Time trends explored (only applicable to studies with follow up)	11. Appropriate statistical analysis used	12. Multi-level or inter-group analyses conducted	
1. Caleon et al. (2017)	✓	✓	✓x	✓	✓	NS	NS	✓	NS	NA	✓	x	✓
2. Chaplin et al. (2019) (study two)	✓x	✓	✓x	✓x	NS	NS	NS	✓	NS	NS	✓	✓x	✓
3. Diebel et al. (2016)	✓	✓	✓	✓	✓	✓	NS	✓	NA	NA	✓	✓	✓
4. Fritz et al. (2019) (study two)	✓	✓	✓x	✓x	✓	NS	NS	✓x	NS	✓	✓	✓	✓

Appendix D

5. Froh et al. (2014) (study one)	✓	✓ x	✓	✓	NS	NS	NS	✓	NS	NA	✓	x	✓
6. Froh et al. (2014) (study two)	✓	✓ x	✓	✓	NS	NS	NS	✓	NS	✓	✓	x	✓
7. Froh et al. (2009)	✓	✓ x	✓	✓	NS	NS	NS	✓	NA	✓	✓	✓	✓
8. Froh et al. (2008)	✓	✓	✓	✓	✓	NS	NS	✓	✓	✓	✓ x	✓ x	✓ x
9. Khanna & Singh (2016)	✓	✓	✓ x	✓	✓	✓	NS	✓	✓	x	✓	x	✓
10. Khanna & Singh (2019)	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	✓	x	✓
11. Long & Davis (2011)	✓	✓	✓ x	✓	NS	x	NS	✓	NS	x	✓	x	✓
12. Owens & Patterson (2013)	✓	✓	✓ x	✓	✓	NS	NS	✓	NA	x	✓	✓ x	✓

Appendix E Code list for RQ5

Coding level one: classifying the type of expressions of gratitude made

The aim is to count the number of expressions of gratitude each participant has made and classify these based on the below definitions.

- The definition of targeted, or triadic, gratitude is “a beneficiary (A) is grateful for/to a benefactor (B) for a benefit (C)”
- The definition of propositional, or dyadic, gratitude is “a beneficiary (A) is grateful for a benefit (or benefactor) (B)”
- Sentences will be assessed as including elaboration if a reason is given for the gratitude expressed.

N.B. A benefactor must have ‘agency’ e.g., be a person or animal capable of acting with intention (or be perceived as acting with intention). A benefit is an event, idea or tangible object for which the person expresses gratitude. A single sentence could contain a number of expressions of gratitude, one will be counted for each defined point made. Only one elaboration can be counted per point.

Scoring: Coders will count number of triadic points, dyadic points and points of elaboration. Each participant will end up with three scores: number of triadic points, number of dyadic points and number of points of elaboration.

Type of expression	Description	Examples N.B. All quotations are reproduced verbatim from the children’s responses.
Targeted or triadic	The participant expresses gratitude to a benefactor for providing a benefit.	“I am grateful for my family (BENEFACTOR) helping me do my homework (BENEFIT)” “I am thankful that XXX (BENEFACTOR) and XXX (BENEFACTOR) showed us around the Gudwara (BENEFIT)”

	<p>The participant does not need to have explicitly used the formula: <i>grateful “to” X “for” Y</i> if this can reasonably be imposed onto the sentence.</p> <p>The benefactor must have ‘agency’ e.g., be a person or animal capable of acting with intention (or be perceived as acting with intention). If numerous benefactors are mentioned as providing a benefit a triadic point will be counted for each.</p> <p>Benefits need not be apparently beneficial to the coder. For example, we may not understand the benefit of someone “walking down the corridor” but as this is discussed within a gratitude diary, we assume a benefit has been experienced.</p>	<p>“I’m thankful for XXX’s half sister (BENEFACTOR) came in today (BENEFIT).”</p> <p>“Mrs XXX (BENEFACTOR) walking down the corridor (BENEFIT)”</p>
Propositional or dyadic	<p>The participant expresses gratitude for X or that X exists. X can be either a benefit or a benefactor.</p> <p>N.B. A single sentence can contain a number of expressions of gratitude.</p>	<p>“I am thankful for my good lunch (BENEFIT)”</p> <p>“My familie (BENEFACTOR)”</p> <p>“I am grateful for my make do and mend project (BENEFIT), cloths (BENEFIT), food (BENEFIT) friends (BENEFACTOR), school (BENEFIT), family (BENEFACTOR), my play (BENEFIT) and XXX (BENEFACTOR)” - This example contains 8 dyadic expressions of gratitude.</p>
Elaboration	<p>The participant provides a reason for the gratitude they feel.</p> <p>In order to be defined as a unit of elaboration, only one elaboration is necessary. Only one point of elaboration will be counted per expression of gratitude.</p>	<p>Examples of triadic sentences with elaboration:</p> <p>“I am grateful for blue house (BENEFACTOR) coming 2nd (BENEFIT) because of all the sportsmanship (ELABORATION)”.</p> <p>“I am grateful for Mr XXX (BENEFACTOR) letting us sit with whoever we wanted to (BENEFIT) and it was very fun (ELABORATION)”</p> <p>Examples of dyadic sentence with elaboration:</p> <p>“Food (BENEFIT) because I normally get hungry and then I get the chance to eat after (ELABORATION)”.</p> <p>“I’m grateful that my dad’s leg is better (BENEFIT) so now he can drive (ELABORATION).”</p>

		"I'm thankful that I have ADHD (BENEFIT) because it makes me different (ELABORATION)"
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Coding level two: coding for the nature of benefactors

People, including individuals and groups, and pets will be classed as benefactors. Benefactors will be coded in line with Circle of Friends model (Newton & Wilson, 2005)- (<https://inclusive-solutions.com/circles/circle-of-friends/what-is-a-circle-of-friends/>). This model aims to classify benefactors into four levels of "closeness".

Scoring: Code all benefactors into one of the four categories. Add up the number of benefactors a participant writes about in each category across their diary. Each participant will have four scores, one for each level of benefactor.

Levels of benefactors	Description	Examples N.B. All quotations are reproduced verbatim from the children's responses.
1. The Circle of Intimacy: immediate family and pets	Members of immediate family; this includes mother, father, siblings (including half or step) and pets.	<p>"I am grateful for <i>my family</i>"</p> <p>"I'm grateful that <i>my half-sister XXX</i> came in and helped me"</p> <p>"I am grateful for <i>my dog</i>"</p>
2. The Circle of Friendship: friends and extended family	People specifically named as friends. It is assumed that anyone discussed by their first name for which an alternative role is not apparent is a friend. Extended family will include aunties, uncles, cousins and grandparents.	<p>"I'm grateful that <i>my friends</i> are kind to me"</p> <p>"I am grateful that <i>XXX</i> played with me"</p> <p>"I'm thankful for that yesterday after school I could visit <i>my cousins</i>"</p>
3. The Circle of Participation: associates, clubs, and members of groups.	This includes members of clubs and groups, or the group when discussed as a whole. Classmates who are not actively classified as friends will also be included at this level as will family members of friends/classmates.	<p>"Someone in my class"</p> <p>"I am grateful for <i>blue house</i>"</p> <p>"I am grateful for having a <i>table partner</i>"</p> <p>"I'm thankful for being able to do a circuit activity with the <i>year 2 children</i>"</p> <p>"I am thankful for <i>the parents</i> who came in to help with make do and mend"</p>
4. The Circle of Exchange: people paid to be in our lives	Paid professionals such as teachers, tutors, and football coaches. For these purposes even those who are potentially working in a voluntary capacity will be included, e.g., professionals encountered on a school trip or activity.	<p>"Mrs <i>XXX</i> helping at the allotment"</p> <p>"Thanks to the <i>school cooks</i>"</p> <p>"<i>XXX</i> coming in a for a dance class"</p>

	When a participant has written 'Mr' or 'Mrs' it is assumed they are working in a professional capacity unless otherwise clarified.	
N.B. Where the child has written "someone" or "people" and the context does not clarify the role of the individual this will be coded as N- (not able to code). XXX- names removed		

Coding
level

three: coding for the nature of benefits

Benefits are coded on a framework developed from Maslow's hierarchy of needs.

Scoring: code for different levels and add up the number of points at each level mentioned across the intervention. Each participant will have six scores, one for each level of benefit.

Levels of benefits	Description	Examples
		N.B. All quotations are reproduced verbatim from the children's responses.
1. Physiological needs or safety needs	Basic physiological needs include hunger, thirst and rest. Safety needs include the need to be in good health, free from threat or war. Coder will infer which need is being fulfilled. For example, food will fulfil hunger; bed/sleep will fulfil the need for rest; a threat being removed or avoided will fulfil the need to be safe. Provisions of clothes and money will also be seen to be supporting these needs.	"my lunch" "My bed" "I'm grateful for <i>shelter</i> " " NOT BEING SICK " "I am grateful for <i>having money</i> when people get very little of it" " <i>Clothes</i> because I can be as comfy as I want"
2. Love needs	Love needs include the need to be loved, have relationships, receive affection and feel you belong. These needs will often be met through positive interactions with others. Receiving care, help, respect or encouragement will all fulfil the need for love.	"I' am grateful for my family <i>helping me do my homework</i> " "At athletics friend <i>were encouraging me to try harder and keep going</i> " "Someone in my class <i>lent me a button</i> for a project on WWII" "I'm thankful for XXX <i>letting me play with her</i> "

Appendix E

	When participants discuss undertaking an activity with others the coder needs to differentiate between when they are grateful for the opportunity to spend time together, e.g., “My mum letting me go swimming with her on Sunday” which will fulfil the need for love or when they are grateful for the opportunity to engage in an activity “I’m thankful that my sister and I got to go in are swimming pool” which will fulfil the need for cognitive stimulation and being occupied.	
3. Esteem needs	<p>Esteem needs include the desire for strength, achievement and adequacy, independence and freedom, as well as the desire for recognition, attention and appreciation from others.</p> <p>These needs will be met by being allowed to do things on your own (independence) or achievements (receiving a medal or doing well at an activity).</p> <p>These needs are also met by others acknowledging your achievements. This could include them saying well done or offering congratulations.</p>	<p>“I grateful for maths <i>no one had to help me</i>” <i>“I’m thankful for scoring a goal in football”</i></p> <p><i>“I’m grateful for people congratulating me when I make a clearance in football”</i> <i>“My double bass teacher said my scale was good”</i> <i>“I am grateful for being picked for the swimming gala”</i></p>
4. Cognitive stimulation and being occupied	<p>This need will be met by doing or discussing activities that are enjoyable. If a participant has discussed an activity in their gratitude diary it will be assumed this is an activity they enjoy and that this need is being met.</p> <p>This need will also be met when participants discuss hobbies or express gratitude towards an item which helps them to engage in activities.</p> <p>Receiving teaching on an activity will also be counted as contributing towards being occupied.</p>	<p><i>“I’ am thankfull for all the things I’ve done like Judo, Maths test Football, Mile”</i> <i>“For being able to have some reading time”</i> <i>“Tom coming to talk about health and fitness”</i> <i>“Our family watched a film and played games”</i></p>
5. Nature	This code has arisen from the data, where participants have expressed gratitude to nature, for example the sun, the rain or the trees.	<p><i>“I am thankful it didn’t rain”</i> <i>“I am thank full for trees because without them we wouldn’t survive with no oxigen”</i> <i>“For nature”</i></p>

		<p>"I am grateful for <i>the sun</i>"</p> <p>"<i>the great weather we've had all day</i>"</p>
6. Self- actualisation	<p>Self-actualisation includes doing what you are destined to do or the desire for self-fulfilment. For example, if some one's life calling is to be a painter, they may feel self-actualised when painting.</p>	<p>No statements fulfilling this need were identified in the data.</p>
<p>N.B. On a few occasions it is not possible to decipher what/who the child is expressing gratitude for. These will be coded as U (unable to code)</p>		

Appendix F Code list for RQ6

Question one: What did you like about keeping a gratitude diary?		
Code	Description	Examples All quotations are reproduced verbatim from the children's responses.
Time to think	Participants described enjoying having time to think and reflect. Some participants specifically liked thinking about things they were grateful for or thinking of good or nice things.	<p>"It was interesting thinking of what to say and reflecting on what you had done"</p> <p>"Time to think about what I done"</p> <p>"I liked it because it gave you time to think"</p> <p>"I enjoyed thinking about things I was grateful for"</p>
Feelings of gratitude	Participants described how the activity made them acknowledge things that they were grateful for or said that they now felt more grateful.	<p>"I enjoyed keeping a gratitude diary because I was able to acknowledge what I was grateful for"</p> <p>"I now know how much Im grateful for"</p> <p>"realising how grateful I am"</p>
Writing	Participants noted that they enjoyed the act of writing. Some participants specified that they liked writing about things they were grateful for.	<p>"I liked writing what I'm grateful for"</p> <p>"I liked keeping a gratitude diary because I like writing"</p> <p>"That I could wright down things I was grateful for"</p>
Acted as a reminder	Participants described how they liked looking back and remembering what they had said on previous days	<p>"I liked it because I can see what I was grateful for over the 2 weeks"</p> <p>"I can look back on things I was grateful for"</p> <p>"Because it rimided of me of all the things I had"</p>
Privacy or sharing	Some participants mentioned wanting to keep the diary to themselves whilst others enjoyed sharing their thoughts	<p>"I like that no one can look at it"</p>

		<p>“It felt really cool just having our own diary that we could write what we are grateful for without anyone knowing what you write”</p> <p>“I liked sharing thoughts”</p> <p>“I liked keeping a gratitude diary so I could tell my mum what I was grateful today”</p>
Relaxing or calming	Participants described the activity as peaceful, relaxing and calming	<p>“It helped me keep calm”</p> <p>“It was relaxing because if we did a writing task that was long it would calm up down”</p> <p>“I liked it because it was quite calming and relaxing”</p>
Other	If less than 5 participants mentioned something this was coded as ‘other’.	
No comment/ nothing	If participants left the box blank or wrote “nothing”.	

Question two: What didn't you like about keeping a gratitude diary?

Code	Description	Examples N.B. All quotations are reproduced verbatim from the children's responses.
Hard to think of things to write about	Participants described finding it hard to think about things to write either because they did not think they had things to be grateful for, couldn't remember or just didn't know what to write.	<p>“It was sometimes hard to think of things”</p> <p>“Because it is hard to think of something sometimes”</p> <p>“the hard thing was thinking back in my past because I am quite forgetful”</p> <p>“I wasn't really shore what to write about the first couple of times”</p>
Doing it every day	Participants described not wanting to write in their diary every day	<p>“I didn't like having to write every single day”</p> <p>“Doing it everyday”</p> <p>“thinking of things everyday”</p> <p>“Having to write everyday”</p>

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Writing	Participants reported they didn't like the writing	"writing down what I enjoyed" "The writing" "It is writing and I don't really like writing"
Task duration	Participants didn't like how long the task took or went on for. Some participants felt they had too long to write each day and others felt they did not have enough time. Some participants felt that two weeks was too long period of time to do it for.	"It took to long" "I didn't like that you have to think about it for 15 mins" "I didn't like how we didn't get time to write much" "I didn't like it because we had to do it for two weeks" "I didn't really like it being two weeks"
Boring and effortful	Participants described finding the task boring or effortful.	"I found it a bit boring" Sometimes it got boring when you had nothing in mind and you had thoughts of everything" "it wasn't eggciting"
Forget to do it	Participants didn't like that they forget to do it	"I always forget that I had to do it" "We kept forgetting to do it"
Time away from other activities	Participants said that writing their diary took them away from other activities	"It took up time we could have been reading or something else" "It took some of out lesson time off"
Limited to five things	Participants didn't like having a limit of 5 things as they wanted to write more or less than this	"You were only aloud to do up to five things" "I didn't like having to think of 5 things"
Not having help	Participants didn't like that they didn't get help with the diary	"Not being able to have help" "Not knowing what to write and know help"
Other	If less than 5 participants mentioned something this was coded as 'other'.	
Nothing	Some participants did not make a comment or said that they liked to the activity.	"Nothing" "I liked it" I don't know I think I enjoyed it so much but there is nothing not to like about it"

Question three: What could have made keeping a gratitude diary better?		
Code	Description	Examples N.B. All quotations are reproduced verbatim from the children's responses.
Time of day/location	Participants commented that the task would have been better if they could have done the task at a different time. Most commonly, participants wanted to write their diary at home or over the weekends however others mentioned doing this in the mornings or simply when they felt like it.	<p>"Doing it at a different time"</p> <p>"done it at the end of the day so you could have more things to be grateful for"</p> <p>"If I could of taken it home to write over the weekend"</p> <p>"If we route in it when we wanted to through the day"</p>
Drawing pictures	Participants commented that the task could have been improved if they could draw pictures instead of, or as well as, writing.	<p>"If you can draw something you done today"</p> <p>"There could have been that at the end you could draw a picture of something you were grateful for"</p> <p>"I would have liked it more if we could draw pictures"</p>
Diary design	Participants commented on changing the design of the diary. This included having less or no lines on the pages. Making the diary more colourful or having space for personalising the diary.	<p>"It could have had a bitt of collar and there was a lot of spear pages which is a wast"</p> <p>"A more bright and jolly colour page??"</p> <p>"You could have let us decorate it or one each pages make a different line/quote of something"</p> <p>"Not having lines on the paper because I felt like I had to be grateful for lots"</p> <p>"It's not major but be could decorate the front and make it personal"</p>
Task duration	Participants had varying views on changing the duration of the task. This related to both giving them more or less time to complete the writing and keeping a gratitude diary for more or less weeks.	<p>"giving us more time to write and think about what we were going to write"</p> <p>"Making it shorter"</p> <p>"I think it would be better if it were only 1 week instead of 2"</p> <p>"continuing this diary longer"</p>
Task frequency	Participants commented the they would have preferred to have not done the task every day. Suggestions ranged from doing it every two days to doing it once a week.	<p>"not having to do it every day"</p> <p>"Only doing it once a week instead of having to do it every day"</p>

Appendix F

		“It could be better if instead of doing every day doing it every two days so its easy to think of things to write”
Writing about other things	Participants commented that they would like to write about things other than things they were grateful for. This included: writing about emotions, writing about things you weren’t grateful for or writing about things you’ve done.	“Maybe they could have sections for our thoughts and feelings and emotions so we can get them out” “You could also write down things that were a tinsy bit sad or that made you angry so you don’t keep it in” “Making an ungratitude diary too” “Make it so you could write what was fun aswell as what you’re gratefyl for”
Help	Participants felt the task would be better if they had help from their teacher.	“Having the teachers suggesting us ideas” “teachers being able to help” “If we had help from our teachers”
Flexible length	Participants noted they would have liked to have written more or less than 5 things	“It could have been better is it had ‘write 20 things!’ because I’ve got a lot of things I’m grateful for” “You can write a little and as much as you want”
Change task/instructions	Participants suggested changing the instructions given	“Have something different to do each day” “We could change it so it asks you a question each day but all the questions are different”
No comment or no improvement suggestions	Some participants either left the question blank or said ‘nothing’.	
Other	Some comments could not be coded or did not fall into any other category.	

Appendix G Adapted Gratitude Questionnaire-Six Item Form (GQ-6, McCullough, Emmons, & Tsang, 2002)

Please read the below statements carefully. For each statement please tick one box to indicate how much you agree with it.

1. I have so much in life to be thankful for.

1 strongly disagree	2 disagree	3 slightly disagree	4 neutral	5 slightly agree	6 agree	7 strongly agree

2. If I had to list everything that I felt grateful for, it would be a very long list.

1 strongly disagree	2 disagree	3 slightly disagree	4 neutral	5 slightly agree	6 agree	7 strongly agree

3. When I look at the world, I don't see much to be grateful for.

1 strongly disagree	2 disagree	3 slightly disagree	4 Neutral	5 slightly agree	6 agree	7 strongly agree

4. I am grateful to a wide variety of people.

1 strongly disagree	2 disagree	3 slightly disagree	4 neutral	5 slightly agree	6 agree	7 strongly agree

5. As I get older, I find myself more able to appreciate the people, events, and situations that have been part of my life history.

1 strongly disagree	2 disagree	3 slightly disagree	4 neutral	5 slightly agree	6 agree	7 strongly agree

Thank you for completing this form

Appendix H Enjoyment of writing measure

Name:	
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How much do you enjoy writing?

Please tick one of the below boxes:

1 I hate it.	2 I do not enjoy it.	3 I think it is ok.	4 I enjoy it.	5 I really enjoy it.

Thank you

Appendix I Intervention evaluation form

How much did you enjoy keeping a gratitude diary?

Please tick one of the below boxes:

1 I hated it.	2 I did not enjoy it.	3 I thought it was ok.	4 I enjoyed it.	5 I really enjoyed it.

How hard did you find it to think of things to write about in your diary?

Please tick one of the below boxes:

1 I found it really hard.	2 I found it quite hard.	3 I found it ok.	4 I found it quite easy.	5 I found it really easy.

What did you like about keeping a gratitude diary?

What didn't you like about keeping a gratitude diary?

What could have made keeping a gratitude diary better?

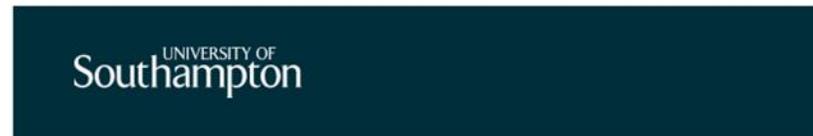
Appendix J Ethical approval to conduct the study

Approved by Faculty Ethics Committee - ERGO II 47120.A1

 ERGOII
Wed 20/03/2019 08:19
Sharpe A. ✓



Approved by Faculty Ethics Committee - ERGO II 47120.A1



ERGO II – Ethics and Research Governance Online <https://www.ergo2.soton.ac.uk>

Submission ID: 47120.A1
Submission Title: Does how children approach, and engage with, the task of keeping a gratitude diary affect the change in gratitude they experience? (Amendment 1)
Submitter Name: Abigail Sharpe

Your submission has now been approved by the Faculty Ethics Committee. You can begin your research unless you are still awaiting any other reviews or conditions of your approval.

Appendix K Headteacher information sheet and consent form



Headteacher Information Sheet

Study Title: *Does how children approach, and engage with, the task of keeping a gratitude diary affect the change in gratitude they experience?*

Researcher: *Abigail Sharpe*
ERGO number: 47120

Your school is being invited to take part in the above research study. To help you decide whether you would like your school to take part or not, it is important that you understand why the research is being done and what it will involve. Please read the information below carefully and ask questions if anything is not clear or you would like more information before you decide to take part in this research. You may like to discuss it with others but it is up to you to decide whether or not to take part. If you are happy for your school to participate you will be asked to sign a consent form

What is the research about?

I am a Trainee Educational Psychologist and am conducting this research project as part of my thesis. This study aims to explore how children approach, and engage with, the task of keeping a gratitude diary and whether this impacts the change in gratitude they experience. Gratitude has been linked to a range of positive factors and understanding how we can enhance feelings of gratitude in children is of interest to schools and Educational psychologists.

Why has my school been asked to participate?

I am aiming to recruit participants from upper key stage 2 to take part in the study and am contacting local schools to see if they would be willing to facilitate this.

What will happen if I agree for the school to take part?

I will ask you to discuss the project with class teachers in upper key stage 2, to check if they are willing to facilitate a gratitude diary intervention each day for two weeks. I am happy to discuss this with them if you would prefer. If class teachers are happy, then I will ask you to send parental information sheets and assent forms to all parents/guardians in participating classes. Parents/guardians can use the assent form to indicate if they do not want their child to participate in the study.

At the start of the intervention, I will come into school and meet with each class individually to introduce the intervention and complete a few pre-intervention questionnaires. I estimate this initial session will last 20 to 30 minutes. At this stage each child will also be provided with a gratitude diary. They will also be given an opt out form which they can use to indicate if they do not want to be part of the project. Any children who do not wish to take part can be provided with an alternative activity or can be asked to complete the diary but I will not collect any data from them.

The class teacher will then be asked to give the students 10-15 minutes per day, for two weeks, to write a diary entry. Children should complete the diaries as a whole class activity. After the final diary entry has been completed the class teacher will ask the children to

complete a short evaluation form to indicate how they felt about keeping a gratitude diary. They should then collect the gratitude diaries from the children. I will return to the school to thank the children for their participation, complete a few additional questionnaires and collect the gratitude diaries.

In line with GDPR, I do not need to store any of the pupils' personal identifiable information. I would therefore ask that the school create a list of participating pupils alongside a unique identifier (e.g., a short number). The unique identifier will also enable the researchers to identify the child's gender, class and school. Prior to me taking any data off the school premises, I will remove the pupils' names and replace them with this unique identifier, thereby anonymising the data. Once the data have been analysed, I will provide you with a summary of the results of the study.

Are there any benefits in the school taking part?

The aim of this study is to improve our understanding of how to enhance gratitude in children. This will be of interest to Educational Psychologists and schools. Once the project is finished the findings will be fed back to you in a form that you can also share with parents.

Are there any risks involved?

It is hoped that keeping a gratitude diary will be an enjoyable experience for the children. Diaries will be completed as a whole class activity for up to 15 minutes per day for two weeks. All children will be given the option not to take part and are free to stop writing the diary entries at any point.

To safeguard all children who participate, the children will be informed that if they want to discuss anything they have written about further, they can do so with their teacher. I will also provide you with my contact details if extra support is required although I will not have consent to work with individual children or to discuss details that can be attributable to an identifiable child.

What data will be collected?

All the self-report measures the children have completed, along with the gratitude diaries will be collected and stored by the research team. All data from the study will be anonymised prior to this being taken off of school premises. This will involve children's names being replaced with a unique identifier. A master list of the children's names and associated unique identifiers will be held at the school site until all data has been anonymised. At this point it will be destroyed. After the master list is destroyed, it will no longer be possible to match any data to an individual child.

Will participation be confidential?

Your participation and the information we collect about you during the course of the research will be kept strictly confidential.

Only members of the research team and responsible members of the University of Southampton may be given access to data about you for monitoring purposes and/or to carry out an audit of the study to ensure that the research is complying with applicable regulations. Individuals from regulatory authorities (people who check that we are carrying out the study correctly) may require access to your data. All of these people have a duty to keep your information, as a research participant, strictly confidential.

As described above, none of the pupils' personal data will be stored once data have been removed from the school site. Any dissemination of the findings will not include the name of participating schools.

Do the children have to take part?

No, it is entirely up to the parents/guardians and the pupils to decide. If they decide they do not want to take part in the study, they can complete the provided assent forms and no data will be collected from them.

What happens if participants change their minds?

Participation in the study is voluntary and if children decide, at any point, they don't want to take part anymore, they are free to stop without having to give a reason for their choice.

Parents/guardians also have the right to change their minds and withdraw their child from the study at any point prior to, and during, the two week intervention without giving a reason.

After the class have completed their diary entries and these have been collected it will no longer be possible to withdraw from the study as all data will be anonymised.

What will happen to the results of the research?

No personal data will be stored following the destruction of the master list. Research findings made available in any reports or publications will not include information that can directly identify the participants or participating schools.

The school will receive a summary of the findings of this project. The project will be written up as part of my thesis submission and may also be submitted for publication in academic journals or presented in academic forums.

Where can I get more information?

If, after reading this information sheet, you have any further questions you can contact me: Abigail Sharpe (Trainee Educational Psychologist): a.sharpe@soton.ac.uk

What happens if there is a problem?

If you have a concern about any aspect of this study, you should speak to the researchers who will do their best to answer your questions. My contact details are:

Name: Abigail Sharpe

University address: Building 44, University of Southampton, SO16 7PB

Email address: a.sharpe@soton.ac.uk

If you remain unhappy or have a complaint about any aspect of this study, please contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, rgoinfo@soton.ac.uk).

Data Protection Privacy Notice

The University of Southampton conducts research to the highest standards of research integrity. As a publicly-funded organisation, the University has to ensure that it is in the public interest when we use personally-identifiable information about people who have agreed to take part in research. This means that when you agree to take part in a research study, we will use information about you in the ways needed, and for the purposes specified, to conduct and complete the research project. Under data protection law, 'Personal data' means any information that relates to and is capable of identifying a living individual. The University's data protection policy governing the use of personal data by the University can be found on its website (<https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page>).

This Participant Information Sheet tells you what data will be collected for this project and whether this includes any personal data. Please ask the research team if you have any questions or are unclear what data is being collected about you.

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Any personal data we collect in this study will be used only for the purposes of carrying out our research and will be handled according to the University's policies in line with data

Appendix K

protection law. If any personal data is used from which you can be identified directly, it will not be disclosed to anyone else without your consent unless the University of Southampton is required by law to disclose it.

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For the purposes of data protection law, the University of Southampton is the 'Data Controller' for this study, which means that we are responsible for looking after your information and using it properly. The University of Southampton will not keep identifiable information about you for 10 years after the study has finished after which time any link between you and your information will be removed.

To safeguard your rights, we will use the minimum personal data necessary to achieve our research study objectives. Your data protection rights – such as to access, change, or transfer such information - may be limited, however, in order for the research output to be reliable and accurate. The University will not do anything with your personal data that you would not reasonably expect.

If you have any questions about how your personal data is used, or wish to exercise any of your rights, please consult the University's data protection webpage (<https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page>) where you can make a request using our online form. If you need further assistance, please contact the University's Data Protection Officer (data.protection@soton.ac.uk).

Thank you.

Thank you for timing the time to read this information sheet and for considering allowing your school to take part in this research.

CONSENT FORM

Study title: *Does how children approach, and engage with, the task of keeping a gratitude diary affect the change in gratitude they experience?*

Researcher name: *Abigail Sharpe*

ERGO number: *47120*

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

<i>I have read and understood the information sheet dated 01/03/2019 [Version Number Two] and have had the opportunity to ask questions about the study.</i>	
<i>I agree for pupils and parents from my school to be approached to take part in this research project and for the intervention to be conducted on the school premises.</i>	
<i>I understand pupils' participation is voluntary and they, or their parents, may withdraw for any reason prior to the end of the intervention, without their participation rights being affected.</i>	

Name of headteacher (print name)

Signature of headteacher.....

Date.....

Name of researcher (print name)

Signature of researcher

Date.....

Parent/guardian Information Sheet

Study Title: *Does how children approach, and engage with, the task of keeping a gratitude diary affect the change in gratitude they experience?*

Researcher: *Abigail Sharpe*
ERGO number: *47120*

Your child is being invited to take part in the above research study. To help you decide whether you would like your child to take part or not, it is important that you understand why the research is being done and what it will involve. Please read the information below carefully and ask questions if anything is not clear or you would like more information before you decide to allow your child to take part in this research. You may like to discuss it with others but it is up to you to decide whether or not to allow your child to take part. If you are happy for your child to participate, you do not need to do anything. If you do not want your child to participate please return the attached opt-out form to school.

What is the research about?

I am a Trainee Educational Psychologist and am conducting this research project as part of my thesis. This study aims to explore how children approach, and engage with, the task of keeping a gratitude diary and whether this impacts the change in gratitude they experience. Gratitude has been linked to a range of positive factors and understanding how we can enhance feelings of gratitude in children is of interest to schools and Educational psychologists.

Why has my child been asked to participate?

The study will be a whole class project and every child from your child's class has been asked to take part.

What will happen to my child if they take part?

The study will involve them writing a diary entry each school day for two weeks. Children will be completing the diaries in the classroom as a class activity. Each diary entry should take no longer than 15 minutes to complete. Each child will be given a gratitude diary and will be asked to write down up to five things that are grateful for that day.

Before and after the study each child will be asked to fill in a number of short questionnaires. These questionnaires will ask about gratitude, how they feel about writing and their experience of keeping a gratitude diary. At the end of the study the diaries will be collected to be analysed further.

Are there any benefits in my child taking part?

The aim of this study is to improve our understanding of how to enhance gratitude in children. This will be of interest to Educational Psychologists and schools. The findings of this project will be fed back to your school. A written summary of the findings will be produced, a copy of which can be requested from your school.

Are there any risks involved?

It is hoped that keeping a gratitude diary will be an enjoyable experience for the children. Diaries will be completed as a whole class activity for up to 15 minutes per day for two weeks. All children will be given the option not to take part and are free to stop writing the diary entries at any point.

To safeguard all children who participate, the children will be informed that if they want to discuss anything they have written about further, they can do so with their teacher. The school will also have my contact details if extra support is required although I will not have consent to work with individual children or to discuss details that can be attributable to an identifiable child.

What data will be collected?

All the self-report measures the children have completed, along with the gratitude diaries will be collected and stored by the research team. All data from the study will be anonymised prior to this being taken off of school premises. This will involve children's names being replaced with a unique identifier. A master list of children's names and associated unique identifiers will be held at the school site until all data has been anonymised. At this point it will be destroyed. After the master list is destroyed, it will no longer be possible to match any data to an individual child.

Should you decide not to take part, the only information stored will be your name and the name of your child. This information will be stored at the school and destroyed when data collection is completed for the children who are taking part

Will my child's participation be confidential?

All data collected will be anonymised. None of your child's personal data will be removed from the school premises.

Only members of the research team and responsible members of the University of Southampton may be given access to the anonymised data for monitoring purposes and/or to carry out an audit of the study to ensure that the research is complying with applicable regulations. Individuals from regulatory authorities (people who check that we are carrying out the study correctly) may also require access to this data. All of these people have a duty to keep your information, as a research participant, strictly confidential.

Does my child have to take part?

*No, it is entirely up to you and your child to decide. If you decide you **do not want** your child to join in with the study please complete the attached opt-out form.*

What happens if we change our minds?

Participation in the study is voluntary and if your child decides, at any point, they don't want to take part anymore, they are free to stop without having to give a reason for their choice.

You have the right to change your mind and withdraw your child from the study at any point prior to, and during, the two week intervention without giving a reason and without your participant rights being affected.

After the class have completed their diary entries and these have been collected it will no longer be possible to withdraw from the study as your child's data will not be identifiable.

What will happen to the results of the research?

No personal data will be stored following the destruction of the master list. Research findings made available in any reports or publications will not include information that can directly identify you without your specific consent.

Your school will receive a written summary of the findings of this project. You can request a personal copy of these findings from school. The project will be written up as part of my thesis submission and may also be submitted for publication in academic journals or presented in academic forums.

Where can I get more information?

If, after reading this information sheet, you have any further questions you can contact: Abigail Sharpe (Trainee Educational Psychologist): a.sharpe@soton.ac.uk

What happens if there is a problem?

If you have a concern about any aspect of this study, you should speak to the researchers who will do their best to answer your questions. My contact details are:

Name: Abigail Sharpe

University address: Building 44, University of Southampton, SO16 7PB

Email address: a.sharpe@soton.ac.uk

If you remain unhappy or have a complaint about any aspect of this study, please contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, ergoinfo@soton.ac.uk).

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Thank you.

Thank you for taking the time to read this information sheet and for considering allowing your child to take part in this research.

ASSENT FORM

Study title: *Does how children approach, and engage with, the task of keeping a gratitude diary affect the change in gratitude they experience?*

Researcher name: *Abigail Sharpe*

ERGO number: *47120*

Dear parent/guardian,

I am a Trainee Educational Psychologist at the University of Southampton. I would like to invite your child to take part in a research study.

The research project is exploring the use of gratitude diaries in schools. I am aiming to explore what factors influence the change in gratitude children experience from keeping a gratitude diary. Children in upper Key Stage 2 classes are being asked to take part. The project will last for two weeks.

I have attached an information sheet which contains more details about the study. Please contact me if anything is not clear or if you have any questions.

If you do NOT want your child to take part in the project please sign and return the slip below.

.....

Research project

Parental opt out form

I do NOT want my child to take part in this project

Child's name.....

Parent's signature..... Date.....



**Appendix M Semi-structured script for
researcher's pre-intervention meeting with participants**

My name is Abi and I am a Trainee Educational Psychologist at Southampton University. As part of my learning, I have to develop and carry out a research project. I have spoken to your head teacher and she has agreed that I can come in and talk to you about my project. I have also written to your parents/guardians to check they are happy for you to take part.

I am asking all pupils in Years 5 *and/or* 6 whether they would be happy to do a small writing task every day for the next two weeks. This activity will take place in in class in each day and will take 10-15 minutes.

Firstly, I am also going to hand out a form. This form is to check if you are happy to take part in the project. If you decide you don't want to be part of the project you can use this form to tell me. Alternatively, you can just tell me or your teacher. So, if you do want to take part you don't have to do anything. If you don't want to take part please write your name at the bottom of the form and tick the box, I will collect these back before I leave today. If you decide after I leave today that you don't want to take part, tell your teacher and they will let me know.

I will give you some more information about the task in a minute but first I'd like to ask you to fill in a few questions. By filling in these questions I will think you are happy to take part in my project for now but if you change your mind and don't want to take part that's ok too.

I will now hand out the questions. Please don't write on them yet, we will go through them together.

Firstly, please write your name on the top of each page. Before I leave school today, I will change your name to a number so no one will know what you wrote.

On the first page I want you to rate how much you enjoy writing on a scale of 1 to 5. I will read through what each number means. 1 means 'I hate it', 2 means 'I do not enjoy it', 3 means 'I think it is ok', 4 means 'I enjoy it' and 5 means 'I really enjoy it'.

Now please look at the second form. Before we fill in this form, I want to discuss a couple of words with you to make sure you know what they mean. Firstly, the word grateful is another word for thankful. It means you feel happy and pleased about something nice that has happened to you. The second word is 'appreciate'. To appreciate means you recognise the value of someone or something. Ok, now I'll read through the form with you. This form has five statements on it. For each statement you need to give a rating of how much you agree with the statement. 1 means you strongly disagree with the statement, 2 means you disagree, 3 means you slightly disagree, 4 means you are neutral or neither agree nor disagree, 5 means you slightly agree, 6 means you agree and 7 means you strongly agree. Does that make sense?

Ok so the first statement is "I have so much in life to be thankful for"- please rate this on the 1-7 scale.

The second statement is "if I had to list everything that I felt grateful for, it would be a very long list"- again rate this on the 1-7 scale.

Appendix N

The third statement is “When I look at the world, I don’t see much to be grateful for”

Turn over the page and there are two more statements.

Statement 4: “I am grateful to a wide variety of people.”

Statement 5 “As I get older, I find myself more able to appreciate the people, events and situations that have been part of my life history”.

Thank you for filling out the questionnaires, please can you hand those back to me.

So, now I’ll tell you a little bit more about the writing activity I mentioned earlier. Over the next two weeks I would like you each to keep a gratitude diary. Each day in school you will be given 10-15 minutes to think back over the last day and write about up to five things that you are grateful or thankful for. So, you could write about something or somebody that you are thankful to that day. For example, I could write: I am thankful for my coat for keeping my warm or I am grateful to ‘headteacher’ for letting me come in and meet you today.

Nobody will be looking at how you have spelt the words in your diaries so please do not worry about your spelling. You also don’t need to worry about your handwriting or punctuation.

I’m now going to hand out the diaries. Please can you write your name on the front of these.

In two weeks time I will come back to school to see you and take the diaries with me. I will remove your names from the diary so that nobody will be able to identify what you wrote.

Does that seem OK? Would you like to ask any questions?

Appendix N Participant assent form

ASSENT FORM

Study title: *Does how children approach, and engage with, the task of keeping a gratitude diary affect the change in gratitude they experience?*

Researcher name: *Abigail Sharpe*
ERGO number: *47120*

If you do NOT want the researcher to use your information for her project, please write your name and put a tick in the box at the bottom of this form.

If you decide after today that you do not want the researcher to have your information please let your teacher know.

.....

Child opt out form

I do NOT want to take part in this project

Name.....

Appendix O Template of gratitude diary

My gratitude diary

Name:

Year:

Class teacher:

School:

In this diary, you should write down things you are thankful or grateful for. Thankful means feeling happy and pleased about something nice that has happened to you. This could be someone saying something nice to you or doing something nice for you. It could be that you got to do something that you enjoyed.

Things to remember:

- Start a new page in your diary each day.
- If you want to talk about something that you have written, talk to your teacher.
- Nobody will be looking at how you have spelt the words in your diaries so do not worry about your spelling.
- The researcher will collect your diary at the end of the two weeks.

Appendix P Guidance for teachers

Daily diary entries

Please complete the gratitude diaries with your class each day for the next two weeks and ensure the following:

- The pupils have 10-15 minutes to complete their diary entry.
- Schedule writing diary entries as late in the school day as possible (as the diaries ask the pupils to think back over the past day).
- Each day ask the pupils to:
 - Start a new page in their diary
 - Write the date at the top
 - Write about up to five things that they are grateful, or thankful, for today
- If a child indicates they do not want to be part of the project, or for their data to be taken by the researcher, record this and allow them to stop writing diary entries. I will not collect diaries for children who opt out.

After the final diary entry

Please ask the children to complete the gratitude diary rating forms by following the below steps:

- Say: “You have now finished writing your final diary entry and I want you to think about whether you have enjoyed keeping a gratitude diary. It’s important that you tell the truth so people will know whether this is something that children like doing. I am going to hand out a questionnaire.”
- Ask the children to write their name at the top and then read the question to them: “How much did you enjoy keeping a gratitude diary?”. Explain that there is a scale between 1 and 5 and what each number means, 1 means ‘I hated it’, 2 means ‘I did not enjoy it’, 3 means ‘I thought it was ok’, 4 means ‘I enjoyed it’ and 5 means ‘I really enjoyed it’. Remind them to please tick only one box and then ask them to fold up the questionnaire and place it inside the front cover of their gratitude diary. It would be helpful if they were provided with a paper clip to secure it to the inside of their diary.
- Collect in the diaries for me to collect.

Thank you, any questions please email me on a.sharpe@soton.ac.uk

Appendix Q Semi-structured script for researcher's post-intervention meeting with participants

Hello,

Thank you all for keeping your gratitude diaries over the last 2 weeks. I wanted to come back and say thank you and ask you to complete one more questionnaire for me. I will hand them round. Please write your name on the top of the sheet. Before I leave school today, I will change your name to a number so no one will know what you wrote.

Before we fill in this form, I want to remind you of the words I mentioned last time to make sure you know what they mean. Firstly, the word grateful is another word for thankful. It means you feel happy and pleased about something nice that has happened to you. To appreciate means you recognise the value of someone or something. The sheet has five statements on it. For each statement you need to give a rating of how much you agree with the statement. 1 means you strongly disagree with the statement, 2 means you disagree, 3 means you slightly disagree, 4 means you are neutral or neither agree nor disagree, 5 means you slightly agree, 6 means you agree and 7 means you strongly agree. Does that make sense?

Ok so the first statement is "I have so much in life to be thankful for" - please rate this on the 1-7 scale.

The second statement is "if I had to list everything that I felt grateful for, it would be a very long list" - again rate this on the 1-7 scale.

The third statement is "When I look at the world, I don't see much to be grateful for"

Turn over the page and there are two more statements.

Statement 4: "I am grateful to a wide variety of people."

Statement 5 "As I get older, I find myself more able to appreciate the people, events and situations that have been part of my life history".

I am going to take the diaries with me today and also the forms you completed with your class teacher. What you wrote about and how much you did, or didn't enjoy, keeping the diary will be really helpful in deciding whether we should ask other children to keep gratitude diaries too.

Thank you

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