

University of Southampton Research Repository ePrints Soton

Copyright © and Moral Rights for this thesis are retained by the author and/or other copyright owners. A copy can be downloaded for personal non-commercial research or study, without prior permission or charge. This thesis cannot be reproduced or quoted extensively from without first obtaining permission in writing from the copyright holder/s. The content must not be changed in any way or sold commercially in any format or medium without the formal permission of the copyright holders.

When referring to this work, full bibliographic details including the author, title, awarding institution and date of the thesis must be given e.g.

AUTHOR (year of submission) "Full thesis title", University of Southampton, name of the University School or Department, PhD Thesis, pagination

UNIVERSITY OF SOUTHAMPTON

FACULTY OF SOCIAL AND HUMAN SCIENCES

School of Psychology

**Effects of a positive psychology intervention on the subjective wellbeing and
efficacy beliefs of teaching staff**

by

Francesca Nagle

Thesis for the degree of Doctorate in Educational Psychology

June 2015

Total Word Count: 18,995

Literature Review: 8,808

Empirical Paper: 10,187

UNIVERSITY OF SOUTHAMPTON

ABSTRACT

FACULTY OF SOCIAL AND HUMAN SCIENCES

Doctorate in Educational Psychology

**EFFECTS OF A POSITIVE PSYCHOLOGY INTERVENTION ON THE
SUBJECTIVE WELLBEING AND EFFICACY BELIEFS OF TEACHING STAFF**

Francesca Nagle

A variety of interventions have been developed based on the positive psychology principle of building positive emotion and subjective experience. Specifically, interventions designed to promote reflection on positive experiences have been cited as an effective way to increase one's subjective wellbeing. A systematic review of the existing literature was conducted to examine the efficacy of such interventions within non-clinical populations. Findings demonstrated a range of positive outcomes, including increases in positive affect, decreases in negative affect and improved life satisfaction. However, the review identified a number of methodological limitations within the current evidence base, including variation in intervention methods and aspects of implementation, which make it difficult to draw firm conclusions regarding the efficacy of such interventions in improving wellbeing. Consideration was also given to a number of factors which may moderate intervention efficacy, including participant motivation, continued effort and preference for specific interventions. Research has also begun to identify a range of individual difference factors which may influence the effectiveness of such interventions. Directions for future research include improvements to existing methodologies, as well as a need for systematic exploration of how features of both the individual and intervention may interact to influence wellbeing outcomes.

The empirical paper evaluated the effects of a positive psychology intervention on the subjective wellbeing and efficacy beliefs of teaching staff. Primary and secondary teaching staff (N= 49) were assigned at the school level to a daily 'Three Good Things' intervention (Seligman et al., 2005) or a neutral events diary control condition. Components of subjective wellbeing (positive and negative affect, satisfaction with teaching), self-reported efficacy in teaching and work-related burnout were assessed at pre and post-intervention. Contrary to previous findings, no significant differences were

observed between the two intervention conditions in relation to the identified outcome measures, and results were not in the expected direction. Changes in positive affect were associated with changes in efficacy beliefs. Findings extend the evidence base regarding the application of positive psychology interventions in educational contexts and outcomes in relation to self-efficacy. Future research directions and relevant implications for practice are considered.

Table of Contents

Table of Contents	i
List of Tables	iii
List of Figures	v
Declaration of Authorship	vii
Acknowledgements	ix
Definitions and Abbreviations	xi
Chapter 1: Literature Review	
Introduction	1
Review Methodology	5
Literature Review Results	8
Discussion	17
Conclusion	24
Chapter 2: Empirical Paper	
Introduction	27
Method	36
Results	41
Discussion	51
Appendices	
Appendix A: Search Terms	61
Appendix B: Application of Exclusion Criteria	63
Appendix C: Data Extraction Table	65
Appendix D: Teaching Satisfaction Scale (TSS)	105
Appendix E: Positive and Negative Affect Schedule (PANAS)	106
Appendix F: Teachers' Sense of Efficacy Scale (TSES)	107
Appendix G: Maslach Burnout Inventory (MBI)	108
Appendix H: Ethics Committee Approval	109
Appendix I: Participant Information Sheet	111
Appendix J: Online Statement of Consent	113
Appendix K: Debrief Statement	115
Appendix L: Examples of diary items by event category	117
List of References	119

List of Tables

Table 1. <i>Inclusion and Exclusion Criteria</i>	6
Table 2. <i>Means and standard deviations for outcome measures in intervention and control conditions at pre- and post-intervention</i>	42
Table 3. <i>Proportion of diary items by category as a function of condition</i>	50

List of Figures

<i>Figure 1.</i> Flow diagram to illustrate application of inclusion and exclusion criteria and resultant outcomes.....	7
<i>Figure 2.</i> Conceptual model of paths between intervention intended to increase positive affect, changes in affect indices and changes in self-efficacy (adapted from Schutte, 2013).....	35
<i>Figure 3.</i> Participant Flow.....	44
<i>Figure 4.</i> Outcome measures by condition at pre and post-intervention.....	45

DECLARATION OF AUTHORSHIP

I, FRANCESCA NAGLE 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.

Effects of a positive psychology intervention on the subjective wellbeing and efficacy beliefs of teaching staff

I confirm that:

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

Signed:

Date:.....

Acknowledgements

I would like to thank my supervisor, Dr. Nick Maguire, for his advice and support in the development of this thesis. I would also like to extend my appreciation to Tim Cooke for introducing me to the field of positive psychology, and for his support both as my tutor on the doctoral programme and as secondary supervisor to this thesis. I have greatly valued the support that they have jointly provided and their shared enthusiasm for the project.

I would like to express my sincere appreciation to the teachers who gave time from their busy schedules to participate in this research and made this project possible. My thanks also go to my former teaching colleagues and friends for reminding me of the importance of teacher wellbeing in promoting positive outcomes for young people, and for providing the inspiration and motivation for this thesis.

I am truly grateful for the friends I have made during the last three years with whom I have shared the many challenging and rewarding experiences of the course, and for the understanding of my closest friends and family who have seen considerably less of me during this time.

I would like to express my deepest gratitude to my parents and brother for their continued love, patience, encouragement and belief in me when I have needed it the most. I would not have been able to progress this far in my academic and professional career without their support. This thesis is completed in loving memory of my grandmother who is never out of mind.

Finally, I would like to thank my partner Jay for his absolute faith in my capabilities and resilience, and his wonderful family who have been there for us both throughout my studies.

The traffic lights are green...

Definitions and Abbreviations

α	Cronbach's alpha
ANOVA	Analysis of variance
ANCOVA	Analysis of covariance
d	Cohen's d
F	Test statistic for ANOVA
M	Mean
MBI	Maslach Burnout Inventory
N	Number of participants
p	Probability level
PANAS	Positive and Negative Affect Schedule
η^2	Partial eta-squared
r	Pearson correlation coefficient
r_s	Spearman's rank correlation coefficient
SD	Standard deviation
T1	Time 1 (pre-intervention)
T2	Time 2 (post-intervention)
TSES	Teachers' Sense of Efficacy Scale
TSS	Teaching Satisfaction Scale
U	Mann-Whitney U Test
Z	Wilcoxon Signed Rank Test
χ^2	Chi-squared

Chapter 1. Noticing and appreciating the good in life: Can positive interventions enhance individual wellbeing in non-clinical populations?

In recent years, the positive psychology movement (Seligman, 2003; Seligman & Csikszentmihalyi, 2000) has offered an emerging conceptual approach to intervention, shifting the emphasis from alleviating distress to enhancing positive aspects of wellbeing through promoting positive subjective experience, individual traits and institutions (Peterson, Park & Seligman, 2005). Within the positive psychology literature, psychological wellbeing is viewed as not only the absence of mental disorder but also the presence of positive psychological resources, including components of hedonic or subjective wellbeing, such as positive affect, life satisfaction, and happiness (Diener, 2000), and eudaimonic or psychological wellbeing, such as autonomy and purpose in life (Ryan, Huta & Deci, 2008; Ryff & Keyes, 1995).

A central principle underpinning positive psychology interventions is that individuals can facilitate cognitions and behaviours to improve their own wellbeing through regularly engaging in simple, intentional practices (Lyubomirsky, Sheldon & Schkade, 2005). Recent meta-analyses have highlighted that such positive psychological interventions can be effective in enhancing subjective and psychological wellbeing and reducing depressive symptoms among both clinical and non-clinical populations (Bolier et al., 2013; Sin & Lyubomirsky, 2009). The current review will examine the existing evidence base, with a particular focus on evaluating the efficacy of such interventions in enhancing individual wellbeing within non-clinical populations.

Positive Emotions and Subjective Wellbeing

One major area of research in positive psychology is the study of happiness, or 'subjective wellbeing' (Diener, 2000). It is generally accepted that subjective wellbeing involves the subjective evaluation of one's current status in the world (Snyder & Lopez, 2007). Specifically, Diener (1984; 2000) defines subjective wellbeing as a construct with three components comprising both cognitive and affective aspects: life satisfaction; positive affect (the frequent experience of pleasant emotions); and a relative absence of negative affect (unpleasant emotions). This tripartite structure has received empirical support (Arthaud-Day, Rode, Mooney & Near, 2005; Diener, Lucas & Oishi, 2002).

Subjective (or hedonic) wellbeing has been distinguished from psychological (eudaimonic) wellbeing, which refers to the components of self-acceptance, personal

POSITIVE PSYCHOLOGY INTERVENTIONS

growth, purpose in life, positive relations, environmental mastery and autonomy (Ryan et al., 2008; Ryff & Keyes, 1995). Within the positive psychology literature, Seligman (2002) proposed a definition of happiness comprising three elements: 1) positive emotion and pleasure (the pleasant life); 2) engagement (the engaged life); and 3) meaning (the meaningful life). The pleasant life is concerned with the pursuit of positive emotions, and thus can be paralleled with hedonic wellbeing, however the pursuits of engagement and meaning are considered to relate to eudaimonic wellbeing. In the current review, wellbeing is conceptualised in the former, hedonic sense, as the interventions of interest are primarily concerned with the aim of promoting positive emotion and subjective experience.

In their model of sustainable happiness, Lyubomirsky et al. (2005) propose that three factors contribute to individual levels of subjective wellbeing: a dispositional ‘set point’ (which is genetically determined and tends to be stable over time); life circumstances (such as income, marital status and education); and positive, cognitive or behavioural activities. Lyubomirsky et al. (2005) report that the dispositional set point has been shown to account for approximately 50% of the variance in individual differences in wellbeing, and attribute a further 10% of the variance to life circumstances. The model suggests that the remaining factor, intentional activities, has the potential to account for up to 40% of individual differences in wellbeing. As it would be difficult to influence one’s genetic influences or life circumstances, Lyubomirsky et al. (2005) suggest that this latter component offers potential for promoting sustainable increases in subjective wellbeing via specific types of intentional activities.

Much of the literature linking positive emotions with subjective wellbeing has focused on the construct of gratitude. Gratitude has been conceptualised at both the emotional (state) and dispositional (trait) level. As an emotion or state, gratitude can be defined as a subjective feeling of appreciation for outcomes received from another (Emmons, 2004). However, research evidence (e.g. Lambert, Graham & Fincham, 2009) has indicated that this interpersonal definition is too narrow, due to its neglect for feelings of gratitude which may arise from other events or experiences which do not involve the direct transfer of benefits. This has led to the development of a broader definition which conceptualises gratitude as “the emotion or state resulting from an awareness or appreciation of that which is valuable and meaningful to oneself” (Lambert et al., 2009, p.1194).

At the dispositional level, gratitude has been defined as part of a wider orientation toward a “habitual focusing on and appreciating the positive aspects of life” (Wood, Froh

& Geraghty, 2010, p.890). The authors argue that this orientation should be considered as distinct from other emotions such as optimism (which represents an orientation towards expecting positive future outcomes; Carver et al., 2010) and hope (incorporating this expectation of positive future outcomes coupled with a tendency to view the pathways through which these can be reached; Geraghty, Wood & Hyland, 2010b). This latter definition (Wood et al., 2010) will be adopted for the purposes of the present review.

Whether defined at the emotional or dispositional level, cross-sectional research has demonstrated that gratitude is associated with multiple aspects of wellbeing, including positive affect (Emmons & McCullough, 2003; Froh, Kashdan Ozimkowski & Miller, 2009), optimism (McCullough, Tsang & Emmons, 2004), and life satisfaction (Park, Peterson & Seligman, 2004; Froh, Sefick & Emmons, 2008), as well as negatively associated with aspects such as burnout (Chan, 2010), stress and depression (Wood, Maltby, Gillet, Linley & Joseph, 2008).

Theoretical Mechanisms

A number of working mechanisms have been proposed to account for the associations between gratitude, positive emotions and subjective wellbeing. According to the ‘broaden and build’ theory (Fredrickson, 2001; Fredrickson & Joiner, 2002), the experience of positive emotions broadens individuals’ thought and action capabilities, which over time enhances personal resources, such as greater optimism and improved relationships. Furthermore, it has been argued that positive emotions are incompatible with negative emotions, and therefore gratitude may serve to inhibit feelings of envy, bitterness, anger or greed (McCullough, Emmons & Tsang, 2002).

The ability to appreciate one’s life circumstances has also been considered as an adaptive coping strategy by which people may positively reinterpret problematic life experiences (Fredrickson, Tugade, Waugh, & Larkin, 2003). Additionally, it has been proposed that gratitude may promote wellbeing through increasing the accessibility and recollection of pleasant life events (Watkins, 2004). In this way, gratitude may directly counteract the effects of ‘hedonic adaptation’ in which people typically adapt to positive change (Brickman & Campbell, 1971; Kahneman, 1999), thereby preventing habituation to positive experiences and prolonging the experience of associated positive emotions (Lyubomirsky et al., 2005).

Positive Interventions

Due to the established associations with wellbeing, a growing evidence base has begun to focus on experimental studies of positive psychological interventions in which gratitude or positive emotion is manipulated and effects on wellbeing are observed. In the broadest sense, positive psychology interventions may be defined as “intentional activities aimed at cultivating positive feelings, positive behaviours, or positive cognitions” (Sin & Lyubomirsky, 2009, p. 467).

A variety of interventions have been developed based on positive psychology principles of building positive emotions, character strengths and meanings (Seligman, Steen, Park & Peterson, 2005; Seligman, Rashid & Parks, 2006). Specifically, interventions designed to promote reflection on positive experiences have been cited as an effective way to increase one’s subjective wellbeing (Seligman et al., 2005). However, research has demonstrated mixed findings regarding the efficacy of such interventions. This may be in part due to differences in intervention methodologies or how gratitude has been defined. Consequently, researchers have begun to distinguish between the various types of interventions which have been employed. In a theoretical review of the gratitude literature, Wood et al. (2010) identify three broad categories into which gratitude interventions may be classified:

- 1) Gratitude lists, for example asking participants to keep a journal of things for which they are grateful on a regular basis (e.g. Emmons & McCullough, 2003; Froh et al., 2008)
- 2) Grateful contemplation, involving thinking or writing about global aspects for which they are grateful (e.g. Watkins, Woodward, Stone & Kolts, 2003)
- 3) Behavioural expressions of gratitude, including gratitude visits or writing a gratitude letter to a benefactor (e.g. Froh et al., 2009).

In addition to the use of both cognitive and behavioural interventions within the gratitude literature, Lyubomirsky and Layous (2013) note that positive interventions may differ in their time orientation, for example through a focus on the past (e.g. gratitude), the present (e.g. savouring the moment), or the future (e.g. thinking optimistically). For the purposes of the current review, exploration will focus on the evaluation of interventions which retain a specific focus on past experience.

Interventions may also operate at different levels of analysis. For example, a related intervention, entitled the ‘Three Good Things’ exercise, involves recording positive

daily events and reflecting on the causes of these (Seligman et al., 2005). As highlighted by Parks and Biswas-Diener (2013), gratitude diaries tend to focus on ongoing areas of gratitude (e.g. relationships, career) whereas the three good things intervention requires individuals to focus on events which take place during a given day, therefore this activity is less susceptible to becoming repetitive if practised regularly. It is debatable whether the three good things exercise can be considered a gratitude intervention, due to a limited understanding of the precise mechanisms by which such interventions may operate. For example, interventions may operate through directly influencing levels of gratitude, or by influencing positive affect more generally. This will be explored further in the discussion section, however both intervention types are considered within the current review due to a shared focus on fostering a practice of noticing and appreciating the positive aspects of life, as identified in the adopted definition of gratitude (Wood et al., 2010).

The interventions considered within the present review focus specifically on the promotion of positive emotion and subjective experience, thus interventions focusing on building character strengths or meanings are beyond the current scope for analysis. The aim of the present review is therefore to examine whether positive psychology interventions which specifically focus on noticing and appreciating the positives in past experience can be effective in enhancing subjective wellbeing outcomes in healthy individuals.

Review Methodology

Search Strategy

Studies included in this review were retrieved through a systematic search of the published literature. Searches were conducted through two electronic databases: PsycINFO via EBSCO, and Web of Science. Search terms were generated using key terms from the review question and key articles (Appendix A). Further studies were identified through reference list searches and forward citations of retrieved articles. Although initially included within the combined search terms, the terms '*teaching*', '*teacher*' and '*education*' were subsequently removed in order to broaden the inclusion criteria beyond an initially limited number of retrieved studies which were specific to this population. Participants of all ages were included in order to widen the scope and potential generalisability of findings within the already identified boundaries of a non-clinical population. Although only a small number of retrieved studies involved child or adolescent populations, these were included due to their application within, and relevance to, educational contexts.

Study Selection

Retrieved studies were screened for relevance to the identified review question according to the following criteria (Table 1).

Table 1. *Inclusion and Exclusion Criteria*

Study Characteristic	Inclusion Criteria	Exclusion Criteria
Article Type	Empirical papers using primary data.	Review articles.
Design	Intervention designed to increase positive emotions.	Empirical studies without intervention, e.g. cross-sectional or longitudinal designs.
	Control or comparison condition (active or passive, alternative intervention).	Within-subjects design with no comparison condition.
Participants	Participants of all ages.	
	Non-clinical populations.	Participants selected for research purposes on the basis of identified clinical symptoms or presence of specific psychosocial problems, or receiving additional clinical intervention (see Appendix B for examples).
Intervention	Discrete intervention approach.	Multi-component intervention approach targeting a range of positive psychology constructs.
	Intentional, self-directed activity.	Individual or group therapy context.
Publication requirements	Published in English.	Published only in a language other than English.
	Full text access, articles published in peer reviewed journals.	Book chapters, conference presentations, dissertations.

The systematic search yielded a total of 33 studies. The systematic search procedure is illustrated in Figure 1.

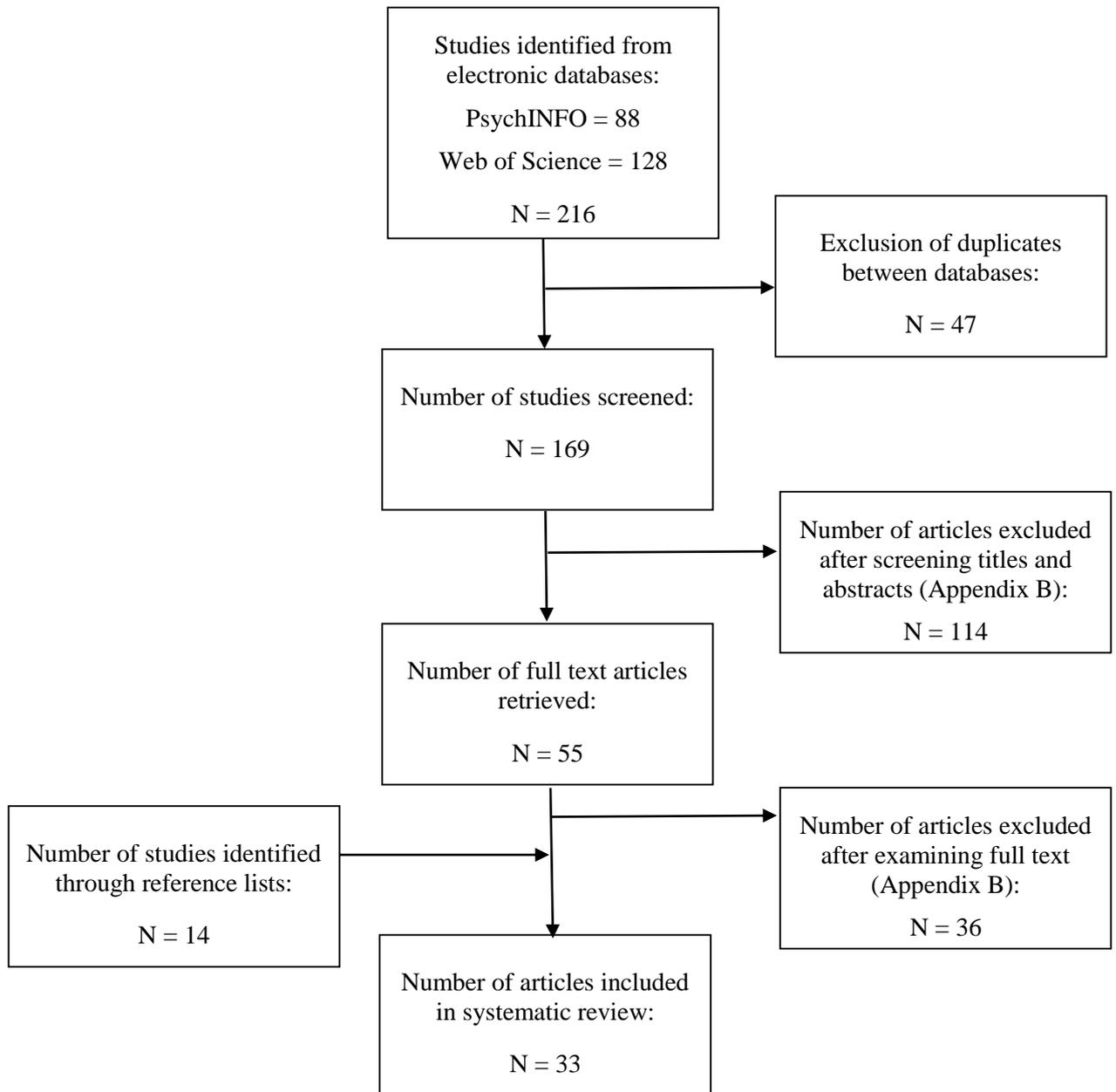


Figure 1. Flow diagram to illustrate application of inclusion and exclusion criteria and resultant outcomes.

Data Extraction

The following data was extracted from the final selection of included studies: a) participant characteristics; b) recruitment strategy; c) intervention method (including comparison/ controls); d) study design; e) outcome measures; f) significant results/ interactions; and g) study limitations (Appendix C).

Literature Review Results

Summary of Methods

Participants

The majority of studies were conducted with adult participants. Three studies involved child or adolescent samples, and one study focused specifically on older adults (50-79 years). Fifteen studies relied on university or college student samples, and there was a higher representation of female participants overall (23 studies > 70% female).

Recruitment Strategy

Thirteen studies did not report how studies were described to participants. Eight studies were advertised as investigating methods to improve wellbeing, while a further eight were described as relating to aspects of wellbeing with no objectives or hypotheses specified. In four studies, the purpose of the research was deliberately concealed or an alternative rationale was provided (e.g. investigating spatial orientation/ cultivating character strengths).

Design

Twenty five studies used an experimental design involving random allocation of participants to condition. Eight studies adopted a quasi-experimental design, in which students were allocated by class groups or stratified matching processes were used.

Intervention Methods

Interventions included those with an explicit focus on promoting gratitude, as well as interventions promoting reflection on ‘good things’. Journaling techniques were the most common type of intervention, with 14 studies employing a gratitude diary (based on the instructions developed by Emmons & McCullough, 2003) and eight studies including the ‘Three Good Things’ exercise (based on the instructions of Seligman et al., 2005), or a novel variation on this which has been less widely replicated (‘Three Funny Things’; two studies). Interventions differed in their frequency and duration, ranging from daily for one week, to weekly for up to eight weeks. The number of items per diary entry ranged from one to six.

Eleven studies involved asking participants to write a gratitude letter, three in which letters were posted to the recipient, and three in which these were delivered by the

participant through a gratitude visit. Letters were not sent to recipients in two studies and a further two did not state whether or not letters were sent or shared. A further two studies included a behavioural component in which participants were asked to share their gratitude diary or express gratitude to a friend.

Three studies involved a grateful contemplation intervention, and three studies required participants to engage in further reflection on associated feelings or meaning attached to positive events. One study used a novel variation on a gratitude exercise which involved the use of drawing to ensure that this was accessible to a younger age group.

Control Condition

Seven studies employed a no activity (passive) control group, and two used a waitlist control condition, whilst the remainder used an active control group or comparison intervention. The most common active control was a neutral event diary (10 studies) whereas four studies used a hassles diary (recording negative events), and two studies included both hassle and neutral event diary conditions. Other control groups included writing about early memories (five studies), downward social comparison (recording ways in which better off than others; one study), and a neutral writing task (layout of living room; one study).

Eighteen studies included comparisons with alternative interventions, including writing about 'Best Possible Selves' or using 'Signature Strengths', three of which included a single comparison condition without an additional control group.

Outcome Measures

A wide range of outcome measures were adopted, including measures relating to subjective wellbeing (positive affect, life satisfaction, happiness), negative affect and depressive symptoms. Other outcome measures included physical symptoms, health behaviours, prosocial behaviours and social connectedness. Fourteen studies included a measure of gratitude (trait/state). All studies used published self-report measures and only one adopted an additional observer report method.

Six studies included measures of intervention adherence and five studies included a measure of participant motivation or effort. Seventeen studies obtained follow-up measures, ranging from one week to six months post intervention. Only seven studies examined the content of participant responses (e.g. written letter/ diary entries, content of drawings).

Summary of Findings

The following section will review outcomes from the above studies, primarily in relation to the aforementioned components of subjective wellbeing. To further evaluate the extent to which positive interventions may be effective in promoting wellbeing in non-clinical populations, consideration will then be given to the range of additional measures of psychological wellbeing which have been examined in the literature. The review will conclude with a consideration of participant and methodological variables which may moderate the efficacy of such interventions, in order to inform implications for future research.

Subjective Wellbeing Outcomes

The majority of studies included an aspect of subjective wellbeing as an outcome measure. This was typically assessed through the specific components of positive and negative affect and life satisfaction, although a number of studies did not assess these outcomes individually, instead focusing on more global constructs such as happiness (Gander, Proyer, Ruch & Wyss, 2013; Mongrain & Anselmo-Matthews, 2012; Proyer, Gander, Wellenzohn & Ruch, 2014; Seligman et al., 2005; Sergeant & Mongrain, 2011), or utilising composite measures of subjective wellbeing encompassing both cognitive and affective domains (Layous, Lee, Choi & Lyubomirsky, 2013; Lyubomirsky, Dickerhoof, Boehm & Sheldon, 2011).

Components of Subjective Wellbeing

Positive Affect

A number of studies found no significant impact of a gratitude or three good things journal on positive affect compared with a passive or neutral control group (Chan, 2013; Odou & Vella-Brodrick, 2013; Rash, Matsuba & Prkachin, 2011; Sheldon & Lyubomirsky, 2006) and/or alternative intervention (Owens & Patterson, 2013; Seear & Vella-Brodrick, 2013).

Replicating findings by Emmons and McCullough (2003), Martínez-Martí, Avia and Hernandez-Lloreda (2010) reported an increase in positive emotions following a gratitude diary, however this was only significant in comparison to a hassles diary condition, and not a neutral control. Both studies reported a decrease in positive affect within the hassles condition, which may have accounted for these group differences. A further study by Froh

et al. (2008) found no significant difference in positive affect in a gratitude diary condition compared with either a hassles diary or passive control group.

In contrast, some studies have demonstrated an impact of such interventions on positive affect. Watkins et al. (2003) reported an increase in positive affect across three gratitude conditions (thinking, letter or essay) relative to a neutral control group. Analysis of change scores indicated that the strongest effects were demonstrated in the grateful thinking condition, followed by the essay and letter conditions. Further research has demonstrated increased positive affect within a specific life domain. Kaplan et al. (2014) reported a significant increase in job-related affective wellbeing following a work-related gratitude diary, and found this to be more effective in relation to an intervention to promote social connectedness.

Further research has investigated the impact of including a behavioural component to the intervention. In this way, Lambert et al. (2013) demonstrated increased positive affect in a gratitude diary condition relative to a neutral events diary, but only when this was shared with a partner. In the shared condition, positive affect demonstrated a trend towards significance, however the unshared gratitude diary condition did not increase positive affect in comparison to controls.

Negative Affect

A number of the studies outlined above failed to demonstrate intervention efficacy in relation to promoting increases in positive affect, but did report significant reductions in negative affect. Despite no significant increase in positive affect, Rash et al. (2011) found that a gratitude diary produced reductions in negative affect relative to an active control condition (writing about memorable events). Similarly, Chan (2013) reported significant decreases in negative affect in the gratitude diary condition (counting blessings) relative to a coping journal (counting misfortunes), however this study is limited by the lack of a neutral control condition. Using the three good things intervention, Odou and Vella-Brodrick (2013) found negative affect at post-intervention to be significantly lower compared to passive control group, when controlling for negative affect scores at baseline.

In addition to an impact on positive affect, Kaplan et al. (2014) reported a within subjects decrease in job-related negative affective wellbeing which approached significance in the work-related gratitude diary condition. In an adolescent sample, Froh et al. (2008) found that participants in the gratitude diary condition reported significantly less negative affect at post-intervention and three week follow-up relative to a hassles diary

POSITIVE PSYCHOLOGY INTERVENTIONS

condition, but not a passive control group. Consequently it has been argued that hassles conditions may inflate between group differences by producing negative affect, thereby failing to constitute an adequate control condition (Froh et al., 2009).

A number of studies found no significant intervention impact on negative affect when compared with neutral or passive controls. This was the case across a variety of intervention types, including gratitude diaries (Emmons & McCullough, 2003; Martínez-Martí et al., 2010), gratitude letters (Froh et al., 2009) and the three good things exercise (Sear & Vella-Brodrick, 2013). Watkins et al. (2003) found that none of the three gratitude interventions investigated were effective in producing significant changes in negative affect.

Life Satisfaction

A number of studies reported positive outcomes for life satisfaction, for example when comparing a gratitude diary intervention to counting misfortunes (Chan, 2013) or a neutral memorable events control (Rash et al., 2011). Using a gratitude letter intervention, Boehm, Lyubomirsky and Sheldon (2011) found a significant increase in life satisfaction relative to a neutral control group (event diary) at post-intervention and one month follow-up.

Other studies found a linear increase in life satisfaction scores over time, but no significant group differences compared with controls following a gratitude diary (Peters, Mevissen & Hanssen, 2013) or gratitude letter (Toepfer & Walker, 2009). However, in a replication of the latter study with an increased sample size, Toepfer, Cichy and Peters (2012) reported a significant increase in life satisfaction in the gratitude condition relative to a passive control group.

Exploring the application of a gratitude diary in an adolescent sample, Froh et al. (2008) highlighted a specific positive impact on students' satisfaction with school experience, in comparison to both hassles and control conditions at both post-test and three week follow-up. Lambert et al. (2013) also demonstrated the benefits of a shared gratitude diary intervention in increasing life satisfaction relative to an unshared gratitude diary or event diary.

General Measures of Subjective Wellbeing

Two studies used a composite measure of subjective wellbeing including aggregated measures of affect and life satisfaction (Layous et al., 2013; Lyubomirsky et

al., 2011), which limits the potential to draw conclusions about the relative influence of interventions on the specific components of subjective wellbeing. In a sample of college students from the USA and South Korea, Layous et al. (2013) found that practising a gratitude letter intervention predicted greater changes in wellbeing than practising a control activity (listing activities completed in the past 24 hours). No significant differences were found in comparison to an alternative positive psychology intervention (performing acts of kindness). Conversely, Lyubomirsky et al. (2011) reported no significant differences between a gratitude letter, optimism intervention or neutral control condition at immediate post-intervention, however a trend towards greater increases in wellbeing was observed in the gratitude and optimism conditions relative to controls at six month follow-up.

Emmons and McCullough (2003) included two individual scaling items to assess concurrent and prospective wellbeing as a global appraisal measure. Findings showed that participants in the gratitude diary condition provided significantly more favourable ratings on both items compared with those in a hassles and event diary condition. A subsequent study failed to replicate these findings using participants' own self-report ratings, however use of an additional observer report measure revealed that individuals in the gratitude condition were perceived by observers to have significantly higher global subjective wellbeing than participants in the hassles condition at a two week follow-up (Martínez-Martí et al., 2010).

Several other studies included measures of self-reported happiness as a primary or additional outcome variable. Sergeant and Mongrain (2011) found that participants in a gratitude diary condition demonstrated significantly greater increases in happiness relative to a control condition (early memories). Three internet based studies investigated the impact of both a gratitude visit and three good things intervention on happiness (Gander et al., 2013; Proyer et al., 2014; Seligman et al., 2005). In a seminal study, Seligman et al. (2005) demonstrated that a gratitude visit intervention led to significant increases in reported happiness at immediate post-test, which were maintained at one week and one month follow-up. In the three good things intervention, increases in happiness were not observed at immediate post-test, however these were apparent at one month post-intervention and maintained at both three and six month follow-up, suggesting the potential for delayed intervention effects, as well as sustained improvements in wellbeing.

In an attempt to replicate these findings, Gander et al. (2013) found that happiness was elevated in both intervention conditions compared with an early memories placebo control group. For the gratitude visit, significant increases were found at one and three

POSITIVE PSYCHOLOGY INTERVENTIONS

months post intervention, with a trend towards significance at immediate post-intervention. Findings demonstrated that practising a three good things intervention for one week was effective in increasing happiness relative to the placebo controls at one and three months follow-up. The third of these studies (Proyer et al., 2014), reported that a gratitude visit intervention led to a marginally significant increase in happiness relative to a placebo control group at one month follow-up. Participants in a three good things intervention demonstrated significantly increased happiness in relation to controls at post-test only. This study also tested a novel variation entitled ‘three funny things’, which was found to result in increased happiness compared with controls at six months post-intervention.

In a further replication of Seligman et al. (2005), a three good things intervention was found to significantly increase happiness at one week, three months and six months post-intervention relative to an expectancy control group (early memories), but not in relation to an additional ‘positive placebo’ condition (positive early memories) (Mongrain & Anselmo-Matthews, 2012).

Psychological Wellbeing Outcomes

A number of studies included outcome measures relating to aspects of psychological wellbeing, including depressive symptoms, worry and stress. A small number of studies reported no significant effects of condition on depressive symptoms following the implementation of a gratitude diary (Sergeant & Mongrain, 2011) or three good things intervention (Mongrain & Anselmo-Matthews, 2012). Conversely, Toepfer et al. (2012) reported a significant decrease in depressive symptoms in a gratitude letter condition compared with a passive control group.

In line with this finding, Seligman et al. (2005) found that the three good things exercise led to significant decreases at one, three and six month follow-up, and that the gratitude visit significantly decreased depressive symptoms at immediate post-test, as well as one week and one month follow-ups. Similar findings were reported by Gander et al. (2013) and Proyer et al. (2014), who found that a gratitude visit intervention significantly reduced depressive symptoms relative to a placebo control group. These effects were maintained at one month (Proyer et al., 2014), or one and three month follow-ups (Gander et al., 2013). The three good things intervention demonstrated significant reductions at post-test (Proyer et al., 2014) and three month follow-up (Gander et al., 2013). In both studies, a novel intervention (three funny things) was the most effective in reducing depressive symptoms across time points.

In a further study, application of a work-related gratitude diary was found to contribute to significant reductions in reported stress at post-intervention, and decreases in both stress and depressive symptoms at three month follow-up in comparison to both a hassles diary condition and no intervention controls (Cheng, Tsui & Lam, 2015). In one study, participants who completed a gratitude journal demonstrated significant increases in self-esteem compared with those who wrote about memorable events (Rash et al., 2011). Examining a further wellbeing outcome, Geraghty, Wood and Hyland (2010a) found that both a gratitude diary and worry diary significantly reduced worry relative to a waitlist control group, however there were no significant differences in the efficacy of these two interventions.

One further study investigated outcomes in relation to efficacy beliefs. In a sample of primary school teachers, findings demonstrated significant increases in the efficacy beliefs of staff who participated in a three good things intervention, in comparison to staff in another school who did not receive the intervention (Critchley & Gibbs, 2012). This study adopted a mixed methods approach, involving a pre and post-intervention questionnaire in addition to thematic analysis of interview and focus group data, to explore qualitative changes in staff perspectives as well as changes within the wider school community. Positive changes were found to relate to a number of identified themes, specifically in relation to taking the lead, presenting, evaluating, giving and receiving feedback and managing change. In this way, the authors argued for a need for further research to employ qualitative methodologies to explore changes at the subjective, individual and organisational level.

However, this study included a number of methodological limitations. Firstly, changes in efficacy beliefs were the only outcome measure. As these were assessed using a questionnaire developed on the basis of themes identified from the focus group data, findings may not be easily generalisable to other contexts. Secondly, the study included a limited sample size drawn from only two primary schools, and schools were not matched for comparability in relation to demographic or dependent variables. Furthermore, participants in the experimental condition were given a presentation about positive psychology prior to commencing the intervention, which may have led to the potential for participant expectancy effects to have influenced findings. The study is further limited by the lack of follow up measures in order to assess the extent to which the observed positive effects were maintained post-intervention.

Other Outcomes

Although the primary variable of interest was subjective wellbeing, this was not pre-specified in the search terms of the present review so as not to limit the range of outcomes identified. Accordingly, a number of additional outcomes were identified, including those relating to social, physical and health behaviours.

Five studies evaluated the impact of a gratitude intervention on social outcomes. Two of these reported no significant difference in relation to prosocial behaviour (Froh et al., 2008) and self-reported social connectedness (Kaplan et al., 2014). In a further study investigating outcomes for prosocial behaviour, Emmons and McCullough (2003) reported that participants in a gratitude diary condition were significantly more likely to report offering emotional support to others in comparison to those in a hassles diary or downward social comparison condition. In a replication of this study in a Spanish sample, Martínez-Martí et al. (2010) found a trend toward significance in participants' reported quality of relationships with a significant other, in comparison with a hassles or event diary. This study also included an additional observer report of sensitivity to others' needs at follow-up, which, in line with participants' self-reports, indicated no significant differences between groups.

In a further study, Lambert, Clark, Durtschi, Fincham and Graham (2010) investigated the impact of expressing gratitude to a friend on perceived communal strength, the degree of felt responsibility for a partner's welfare. This intervention was compared with one of three control conditions: thinking grateful thoughts about a friend; thinking about daily activities or having positive interactions with a friend. Perceived communal strength was found to be higher in the expression of gratitude condition compared with all three controls at post-intervention, however this was the only outcome measure included, which limits analysis of the potential mechanisms underpinning such effects.

A number of studies additionally investigated intervention impact on physical symptoms and health behaviours. In two related studies, Emmons and McCullough (2003) demonstrated that participants in a weekly gratitude diary condition reported significantly fewer physical symptoms than those in a hassles or event diary condition, and significantly greater time spent exercising than those in the hassles condition. A second study involving a daily gratitude diary method included an additional measure of health behaviours (including types of exercise, alcohol consumption), however no significant group effects

were found for this measure and results were not replicated for the outcomes reported in the first study. Three further studies reported no significant effects of a gratitude diary on measures of physical symptoms (Froh et al., 2008; Martínez-Martí et al., 2010; Sergeant & Mongrain, 2011).

In one of few studies examining more distal outcome variables, Kaplan et al. (2014) demonstrated that both a work-related gratitude diary and social connectedness intervention were associated with a within-subjects decrease in employee absence due to illness. A limitation of this study is the lack of an additional control group and reliance on comparison only with an alternative intervention. Two further studies found that a gratitude diary had no significant impact on sleep quality compared with a hassles or event diary (Martínez-Martí et al., 2010) and a constructive worry or imagery distraction condition (Digdon & Koble, 2011), however the latter study also lacked a neutral control group and comparisons were limited due to a lack of power.

In an internet-based study, Geraghty et al. (2010b) demonstrated that a gratitude diary was as effective as a thought monitoring and restructuring intervention based on CBT principles, and significantly more effective than a waitlist control, in reducing body dissatisfaction. In a further study, Homan, Sedlak and Boyd (2014) demonstrated that a grateful reflection intervention was effective in decreasing body dissatisfaction in response to exposure to thin-ideal media, compared with reflection on life hassles.

Discussion

Mediators of Intervention Effectiveness

Several studies which included a gratitude-based intervention did not assess whether levels of gratitude changed post-intervention, meaning that it is difficult to ascertain whether such interventions may operate through the mechanism of increased gratitude. A number of studies which assessed changes in gratitude found that gratitude diaries were effective in increasing measures of state gratitude in comparison to a hassles diary condition, but not in comparison to a neutral event diary or no intervention control at both post-intervention (Emmons & McCullough, 2003; Martínez-Martí et al., 2010) and three week follow-up (Froh et al., 2008).

Other findings provide mixed evidence as to whether such interventions are effective in increasing gratitude. Chan (2013) found a marginally significant within-subjects increase in state gratitude within a gratitude diary condition, but no significant between

POSITIVE PSYCHOLOGY INTERVENTIONS

groups differences were reported when compared with a hassles diary. Kaplan et al. (2014) found that a work-related gratitude diary led to increased gratitude in relation to work in comparison to an intervention designed to foster social connectedness. Further regression analyses indicated that increases in wellbeing were not related to changes in gratitude. However, neither of these studies included a neutral control condition in order to enable further comparison.

In addition to state gratitude, a number of studies included measures of dispositional, or trait, gratitude. Using a gratitude letter intervention, Toepfer and Walker (2009) reported significant increases in trait gratitude, however this study did not control for the potential confound of positive recipient feedback prior to completion of the intervention, as letters were sent to recipients during this phase. A subsequent study failed to replicate this finding with a larger sample size and adapted methodology in which letters were sent to recipients following completion of the data collection phase (Toepfer et al., 2012). A number of further studies reported no significant effects of a gratitude intervention on measures of trait gratitude (Harbaugh & Vasey, 2014; Martínez-Martí et al., 2010; Sergeant & Mongrain, 2011).

Statistical mediation studies are required in order to explore whether interventions operate through the mechanism of increased gratitude, however this was not possible for the majority of studies reviewed which did not assess changes in gratitude post-intervention (Wood et al., 2010). In a notable exception using a gratitude diary intervention, Martínez-Martí et al. (2010) demonstrated that changes in gratitude mediated changes in positive affect, and additionally that positive affect mediated the effect of the intervention on gratitude. Consequently, the authors speculated that the intervention effects may operate by influencing other non-specific factors which may be common to both gratitude and positive affect. In this way, Martínez-Martí et al. (2010) note that their results support the notion of a bidirectional relationship between positive affect and gratitude (e.g. Watkins, 2004), and that asking individuals to reflect on positive aspects in their lives could raise either positive affect in general, gratitude specifically, or both simultaneously. Based on the finding of intervention effects in a three good things exercise relative to an expectancy control group (early memories) but not an additional positive placebo control (positive early memories), other authors have supported the hypothesis that interventions may operate through a common factor, specifically involving the activation of positive self-relevant information (Mongrain & Anselmo-Matthews, 2012).

Seven studies examined the content of participant responses in either gratitude, hassle or control conditions. Findings from two studies indicated that participants in the control condition recorded a higher number of positive events than neutral or negative events (Harbaugh & Vasey, 2014; Martínez-Martí et al., 2010) and common themes in gratitude conditions involving an adolescent or child sample included family, friends, basic needs and education (Froh et al., 2008; Owens & Patterson, 2013). Only three studies examined comparisons between the content of gratitude and control conditions. Boehm et al. (2011) found that the accounts of participants in the gratitude condition were less self-focused and more likely to focus on others than those in an optimism or event diary control condition. In a further study, Rash et al. (2011) reported that participants in a gratitude diary condition described more people-related experiences, whereas those in a memorable events condition described more school, events and negative-emotions related experiences, however there were no significant mediation effects of content on wellbeing. A further study found that content of participant responses in both gratitude and hassle diaries focused on similar themes, but with opposite valence (Cheng et al., 2015).

Which Variables Moderate the Efficacy of Positive Psychology Interventions?

A possible explanation for the mixed findings regarding the efficacy of interventions may relate to the influence of moderating factors. Research has begun to explore these variables with the aim of developing an understanding of whom such interventions may be most effective for, as well as the conditions under which they may be optimally practised. A number of studies in the present review gave consideration to factors which may influence intervention efficacy, including participant and methodological factors, which will be reviewed in turn in the following sections.

Participant Characteristics

In their study with adolescents, Froh et al. (2009) found that baseline levels of positive affect moderated the effect of intervention condition on gratitude and positive affect. Individuals low in positive affect who engaged in a gratitude letter intervention reported significantly higher gratitude at post-intervention, as well as increased positive affect at post-intervention and two month follow-up, compared with individuals who were high in positive affect who participated in the same intervention condition. Negative affect was not found to significantly moderate intervention effects.

Conversely, Rash et al. (2011) found that levels of positive and negative affect did not moderate the effects of a gratitude diary on wellbeing. However, trait gratitude

POSITIVE PSYCHOLOGY INTERVENTIONS

significantly moderated the effect on life satisfaction, such that individuals lower in trait gratitude benefited more from the intervention in relation to this outcome. This finding was supported in a subsequent study, which found that individuals low in trait gratitude and in a gratitude diary condition experienced less decline in positive emotions than controls (Harbaugh & Vasey, 2014). Furthermore, the gratitude condition decreased depressive symptoms among participants who were high in symptoms at baseline. Taken together, the above two studies suggest that gratitude interventions may be more effective for individuals low in trait gratitude. Harbaugh and Vasey (2014) interpreted findings in line with the resistance hypothesis (McCullough et al., 2004), which posits that there may be a ceiling effect for individuals high in trait gratitude who already experience associated benefits, whereas individuals who are low in trait gratitude can obtain such benefits through intentional activities.

Further research has investigated the role of personality traits in moderating intervention efficacy. For example, in response to a gratitude diary intervention, highly self-critical individuals were found to demonstrate greater increases in happiness and self-esteem, as well as reductions in physical symptoms, compared with controls (Sergeant & Mongrain, 2011). Research has also demonstrated an impact of cultural differences on the efficacy of gratitude letter interventions. Boehm et al. (2011) found that culture moderated the effect of condition on life satisfaction. Participants who identified as Anglo American in the intervention condition demonstrated larger increases in life satisfaction relative to those who identified as Asian American, while both cultural groups in a neutral event diary control condition showed little improvement. The authors speculated that results may relate to differences between individualist and collectivist cultures regarding the value of self-improvement and personal agency.

In a further study, Layous et al. (2013) found that South Korean participants benefited significantly less from practising a gratitude letter intervention than participants from the USA, but showed similar increases in wellbeing in response to a comparison positive psychology intervention involving performing acts of kindness. The authors postulated that interventions designed to enhance gratitude may be more likely to induce mixed emotions, such as indebtedness, in individuals from Eastern cultures which are influenced by dialectical philosophical traditions, thereby reducing intervention efficacy. However such variables were not included as outcome measures in order to examine this hypothesis. A further limitation of this study relates to the reliance on a single composite

measure of subjective wellbeing, meaning that it is not possible to examine the relative influence of the intervention on component outcomes.

A number of potentially moderating participant variables have been identified within the current review, however findings relate to a broad range of factors which appear to lack clarity in relation to the theoretical rationale informing their investigation. Furthermore, the participant sample within the studies identified for inclusion is heavily weighted towards the use of student populations as well as an over-representation of female participants. It would therefore be important for future research to consider replication within community samples, to enable findings to be generalised to the wider population.

Methodological Factors

Findings from the present review highlight a wide range of established intervention methods and variation in a number of aspects of implementation. These differences make it difficult to draw firm conclusions regarding specific methodological considerations which may impact on intervention efficacy, and further research is required to systematically investigate the conditions under which they may be optimally practised.

Considering the potential role of intervention frequency in influencing wellbeing outcomes, Emmons and McCullough (2003) compared outcomes from both a weekly and a daily gratitude diary intervention. Larger effect sizes were reported for the observed increase in gratitude in the daily diary condition, indicating that practising the intervention more frequently may be more effective in influencing this outcome. However, as noted previously, increases were only observed in relation to a hassles diary condition, which is largely regarded to be an ineffective control condition. Conversely, improvements in physical symptoms and exercise behaviours were only observed within the weekly intervention, indicating that intervention frequency may influence specific outcomes differentially. The authors speculated that the relatively short duration of the daily intervention may be insufficient to significantly alter behavioural habits such as exercise. As the second study (daily intervention) expanded the range of outcomes investigated, it was not possible for comparisons to be made across all outcome measures.

A related limitation within the existing literature is limited use of follow-up measures, making it difficult to assess the degree to which any positive effects may be maintained post-intervention. Within the present review, seventeen studies obtained follow-up measures, ranging from one week to six months post intervention. Of these, some studies reported effects which were only significant at follow-up, suggesting the

POSITIVE PSYCHOLOGY INTERVENTIONS

potential for delayed intervention effects which continue beyond completion of the intervention (Gander et al., 2013; Peters et al., 2013; Seligman et al., 2005). However, it is difficult to conclude whether some interventions are more effective than others in demonstrating longer term effects, as a number of studies did not assess whether participants voluntarily chose to continue practising the intervention during this period. In one exception, Gander et al. (2013) found that continued practice yielded greater increases in happiness at three and six months follow-up, however no significant effect of continuation was found on depressive symptoms. Consistent with this, Seligman et al. (2005) found longer term benefits on happiness and depressive symptoms for participants who voluntarily continued the exercise beyond completion of the intervention. In a further study, Sheldon and Lyubomirsky (2006) found that levels of positive and negative affect measured at four week follow-up were not influenced by participants' continuation of a gratitude diary intervention, however levels of self-concordant motivation (motivation to engage in particular exercise which is in keeping with one's values and interests) were found to interact significantly with intervention continuation to influence outcomes for negative affect.

These findings promote consideration towards an important variable within the sustainable happiness model (Lyubomirsky et al., 2005). The notion of 'fit' refers to the degree to which an intervention designed to increase positive emotions may be consistent with an individual's personality, motives, strengths or needs (Sheldon & Lyubomirsky, 2006). In this way, a number of studies found levels of self-reported motivation and/ or effort to be associated with improvements in wellbeing (Layous et al., 2013; Odou & Vella-Brodrick, 2013; Seear & Vella-Brodrick, 2013). Furthermore, recent meta-reviews have highlighted the impact of participant motivation in influencing wellbeing outcomes (Bolier et al., 2013; Sin & Lyubomirsky, 2009), raising the implication that knowing the purpose of an intervention might enhance its benefits by increasing motivation and commitment (Harbaugh & Vasey, 2014), although simultaneously compromising methodological rigour.

However, studies within the current review included a wide range of recruitment strategies and several did not provide information about how the study was advertised. Some previous studies included rationales either explicitly within the exercise instructions (e.g. Sheldon & Lyubomirsky, 2006), or by advertising the study as being designed to enhance wellbeing (e.g. Boehm et al., 2011; Chan, 2013), whereas others provided alternative rationales in an attempt to conceal the true purpose of the study (Gander et al.,

2013; Peters et al., 2013). An additional consideration within the present review is that a number of studies involved the use of student samples in which participation was in fulfilment of course requirement or in exchange for course credit, which may have influenced motivation to participate or levels of engagement with the intervention.

A limited number of studies have investigated the role of meta-factors in influencing intervention effects by manipulating these experimentally. To investigate whether a rationale may impact intervention effects, Harbaugh and Vasey (2014) manipulated the inclusion of a rationale as a moderator of the efficacy of a two week gratitude list intervention compared with a neutral events list control. Findings demonstrated that participants in the gratitude and rationale condition showed significantly greater increases in positive mood compared with a control group or those in the gratitude condition who were not provided with a rationale. However, no significant differences were found between groups over time, suggesting that inclusion of a rationale may only be effective in enhancing intervention efficacy in the short term.

Further evidence suggests that interventions may be more effective when participants have chosen to take part with the aim of improving their wellbeing. Lyubomirsky et al. (2011) found that individuals who self-selected to take part in a happiness intervention demonstrated greater improvements in wellbeing at post-intervention relative to non-self-selected participants who had responded to an advert to take part in a study involving cognitive exercises. The effect of self-selection was not observed in the control condition, despite the fact that all participants were informed that the aim of the study was to improve wellbeing following the self-selection phase, enabling the conclusion that results were not simply a consequence of expectancy effects. In line with previous studies, further findings demonstrated that effort significantly predicted wellbeing for the experimental condition only compared with controls. In contrast to the majority of studies which used participant report measures, effort was rated objectively by naïve coders. Accordingly, the authors concluded that optimal conditions for intervention efficacy include a requirement for both a ‘will’ (i.e. motivation and sustained effort to improve wellbeing) and a ‘way’ (i.e. an efficacious (non-placebo) positive activity).

As previously identified, a further methodological factor which may influence efficacy relates to differences in intervention format. Studies have included a range of interventions, including those which can be regarded as cognitive (e.g. gratitude diary or letter) or behavioural in nature (e.g. gratitude visit). However, the literature has not directly investigated potential differences in the efficacy of these types of intervention, and

POSITIVE PSYCHOLOGY INTERVENTIONS

differences in implementation and participant characteristics limit comparisons between studies. In one study, Lambert et al. (2013) investigated the impact of including a behavioural component within a gratitude diary intervention. Sharing the gratitude diary with a partner was found to be more effective in enhancing positive affect relative to an unshared gratitude diary or a neutral event diary shared with a partner. However, further research is required to examine the mechanisms through which this additional behavioural component may influence intervention efficacy.

Further research has indicated that intervention type may influence levels of participant engagement. In two studies (Geraghty et al., 2010a; 2010b) demonstrated that intervention condition was a significant predictor of attrition. Participants in a gratitude diary condition were more than twice as likely to complete the intervention compared with participants who were assigned to an alternative intervention based on CBT techniques (e.g. worry diary or thought monitoring and restructuring). As a possible explanation for this finding, the authors suggested that the positive emphasis within the gratitude diary may be more reinforcing, thus increasing retention. This is consistent with subsequent findings that preferences for different types of positive psychology interventions lead to higher rates of completion (Kaczmarek et al., 2015; Schueller, 2010). Accordingly, Lyubomirsky and Layous (2013) propose a positive-activity model, in which features of positive interventions (e.g. dosage and variety), features of persons (e.g. motivation and effort), and ‘person-activity fit’ (i.e. the overlap between activity and person features) moderate the effect of positive activities on wellbeing. Although the present review has examined a number of factors which may moderate the impact of positive activities on wellbeing, further research is required to systematically explore these factors and the ways in which they may interact to influence the efficacy of positive interventions.

Conclusion

Recent research has seen an increased interest in the evaluation of positive psychology interventions and their potential to enhance wellbeing. This paper reviewed the available literature in order to examine the extent to which interventions which specifically focus on noticing and appreciating the positives in past experience can be effective in enhancing wellbeing in non-clinical populations. The review highlighted a range of outcomes which have been identified within the literature, including aspects of subjective wellbeing, as well as additional indicators, including measures of psychological and social wellbeing, and physical health.

A number of limitations have been identified within the current evidence base, which make it difficult to draw firm conclusions regarding the efficacy of such interventions for the identified population. These include variations in intervention methods, including the use of both cognitive and behavioural approaches, as well as consideration of aspects relating to implementation, such as frequency and duration. Another key limitation relates to the lack of adequate control conditions, which may exaggerate between group differences. Furthermore, a number of studies did not include the use of follow-up measures, limiting the assessment of maintenance effects.

The present review highlighted limited investigation into the precise mechanisms by which interventions may operate. Several studies did not include measures of relevant variables such as gratitude at post-intervention, and lacked the statistical power to enable mediational analyses, making it difficult to establish whether interventions may operate through specific increases in gratitude, or by influencing other non-specific factors which may be common to both gratitude and positive affect.

Research has begun to identify a number of methodological factors which may moderate intervention efficacy, including participant motivation, continued effort and preference for specific interventions. Research has demonstrated that the effectiveness of interventions may also be influenced by individual differences, including personality traits, baseline levels of affect or trait gratitude, and cultural influences. Due to the over-representation of female participants and student populations within the present review, replication studies are required to explore wider applications across a range of settings, and to enable findings to be generalised to the wider population.

Accordingly, the present review has highlighted a number of directions for future research, in order to promote further understanding of who may benefit the most from positive interventions, as well as the conditions in which they may be optimally practised. These include improvements to existing methodologies, in particular through ensuring the use of adequate control conditions, as well as follow-up measures of intervention efficacy to enable examination of the extent to which improvements in wellbeing may be sustained. Examination of the qualitative content of participant responses may also provide a useful avenue for further exploration of group differences. Recent directions highlight a need for systematic exploration of how features of both ‘person’ and ‘activity’ may interact to influence wellbeing outcomes. Future research should also consider the application of theoretical models to examine the psychological mechanisms responsible for change.

Chapter 2. Effects of a positive psychology intervention on the subjective wellbeing and efficacy beliefs of teaching staff.

Teacher wellbeing is an area of social and economic interest (Lauchlan, Gibbs & Dunsmuir, 2012). Studies indicate that teaching is considered a ‘high stress’ profession (e.g. Kyriacou, 2001), and evidence from the UK and USA indicates high levels of attrition, with approximately half of those who complete qualification not taking a post or leaving the profession within five years (Hayes, 2004; Ingersoll & Smith, 2003). Further evidence suggests that teachers cannot transmit emotional and social competence and wellbeing effectively to their pupils if their own emotional and social needs are not met (Weare & Grey, 2003). Consequently, researchers have argued that the wellbeing and resilience of teachers is a cause for concern calling for positive interventions in schools which are both supportive and professionally appropriate (Gibbs & Miller, 2014; Robertson & Dunsmuir, 2013; Terjesen et al., 2004).

In recent years, the positive psychology movement has offered a new conceptual approach to intervention through an emphasis on the study and promotion of positive experiences, positive character traits, and the institutions that help to cultivate them (Peterson, Park & Seligman, 2005). A key principle within positive psychology is the potential for individuals to enhance their personal wellbeing through engaging in simple, intentional practices (Lyubomirsky et al., 2005). Consequently, interest has developed in relation to the application of such interventions within a range of applied contexts, and the role of positive institutions, such as schools, in promoting individual wellbeing (Park & Peterson, 2003; Pluskota, 2014; Seligman, Ernst, Gilham, Reivich & Linkins, 2009).

Positive psychology interventions may be defined as “intentional activities aimed at cultivating positive feelings, positive behaviours, or positive cognitions” (Sin & Lyubomirsky, 2009, p.467). A variety of interventions have been developed based on the positive psychology principle of building positive emotion and subjective experience (Seligman, Steen, Park & Peterson, 2005; Seligman, Rashid & Parks, 2006). Much of the literature in this area has focused on the construct of gratitude, however there is a lack of agreement in the literature about the nature of this construct. Gratitude has been conceptualised as both a disposition (e.g. Wood et al., 2010) and as an emotion, involving a subjective feeling of appreciation for outcomes received from another (Emmons, 2004). However, it has been suggested that gratitude involves more than an interpersonal appreciation of other people’s aid (Lambert, Graham & Fincham, 2009). In a theoretical

POSITIVE PSYCHOLOGY INTERVENTIONS

review, gratitude has been defined as part of a wider orientation towards a “habitual focusing on and appreciating the positive aspects of life” (Wood et al., 2010, p.890). Despite differences in how gratitude is conceptualised and defined, cross-sectional research has demonstrated the construct to be consistently associated with aspects of wellbeing (e.g. McCullough et al., 2004; Park et al., 2004). Consequently, a growing evidence base has begun to investigate the impact of interventions designed to increase the experience of gratitude or positive emotion as a way to enhance wellbeing, through comparisons with a control condition or alternative intervention.

In line with the above definition (Wood et al., 2010), a systematic literature review identified 33 empirical studies which investigated the effectiveness of positive psychology interventions through a primary focus on noticing and appreciating the positives in past experience (Chapter 1). These have included interventions based on ‘counting blessings’ (Emmons & McCullough, 2003) or focusing on positive events (Seligman et al., 2005). Findings indicated the potential for such interventions to improve aspects of subjective wellbeing, including increased positive affect (e.g. Emmons & McCullough, 2003; Watkins et al., 2003), life satisfaction (Chan, 2013; Rash et al., 2011), and decreased negative affect (Odou & Vella-Brodrick, 2013). Further outcomes included reductions in depressive symptoms (Gander et al., 2013; Proyer et al., 2014), stress (Cheng et al., 2015) and worry (Geraghty et al., 2010a). Only one study investigated the impact of a positive psychology intervention on efficacy beliefs (Critchley & Gibbs, 2012). The present study aims to further explore impact in relation to this outcome, due to its theoretical links with positive affect and relevance to the identified population, which will be explored in the following section.

A number of psychological mechanisms have been proposed to account for the associations between gratitude, positive emotions and subjective wellbeing. The ability to appreciate one’s life circumstances has been considered as an adaptive coping strategy by which people may positively reinterpret problematic life experiences (Fredrickson, Tugade, Waugh, & Larkin, 2003). Additionally, it has been proposed that interventions may directly counteract the effects of ‘hedonic adaptation’ through increasing the accessibility and recollection of pleasant life events (Watkins, 2004). These hypotheses are consistent with the ‘broaden and build’ theory (Fredrickson, 2001; Fredrickson & Joiner, 2002), which holds that the experience of positive emotions broadens individuals’ thought and action capabilities, which over time enhances personal skills and resources.

The preceding literature review identified a number of limitations within the existing evidence base which make it difficult to draw firm conclusions regarding the efficacy of such interventions for improving wellbeing. A key limitation relates to the lack of adequate control conditions, as a number of studies found improvements only in relation to a ‘hassles’ diary (Emmons & McCullough, 2003; Froh et al., 2008; Martínez-Martí et al., 2010). It has been argued that hassles conditions may increase negative affect, thereby inflating between-group differences (Froh et al., 2009). Additionally, variation in intervention methods, including the use of both cognitive and behavioural approaches, and differences in implementation factors, such as frequency and duration, limits the potential for comparison between studies. A further limitation relates to the over-representation of student populations within the published literature, highlighting a need for replication studies to investigate applications to alternative contexts and to enable findings to be generalised to wider populations. Accordingly, the present study aims to explore a novel application through investigating the effects of a positive psychology intervention on the subjective wellbeing and efficacy beliefs of teaching staff.

Positive Interventions in the Workplace

Employee psychological wellbeing has substantial consequences for individual and organisational functioning (Harter et al., 2003). While research has investigated antecedents of a number of indices of workplace wellbeing, this has primarily focused on identifying contextual (e.g. environmental) and individual factors (e.g. personality traits) that enhance or reduce wellbeing (Kaplan et al., 2014).

A key contribution from positive psychology is the principle that volitional actions can influence wellbeing. Indeed, the sustainable happiness model (Lyubomirsky et al., 2005), suggests that intentional cognitive or behavioural activities may be at least as influential as contextual factors in determining individual levels of wellbeing. This paper is therefore concerned with the potential for individual intentional practices to influence wellbeing in the workplace. Whilst the role of environmental and individual difference factors are acknowledged, these are beyond the scope of the current study. Positive interventions which focus on the role of individual intentional practices may also be of particular relevance to promoting wellbeing in the workplace due to their relative cost-effectiveness and ease of implementation (Kaplan et al., 2014), as well as their potential to reduce possible stigma associated with an emphasis on personal problems or deficits (Cheng et al., 2015).

POSITIVE PSYCHOLOGY INTERVENTIONS

Despite these potential applications, the literature review identified a limited number of studies which investigated the impact of positive interventions within occupational contexts. In a study involving university employees, Kaplan et al. (2014) investigated the impact of a work-related gratitude diary specifically in relation to job-related affective wellbeing. Empirical evidence has indicated that effect sizes associated with positive interventions are larger for the components of subjective wellbeing, including positive and negative affect, than for other psychological outcomes such as depressive symptoms (Bolier et al., 2013), therefore the authors predicted similar benefits in relation to work-related affective outcomes.

Findings demonstrated that participants in the work-related gratitude diary condition reported significant increases in job-related affective wellbeing and gratitude in relation to work, relative to those who engaged in an intervention designed to promote social connectedness. An additional within-subjects decrease in job-related negative affective wellbeing was observed which approached significance in the work-related gratitude diary condition. Furthermore, examination of more distal outcome variables demonstrated that both interventions were associated with a within-subjects decrease in employee absence due to illness. However, the study is limited by the lack of an additional neutral control condition in order to enable further comparisons.

In a further study involving Chinese healthcare practitioners, the application of a work-related gratitude diary contributed to significant reductions in reported stress at post-intervention, and decreases in both stress and depressive symptoms at three month follow-up in comparison to both a hassles diary condition and 'no intervention' control group (Cheng, Tsui & Lam, 2015). However, the study did not assess positive aspects of wellbeing, such as positive affect or job satisfaction, therefore it is not possible to assess whether the intervention impacted wellbeing in both directions. Taken together, these studies provide initial evidence to indicate that directing practitioners' attention to positive events in the workplace may be an effective approach to increasing job-related affective wellbeing and reducing stress and depressive symptoms. However, it is unclear whether findings are generalisable to education professionals due to potential differences in the nature of occupational stressors experienced across professions.

Positive Interventions with Teaching Staff

Only two studies within the literature review specifically investigated the impact of a positive psychology intervention (gratitude diary or three good things) on wellbeing

outcomes with teaching professionals. In a sample of Chinese teaching staff, Chan (2013) investigated the impact of a weekly gratitude journal ('counting blessings') in which participants were asked to record three good things or events and to reflect on the meaning these had for them. This was compared with a coping journal ('counting misfortunes') condition, in which participants were asked to record three negative events, and to reflect on their meanings. Findings demonstrated significant decreases in negative affect, as well as increases in life satisfaction in the gratitude diary condition, however these were only in relation to the negative control condition. As highlighted previously, the lack of an adequate control condition is a key limitation within the literature. The current study will address this methodological factor through inclusion of a neutral control condition, as recommended by Wood et al. (2010).

To date, only one study has investigated the impact of a positive psychology intervention on teacher efficacy beliefs (Critchley & Gibbs, 2012). In this study, staff in one school participated in an intervention designed to cause reflection on 'good things' (Seligman et al., 2005), while a second school acted as a no intervention control group. Findings indicated a significant increase in efficacy for staff in the experimental group following the intervention, relative to controls. However, findings were based on a limited sample and efficacy beliefs were assessed using a questionnaire developed on the basis of key themes identified from staff focus groups, therefore findings may not be generalisable to other contexts. No additional wellbeing measures were assessed to explore intervention effects on other outcomes.

Intervention Outcomes

Subjective Wellbeing

The present study draws on Diener's (2000) tripartite model to explore outcomes in relation to cognitive and affective components of subjective wellbeing (positive and negative affect; life satisfaction). As identified in the literature review, a limitation in the existing literature is that a number of studies relied on the use of composite or global measures of subjective wellbeing (Layous et al., 2013; Lyubomirsky et al., 2011; Sergeant & Mongrain, 2011), limiting the potential to draw conclusions about the relative influence of interventions on specific components within this construct.

The current study aims to address this limitation through assessing the impact of a positive psychology intervention on positive and negative affective components. To further explore applicability to a work-related context, the study will consider the cognitive

POSITIVE PSYCHOLOGY INTERVENTIONS

component of subjective wellbeing in relation to a specific domain of life satisfaction, through examining the impact on participants' satisfaction with teaching, which reflects the extent to which teachers perceive their work to be satisfying and meeting their needs (Ho & Au, 2006). Research has indicated that there is a positive relationship between life satisfaction and job satisfaction (Judge, Locke, Durham & Kluger, 1998). Furthermore, previous research within an educational context has demonstrated a specific positive impact of a gratitude diary intervention on students' satisfaction with school experience in comparison to both hassles and control conditions (Froh et al., 2008), indicating that positive interventions may influence satisfaction in relation to specific life domains.

Although previous studies have investigated a range of outcomes, potential benefits beyond subjective wellbeing have been less widely investigated. The present study therefore aims to extend findings in relation to two further outcomes which are considered to be of particular relevance to the identified population.

Efficacy Beliefs

According to Bandura's (1997) social cognitive theory, self-efficacy beliefs refer to individuals' beliefs about their capabilities to successfully carry out a particular course of action, which can determine how environmental opportunities and obstacles are perceived. Teacher efficacy has been defined as a teacher's 'judgment of his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated' (Tschannen-Moran & Woolfolk Hoy, 2001, p.783). Within the identified population, efficacy beliefs were considered an important outcome of interest due to associations with aspects of wellbeing, including job satisfaction (Klassen & Chiu, 2010), as well as negative associations with outcomes such as perceived stress (Collie, Shapka & Perry, 2012).

The inclusion of efficacy beliefs as an outcome variable is of further interest due to proposed theoretical links with positive affect. In line with the 'broaden and build' theory, (Fredrickson, 2001; Fredrickson & Joiner, 2002), interventions that increase positive affect have been shown to lead to broadened cognitive and behavioural responses (e.g. Fredrickson & Branigan, 2005; Fredrickson, Cohn, Coffey, Pek & Finkel, 2008). Furthermore, research has demonstrated that experimentally induced changes in positive affect are associated with increases in environmental mastery (Fredrickson et al., 2008).

The concept of environmental mastery, which involves having a sense of competency in interacting with the environment, may be seen as a psychological resource which

overlaps with the concept of self-efficacy. Bandura (1997) suggested that self-efficacy beliefs can be influenced by affective states as well as by personal mastery and vicarious experience. The finding that experimentally induced changes in positive affect were associated with increases in environmental mastery (Fredrickson et al., 2008) suggests that positive affect may be one of the physiological and emotional precursors of increased self-efficacy.

Empirical support for the role of positive affect in enhancing efficacy beliefs has been demonstrated in a recent study (Schutte, 2013). Participants who were randomly assigned to a three week intervention designed to increase positive affect demonstrated significantly greater change in positive affect and self-efficacy than those in a control condition, and changes in affect were associated with changes in self-efficacy (Figure 2). In this way, evidence suggests that positive psychology interventions designed to increase positive affect may additionally influence efficacy beliefs, and provides initial support for the role of self-efficacy within the broaden and build process.

Burnout

‘Burnout’ may be conceptualised as a breakdown of the occupational domain of a person’s self-efficacy (Friedman, 2003). Research indicates that teachers are more vulnerable to work-related stress and burnout than many other occupational groups (Johnson et al., 2005). Furthermore, evidence suggests that perceived self-efficacy is an important stress resource factor in mitigating teacher burnout (Brown, 2012; Schwarzer & Hallum, 2008).

Although positive psychology interventions are primarily concerned with promoting positive qualities, the existing literature has investigated associated effects on reducing negative symptoms, including depressive symptoms (Seligman et al., 2005; Gander et al., 2013), worry (Geraghty et al., 2010a), and stress (Cheng et al., 2015). An earlier study demonstrated the effects of a gratitude intervention in promoting life satisfaction and reducing symptoms of teacher burnout (Chan, 2011), however evaluation was limited by the lack of a control group. Accordingly, the dependent variable of burnout was included as a secondary outcome in the present study, due to its association with self-efficacy and relevance to the occupational domain.

The Current Study

The aim of the current study is therefore to extend the application of a brief positive psychology intervention to an educational context, through assessing its impact on teacher wellbeing, efficacy beliefs, and symptoms of burnout. In this way, the study will build on existing research by examining impact in relation to a broader range of psychological outcomes. Specifically, the study will investigate whether a daily intervention designed to promote reflection on positive events ('Three Good Things', Seligman et al., 2005) will contribute to improvements in the identified outcomes in comparison to control participants who write an event diary.

Research has indicated that journaling techniques are preferable to other intervention approaches and highly acceptable to participants (Kaczmarek et al., 2015). The specific intervention was selected due its previous application within a teaching population (Critchley & Gibbs, 2012). Although referred to as a gratitude diary, a further intervention with teaching staff employed a similar intervention procedure by asking participants to record three positive events and to reflect on the meaning these had for them (Chan, 2013). An additional reflective component consisting of causal explanations for events was included in the current intervention (as described by Seligman et al., 2005), as it was speculated that this may influence efficacy outcomes through attributional processes relating to the causal inferences that individuals ascribe to events (Weiner, 2000). According to this theoretical framework, attributions can be classified along three dimensions: locus of causality, stability and controllability. Conceptualisations of the relationship between efficacy and causal attributions have focused on the locus of causality dimension (Stajkovic & Sommer, 2000). In this way, positive experiences attributed to internal (personal) factors are expected to contribute to increased efficacy, compared with those attributed to external (situational) factors.

The study will address a number of limitations identified within the existing literature. Replication within a teaching population will contribute to an understanding of the generalisability of previous findings, which have largely involved student samples. Furthermore, the study will investigate outcomes in relation to both cognitive and affective dimensions of subjective wellbeing, enabling exploration of the relative impact on differing components, as well as investigation of subjective satisfaction specific to the work domain. Additionally, the study will address methodological concerns through the inclusion of neutral control condition, as many studies reported intervention effects only in comparison to a hassles condition.

In line with previous findings, it was anticipated that participants in the intervention group would demonstrate significant improvements in subjective wellbeing in comparison to a neutral control group, as evidenced by decreased negative affect as well as increased positive affect and teaching satisfaction. Furthermore, it was hypothesised that the intervention would contribute to increased efficacy in relation to teaching and a reduction in self-reported burnout relative to neutral controls, and that changes in positive affect would be associated with changes in efficacy beliefs (Schutte, 2013).

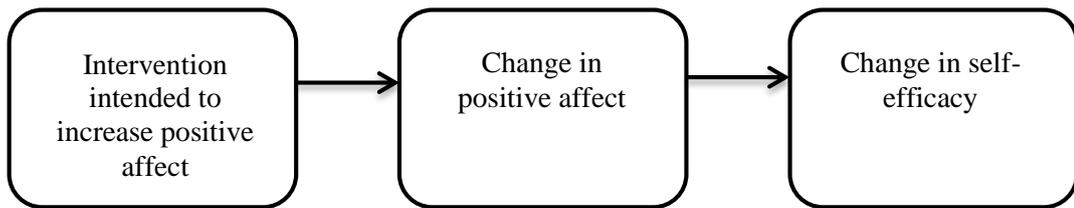


Figure 2. Conceptual model of paths between intervention intended to increase positive affect, changes in affect indices and changes in self-efficacy (adapted from Schutte, 2013)

Method

Participants

Participants were recruited from 21 schools (Primary =10, Secondary =11) in five local authorities in England. Forty-nine participants (mean age =39.57, SD =11.88) provided data at baseline. The initial sample consisted of 16 males and 33 females aged between 22 and 59 years. Twenty-nine teachers were from the primary sector and twenty were from the secondary sector, with an average of 9.38 years (SD =6.55) teaching experience. Data for 22 participants was excluded due to lack of post-measure completion or insufficient intervention adherence. At post-intervention, the final sample consisted of 27 participants aged 22-59 years (mean age =40.98, SD =11.88). Of these, 18 participants were female and nine were male, including 17 primary teachers and ten secondary teaching staff. Participants had an average of 10.39 years (SD =7.13) teaching experience. Within the final sample, the experimental group consisted of 15 participants, whilst the remaining 12 participants constituted the control group (see Figure 3).

Design

A between-subjects repeated measures design was employed to investigate the effect of intervention condition ('three good things' or 'event diary control') on levels of positive and negative affect, teaching satisfaction, efficacy beliefs and symptoms of burnout. To minimise potential confounds arising from participants becoming aware of the existence of two conditions, participants were allocated to condition at the school level. Schools were matched according to phase (primary or secondary), number of registered participants and gender distribution, in order to ensure comparable participant and school numbers as well as equivalent participant characteristics within each condition. Consequently, the experimental condition at pre-test consisted of 25 participants (16 female, nine male) from ten schools (six primary, four secondary), and the control condition consisted of 24 participants (16 female, eight male) from 11 schools (four primary, seven secondary).

An a priori power analysis was conducted using G*Power Version 3 (Faul, Erdfelder, Lang, & Buchner, 2007). This indicated that a sample of at least 34 participants in total was required to detect a medium effect size ($f=0.25$) with 80% power and a 5% significance level when testing two conditions at two time points with repeated measures (within and between) ANOVAs.

Measures

Subjective Wellbeing

Assessment of subjective wellbeing followed Diener's (1984) tripartite model, including a cognitive aspect of self-reported teaching satisfaction and an affective aspect encompassing the experience of positive and negative emotions.

Teaching Satisfaction Scale (TSS) (Appendix D)

The five-item TSS (Ho & Au, 2006) is derived from the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen & Griffin, 1985), which assesses general life satisfaction as the cognitive aspect of subjective wellbeing. The TSS reflects teachers' judgments on the extent to which their work is satisfying and meeting their needs, and allows teachers to reach a subjective judgment on job satisfaction from a variety of psychological and situational appraisals. Items are adapted from the SWLS to enable assessment of satisfaction specifically in relation to teaching. The original measure used a five-point response scale. This was adapted to a seven-point rating scale in line with the SWLS.

The TSS has been validated with a sample of primary and secondary school teachers and found to show favourable internal reliabilities, construct validities and criterion-related validities (Ho & Au, 2006). In the current study, this scale showed high levels of reliability at pre-test ($\alpha = .87$) and post-test ($\alpha = .90$).

Positive and Negative Affect Schedule (PANAS) (Appendix E)

The PANAS (Watson, Clark & Tellegen, 1988) consists of two scales: positive and negative affect. Each scale consists of 10 emotion adjectives which are rated on a five-point scale to indicate participants' perceptions of the amount of time spent experiencing each emotion. A total score for positive and negative affect can be obtained by summing the ratings on the relevant items. In the present study, participants were asked to rate their responses on the basis of how they had felt during the past week. The two scales are reported to be highly internally consistent (Cronbach's α above .85), and have shown evidence of validity through associations with other measures of affect and expected group differences (Watson et al., 1988). In the current study, the items for the positive and negative affect scales respectively showed high reliability at pre-test ($\alpha = .91$; $\alpha = .85$) and post-test ($\alpha = .93$; $\alpha = .81$).

Efficacy Beliefs

Teachers' Sense of Efficacy Scale (TSES) – Short-Form (Appendix F)

The TSES short-form (Tschannen-Moran & Woolfolk Hoy, 2001) consists of 12 items relating to three factors of teaching efficacy: student engagement, classroom management and instructional strategies. Participants are asked to indicate their beliefs along a nine-point response scale. These items show fidelity with self-efficacy theory because they measure teachers' beliefs in their capabilities to carry out particular tasks in a particular context. Research has demonstrated adequate reliability for the TSES, for example Wolters and Daugherty (2007) reported Cronbach's alpha coefficients above .80, and Klassen et al. (2009) found reliabilities ranging from .71 to .94 for the individual subscales. In the current study, the total scale formed a reliable index at pre-test ($\alpha = .91$) and post-test ($\alpha = .89$). Acceptable reliability was also demonstrated at pre and post-test respectively for items on each of the subscales of student engagement ($\alpha = .87$; $\alpha = .73$), instructional strategies ($\alpha = .75$; $\alpha = .81$) and classroom management ($\alpha = .86$; $\alpha = .85$).

Burnout

Maslach Burnout Inventory (MBI-General Survey) (Appendix G)

The MBI General Survey (Maslach & Jackson, 1986) was selected as a measure of respondents' relationship with their work on a continuum from engagement to burnout. The measure consists of 16 items relating to the three dimensions of exhaustion, cynicism and professional efficacy. The exhaustion items include reference to fatigue without direct reference to emotions, for example 'Working all day is really a strain for me'. The cynicism items reflect indifference or a distant attitude to work, for example, 'I have become less enthusiastic about my work'. The professional efficacy factor encompasses both social and non-social aspects of occupational accomplishments, and includes an explicit focus on an individual's expectations of continued effectiveness at work. Participants are asked to evaluate each item according to the frequency of their feelings. The MBI is one of the most widely used measures for assessing the construct of burnout. Recent meta-analyses report average reliability coefficients of .88, .71 and .78 respectively for each dimension (Aguayo et al., 2011). In the current study, acceptable levels of reliability were demonstrated at pre and post-test respectively for items on each of the dimensions of professional efficacy ($\alpha = .83$; $\alpha = .87$), exhaustion ($\alpha = .86$; $\alpha = .89$) and cynicism ($\alpha = .83$; $\alpha = .87$).

Procedure

Ethical approval was obtained from the University of Southampton School of Psychology Ethics Committee (Appendix H). Schools were initially sent a flyer describing the aims and requirements of the study. These were distributed to all mainstream primary and secondary schools in one local authority through the Educational Psychology Service distribution channels, and the study was also advertised within a number of local authority group consultation forums. Due to a limited response rate, recruitment was widened to include staff in a further four local authorities by individual email invitation. Individual staff members or senior management co-ordinators were asked to respond by email to register their interest in participating in the study. Following this, an information sheet was sent to all interested staff members at least one week in advance of the study (Appendix I). Following registration, participants were matched and allocated to intervention condition at the school level.

Questionnaire measures and daily diaries were accessed online via iSurvey, a secure online survey tool provided by the University of Southampton. Links to the online survey were distributed by email to registered participants at the beginning of the study. Upon accessing the link, participants viewed an online consent statement and provided informed consent for participation before proceeding to complete baseline measures (Appendix J).

Demographic information (age, gender, primary or secondary phase, number of years teaching experience) and baseline outcome measures were completed during the week prior to the start of the intervention. Completion of the initial measures generated a unique identifier code which was sent to each participant via email. Participants were asked to retain this code for use with each subsequent login in order to link individual responses over time. Participants were instructed to complete the post-intervention measures between three to seven days following completion of the intervention. To control for order effects, online questionnaire administration was randomised at both time points. All participants received a written debrief statement following conclusion of the study (Appendix K).

Intervention

Diaries were completed daily for a total of two working weeks, resulting in a maximum of ten diary entries per participant. Instructions were based on those of Seligman et al. (2005) for each condition as follows:

POSITIVE PSYCHOLOGY INTERVENTIONS

Experimental Condition

Participants in the ‘three good things’ diary condition were given the following instructions: *Please record three things that went well during your school day and note why they went well.*

Control condition

Participants in the event diary condition were given the following instructions: *Please record three things that have happened during your school day and note why they happened.*

Participants were encouraged to continue with subsequent diary entries if they missed a day for any reason. Participants received mid-week reminder emails each week to encourage maintenance, and at the conclusion of the intervention asking them to complete the post-measures online. Participants were given the opportunity to contact the researcher via email to obtain technical support. No financial incentives were offered for participation due to the potential for this to influence the dependent variable of subjective wellbeing.

Results

Preliminary Analyses

All statistical analyses were performed using SPSS software (Version 22). Distributions were assessed to examine the parametric assumptions of the data for both the intervention and control condition separately at both time points (Field, 2009). The Shapiro-Wilk statistic indicated that a number of variables were not normally distributed, including the measures of negative affect, efficacy in relation to classroom management, and the cynicism dimension of burnout. These variables were therefore analysed using non-parametric statistical techniques. A small number of outliers were identified however analyses indicated that their exclusion did not influence results, therefore these were retained within the main analysis.

To examine whether non-random sampling affected means, intervention and control group comparability at baseline was checked through conducting independent *t*-tests and Mann-Whitney *U* tests for the pre-intervention measures. Levene's Test for Equality of Variances indicated that the assumption of homogeneity of variance was met for all variables. Results indicated no significant differences between groups at baseline for positive affect ($t(25) = -.258, p = .799$), teaching satisfaction ($t(25) = .212, p = .834$), teacher sense of efficacy ($t(25) = .109, p = .914$), professional efficacy ($t(25) = -.262, p = .796$), or exhaustion ($t(25) = -1.235, p = .228$). No significant differences were found for the efficacy subscales relating to student engagement ($t(25) = -.244, p = .809$) or instructional strategies ($t(25) = -.425, p = .675$). Non-parametric analyses indicated no significant group differences for negative affect ($U = 67, p = .260$), classroom management ($U = 88.5, p = .941$), and cynicism ($U = 66.5, p = .250$), suggesting that the two groups were comparable on all outcome measures prior to intervention.

Significant differences were not observed between conditions in relation to age ($t(25) = -.059, p = .953$), or number of years teaching experience ($t(25) = -.773, p = .447$). Gender was not significantly associated with intervention condition ($\chi^2(1) = .675, p = .411$), suggesting that the proportion of males and females was comparable between the two groups. There was also no association between phase and intervention group ($\chi^2(1) = .199, p = .656$), suggesting equal proportions of primary and secondary teaching staff in each condition. As both conditions showed similar sample characteristics and baseline measures, demographic variables and pre-test scores were not included as covariates in the main analyses.

POSITIVE PSYCHOLOGY INTERVENTIONS

Descriptive statistics for outcome measures across intervention condition by time are shown in Table 2. Initial examination of pre and post-intervention mean scores indicated that changes in outcome measures were not in the expected direction.

Table 2. Means and standard deviations for outcome measures in intervention and control conditions at pre- and post-intervention

	Positive event diary		Neutral event diary	
	Pre	Post	Pre	Post
Outcome	Mean (SD)			
Positive Affect	32.60 (7.27)	31.73 (7.90)	33.42 (9.21)	36.17 (6.99)
Negative Affect	18.60 (7.37)	18.80 (6.30)	20.83 (6.98)	20.58 (6.63)
TSS	22.87 (5.10)	21.80 (6.89)	22.33 (7.92)	23.67 (7.49)
TSES (Total)	86.47 (10.60)	85.13 (8.65)	86.00 (11.61)	87.58 (8.59)
TSES (SE)	26.60 (5.25)	26.67 (3.62)	27.08 (4.93)	27.25 (3.84)
TSES (IS)	28.93 (3.63)	28.93 (2.94)	28.25 (4.73)	30.33 (3.11)
TSES (CM)	30.93 (3.45)	29.53 (3.72)	30.67 (3.08)	30.00 (2.89)
MBI (PE)	4.72 (0.76)	4.55 (0.94)	4.81 (0.99)	4.73 (0.86)
MBI (EX)	3.48 (1.41)	3.17 (1.35)	4.08 (1.04)	3.78 (1.06)
MBI (CY)	2.57 (1.28)	2.84 (1.46)	2.23 (1.53)	2.33 (1.48)

TSS = Teaching Satisfaction Scale; TSES = Teachers' Sense of Efficacy Scale; SE = Student Engagement; IS = Instructional Strategies; CM = Classroom Management; MBI = Maslach Burnout Inventory; PE = Professional Efficacy; EX = Exhaustion; CY = Cynicism

Attrition

Although 49 participants completed baseline measures and were allocated to one of the two conditions, attrition considerably reduced participant numbers at post-intervention. Eight participants were excluded from the main analyses due to insufficient intervention adherence and 14 did not complete post-intervention measures (see Figure 3 for participant flow diagram). Sufficient intervention adherence was defined as $\geq 50\%$ completion, based on previous literature indicating that a five day duration could constitute an effective intervention (Seligman et al., 2005). A total of 27 participants (55%) completed at least

five out of the ten diary entries and the post-intervention measures. This is in the expected range for attrition rates in self-administered online interventions (Mitchell, Vella-Brodrick, & Klein, 2010). Completion rates for all eight participants who were excluded from further analyses due to insufficient adherence fell below 20%. T-tests indicated that participants in the two conditions did not differ significantly in the number of daily diary entries completed ($t(25) = -.511, p = .614$).

Overall, completers and dropouts (due to a lack of adherence and/or post measures) did not differ in age ($t(47) = .918, p = .363$), number of years' experience ($t(47) = 1.190, p = .240$), primary or secondary sector ($\chi^2(1) = .356, p = .551$), or in the proportion of males or females ($\chi^2(1) = .013, p = .910$).

Dropout rates did not differ significantly by condition ($\chi^2(1) = .495, p = .482$). However, to ensure that any differential attrition by condition did not affect results, non-parametric analyses (Mann-Whitney) were conducted in order to compare completers with those who dropped out in each condition on all dependent variables. In the experimental condition, there were no differences between those who completed and those who dropped out of the study on baseline levels of positive affect ($U = 58.50, p = .359$), negative affect ($U = 54.50, p = .253$), teaching satisfaction ($U = 71.50, p = .845$), teacher sense of efficacy ($U = 59.0, p = .374$), or in relation to the burnout dimensions of professional efficacy ($U = 56.50, p = .303$), exhaustion ($U = 66.0, p = .617$), or cynicism ($U = 71.0, p = .824$). Similarly, those who completed or dropped out in the control condition did not differ in relation to baseline positive affect ($U = 52.0, p = .247$), negative affect ($U = 64.00, p = .643$), teaching satisfaction ($U = 70.50, p = .931$), teacher sense of efficacy ($U = 65.50, p = .707$), or the burnout dimensions of professional efficacy ($U = 57.50, p = .401$), exhaustion ($U = 70.50, p = .931$), or cynicism ($U = 65.0, p = .685$).

Power was calculated using G*Power Version 3 (Faul et al., 2007). A post hoc analysis indicated that the final sample size of 27 participants with a 5% significance level resulted in limited power (53%) to detect a medium effect size ($f = 0.2$) when testing two conditions at two time points with repeated measures (within and between) ANOVAs.

POSITIVE PSYCHOLOGY INTERVENTIONS

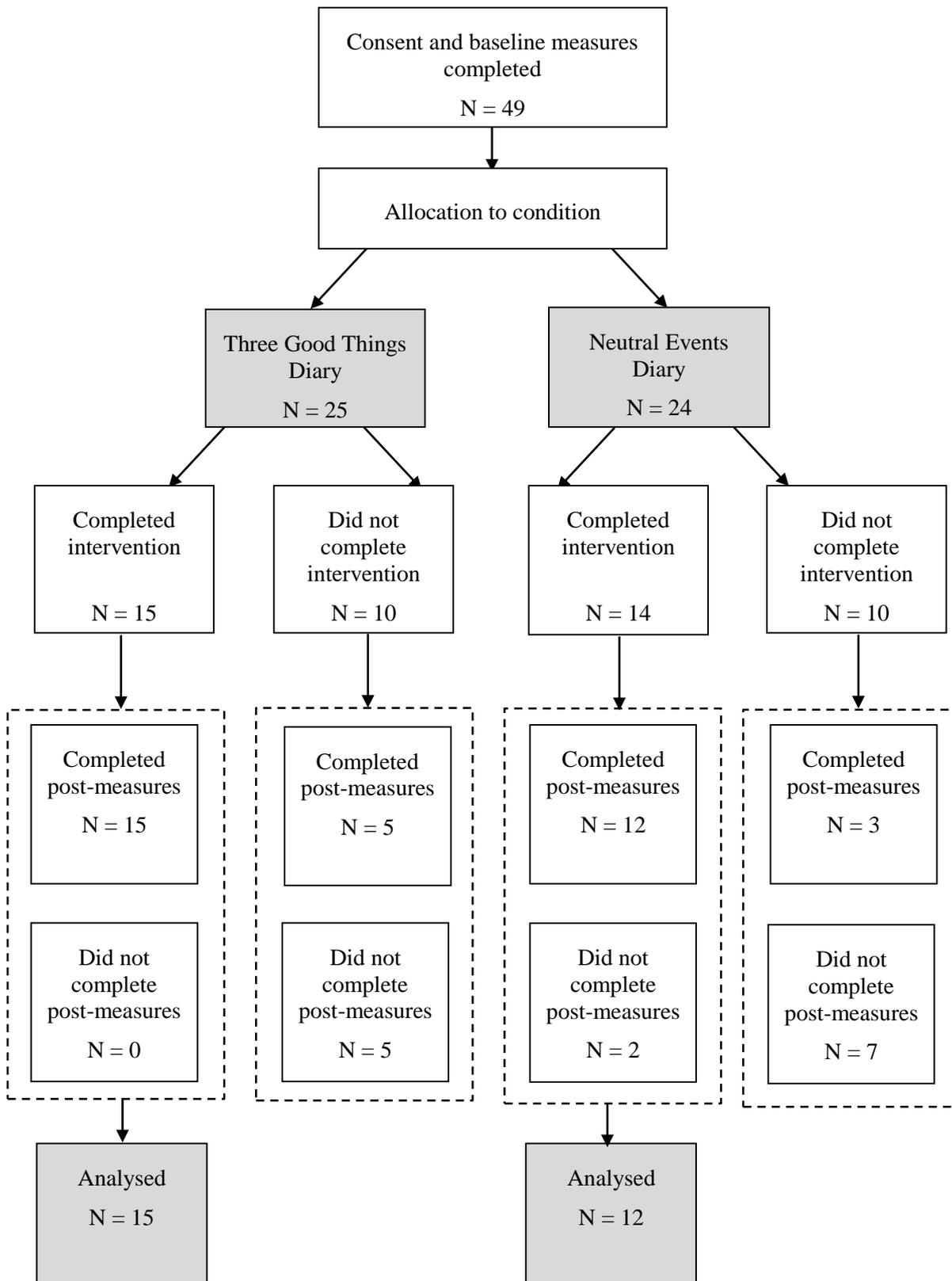
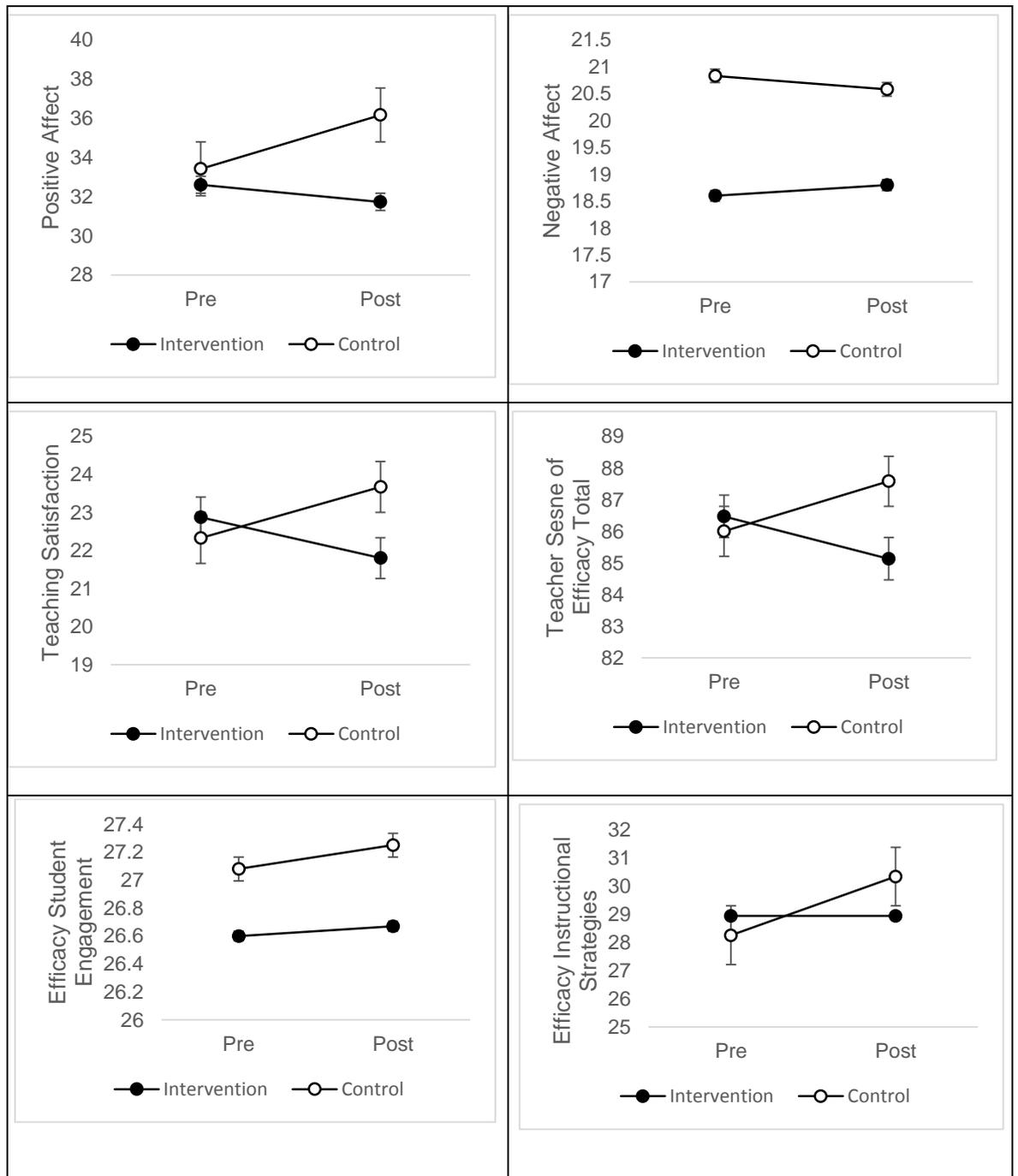


Figure 3. Participant Flow

Main Analyses

A series of 2 x 2 factorial analyses of variance (ANOVAs) were used to examine whether there were significant differences across time on the dependent variables, with time (pre and post) as the within-subjects factor and intervention group (positive or neutral diary) as the between-subjects factor. As the data relating to negative affect, efficacy (classroom management) and cynicism were not normally distributed, separate non-parametric analyses (Wilcoxon and Mann-Whitney U tests) were used to assess change over time and between conditions. Scores for each dependent variable by condition can be seen in Figure 4 below.



POSITIVE PSYCHOLOGY INTERVENTIONS

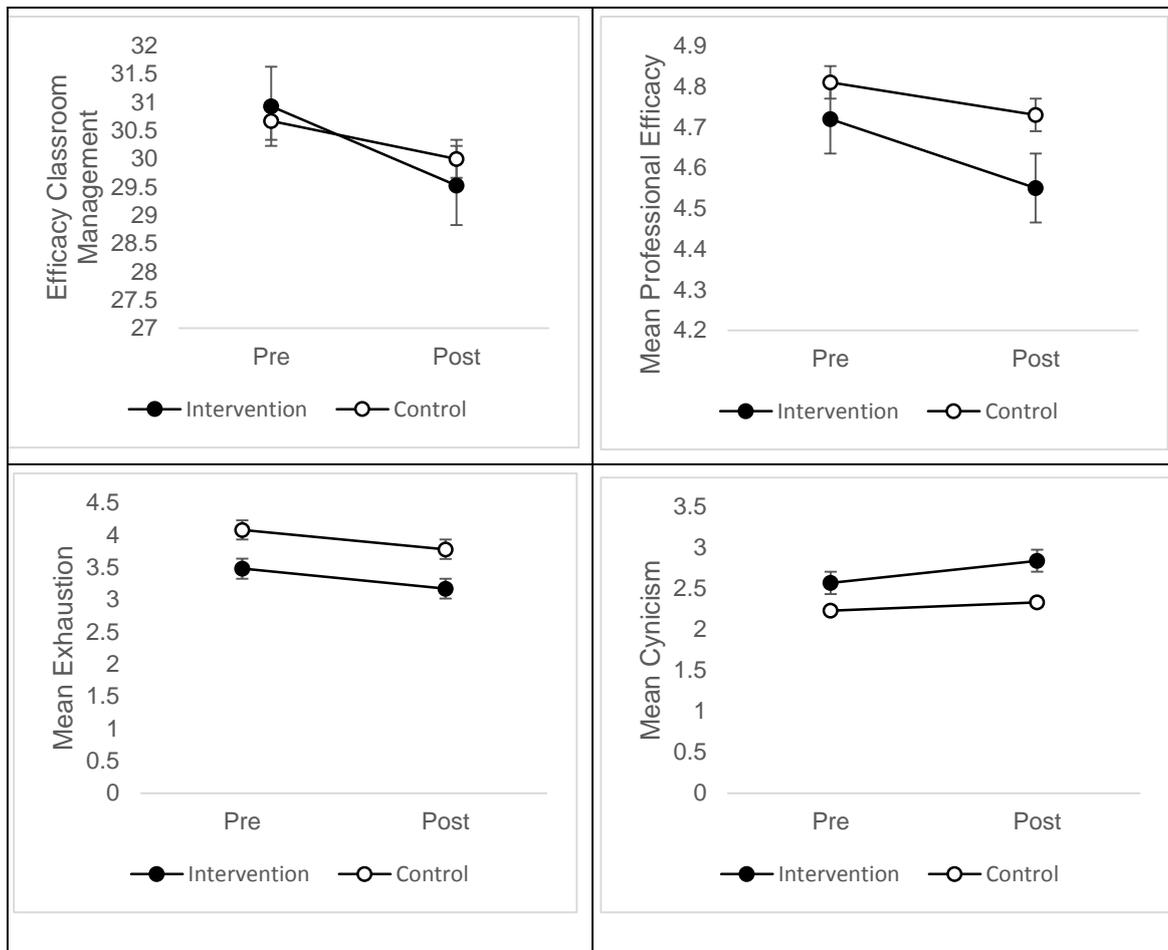


Figure 4. Outcome measures by condition at pre and post-intervention

Positive and Negative Affect

A repeated measures ANOVA revealed no significant main effect of time ($F(1, 25) = 1.03, p = .320, \eta_p^2 = .040$) or condition ($F(1, 25) = .821, p = .373, \eta_p^2 = .032$) on positive affect, and no significant interaction between the effects of time and condition ($F(1, 25) = 3.80, p = .063, \eta_p^2 = .132$). There was no significant difference in negative affect between baseline and post-intervention ($Z = -1.72, p = .863$) or between conditions ($U = 76.0, p = .493$).

Teaching Satisfaction

There was no significant main effect of time ($F(1, 25) = .037, p = .849, \eta_p^2 = .001$) or condition ($F(1, 25) = .068, p = .796, \eta_p^2 = .003$) and no significant interaction effect ($F(1, 25) = 3.004, p = .095, \eta_p^2 = .107$) for levels of reported teaching satisfaction.

Teacher Sense of Efficacy

For teacher sense of efficacy there was no significant main effect of time ($F(1, 25) = .009, p = .923, \eta_p^2 = .000$) or condition ($F(1, 25) = .075, p = .786, \eta_p^2 = .003$) and no significant interaction effects ($F(1, 25) = 1.291, p = .267, \eta_p^2 = .049$). There were no significant effects of time ($F(1, 25) = .035, p = .853, \eta_p^2 = .001$) or condition ($F(1, 25) = .109, p = .744, \eta_p^2 = .004$) and no significant interaction effects ($F(1, 25) = .006, p = .937, \eta_p^2 = .000$) for the student engagement factor. Likewise, there was no significant effect of time ($F(1, 25) = 3.304, p = .081, \eta_p^2 = .117$) or condition ($F(1, 25) = .078, p = .782, \eta_p^2 = .003$), and no significant interaction effect ($F(1, 25) = 3.304, p = .081, \eta_p^2 = .117$) for the instructional strategies factor. There was no significant difference in efficacy relating to classroom management between conditions ($U = 88.5, p = .941$), however a significant effect of time was found between baseline and post-intervention ($Z = -2.30, p = .022$).

Burnout

There was no significant main effect of time ($F(1, 25) = 1.799, p = .192, \eta_p^2 = .067$) or condition ($F(1, 25) = .154, p = .698, \eta_p^2 = .006$), or significant interaction effect ($F(1, 25) = .200, p = .659, \eta_p^2 = .008$) for the professional efficacy dimension of burnout. The main effects of time ($F(1, 25) = 3.662, p = .067, \eta_p^2 = .128$) and condition ($F(1, 25) = 1.773, p = .195, \eta_p^2 = .066$) and interaction effect ($F(1, 25) = .000, p = .983, \eta_p^2 = .000$) for the exhaustion dimension were also non-significant. There was no significant difference in cynicism between baseline and post-intervention ($Z = -.636, p = .524$) or between conditions ($U = 63.0, p = .186$).

Associations between Positive Affect and Efficacy Beliefs

Change scores were computed for each of the outcome variables (T2-T1) and correlated to examine the hypothesis that changes in positive affect would be associated with changes in efficacy beliefs (Schutte, 2013). Consistent with this hypothesis, changes in positive affect were positively associated with changes in teaching efficacy ($r = .512, p = .006$). No significant correlations were observed between change scores for any other dependent variables.

Post Hoc Analyses

To further explore the non-significant findings within the main analysis, a series of additional post hoc analyses were conducted with the final sample population data ($N = 27$) with no hypotheses pre-specified. Correlational analyses indicated no significant associations between variables. To determine whether additional variables may be accounting for the above findings, a series of ANCOVAs were conducted controlling for adherence, age, and years of teaching experience. No significant effects were found, indicating that none of these factors significantly influenced results.

Change scores for each of the outcome variables ($T2 - T1$) were correlated with adherence to examine whether intervention dosage was associated with change. Adherence was found to be positively associated with changes in the student engagement factor of teaching efficacy ($r = .415, p = .031$) and negatively associated with changes in the professional efficacy dimension of burnout ($r = -.440, p = .022$). Change scores were not associated with age or number of years teaching experience for any of the dependent variables.

Eight participants were not included in the main analysis due to insufficient intervention adherence ($< 20\%$) however these participants provided data at post-intervention, thereby creating the opportunity to explore comparisons between the main intervention and control conditions, and a further unplanned, naturally occurring 'no intervention' control group. Non-parametric analyses (Mann-Whitney U) were used due to the small group sizes. These indicated that no significant differences existed between conditions at pre or post-intervention.

Further correlational analyses were conducted to consider the association between key variables for the whole data set at baseline. Teacher sense of efficacy was found to be associated with the professional efficacy dimension of burnout ($r = .315, p = .028$), indicating that the specific construct of teaching-related efficacy may be related to professional efficacy more generally. A significant association was also found between levels of teaching satisfaction and positive affect ($r = .457, p = .001$). This association may be expected due to the theoretical link between affect and aspects of life satisfaction as components of subjective wellbeing (Diener, 2000). Number of years teaching experience was associated with overall teacher sense of efficacy ($r_s = .307, p = .032$) and with the individual efficacy factors relating to student engagement ($r = .387, p = .006$) and instructional strategies ($r = .314, p = .028$).

Diary Content

In order to further illuminate findings, the content of participant diaries ($N = 27$) was analysed to explore whether differences existed between conditions in relation to the types of experiences recorded. In line with Rash et al. (2011), diary entries were open-coded for common themes. This process drew on a basic conventional content analysis approach (Hsieh & Shannon, 2005). An inductive approach to category development was employed with no theoretically preconceived categories to ensure that the categories were strongly linked to the data (Kondracki & Wellman, 2002). The researcher initially read the entire data set prior to coding, and noted ideas of interest to inform potential categories (Tesch, 1990). Categories were generated according to aspects of the data which formed the basis of repeated patterns and demonstrated sufficient supporting items across the data set.

A total of five categories were identified and coded for positive, negative or neutral content. Examples of diary entries relating to each category can be seen in Appendix L. Missing entries due to lack of adherence were not included within the analysis. This resulted in a total of 381 coded diary items within the intervention condition and 316 items in the control condition. It was not possible to analyse causal explanations provided for events, as examination indicated that the majority of respondents omitted this aspect of the instructions. In line with Cheng et al. (2015), frequencies of items related to each category were calculated by condition and can be seen in Table 3.

Consistent with instructions, individuals in the intervention condition wrote about more positive experiences (92%) than neutral (7%) or negative events (1%), indicating that these had been understood and followed well. In line with previous studies (Harbaugh & Vasey, 2014; Martínez-Martí et al., 2010), findings indicated that participants in the control condition recorded a higher proportion of events which were neutral (39%) or positive in nature (37%) than negative responses (24%).

Findings identified some differences between conditions in relation to the categories of experiences recorded. Participants in the intervention condition described a higher proportion of experiences relating to student progress, colleague relationships and involvement with parents compared with those in the control condition. In contrast, participants in the control condition recorded a higher proportion of events relating to working responsibilities and student behavioural or emotional needs.

POSITIVE PSYCHOLOGY INTERVENTIONS

Table 3. *Proportion of diary items by category as a function of condition*

Event category	Condition			
	Intervention (N = 15)		Control (N = 12)	
	Frequency	%	Frequency	%
Colleague relationships/ interaction				
Positive	67	17.6	19	6.0
Negative	0	0.0	16	5.1
Neutral	4	1.1	13	4.1
Total	71	18.7	48	15.2
Student engagement/ progress				
Positive	149	39.1	50	15.8
Negative	1	0.3	10	3.2
Neutral	2	0.5	9	2.8
Total	152	39.9	69	21.8
Student behaviour / emotional needs				
Positive	23	6.0	16	5.1
Negative	0	0.0	16	5.1
Neutral	2	0.5	5	1.6
Total	25	6.5	37	11.8
Parental involvement/ communication				
Positive	29	7.6	4	1.3
Negative	0	0.0	10	3.2
Neutral	2	0.5	5	1.6
Total	31	8.1	19	6.1
Workload, roles and responsibilities				
Positive	81	21.3	27	8.5
Negative	2	0.5	24	7.6
Neutral	19	5.0	92	29.1
Total	102	26.8	143	45.2
Total items				
Positive	349	91.6	116	36.7
Negative	3	0.8	76	24.1
Neutral	29	7.6	124	39.2
Total	381	100	316	100

Discussion

The aim of the current study was to evaluate the effects of a positive psychology intervention on the subjective wellbeing and efficacy beliefs of teaching staff. Secondary outcomes in relation to symptoms of burnout (exhaustion, cynicism and professional efficacy) were also considered. Contrary to previous findings, results indicated that a ‘three good things’ intervention specific to school experiences (based on Seligman et al., 2005) was not effective in improving outcomes in comparison to a neutral control group who completed an events diary.

A significant effect between pre and post-intervention was found only in relation to the classroom management factor of teaching efficacy, however the effect of time approached significance for the exhaustion dimension of burnout. No significant effect of condition was found for any of the dependent variables. Furthermore, no significant interaction effects of time and condition were found for any of the outcome variables, although the interaction effect for positive affect approached significance.

Although effects were not significant over time, examination of mean pre and post-intervention scores indicated that changes in a number of outcome measures were not in the expected direction for either the intervention or control condition. In contrast to previous findings, participants in the positive intervention condition appeared to demonstrate a decrease in subjective wellbeing, as evidenced by a decrease in positive affect and teaching satisfaction, as well as increased negative affect. Conversely, participants in the neutral control condition reported increases in subjective wellbeing following the intervention, as indicated by increased positive affect and teaching satisfaction, and decreased negative affect.

Findings for efficacy outcomes were also not in the expected direction. Participants in the positive intervention condition demonstrated an overall decrease in efficacy in relation to teaching. Within this condition, findings indicated a slight increase in efficacy scores relating to student engagement, however a decrease in efficacy was seen for the classroom management factor, and no changes in efficacy were observed in relation to instructional strategies. In contrast, participants in the control condition demonstrated an overall increase in teaching efficacy. Findings for the individual subscales of efficacy demonstrated an increase in efficacy for the student engagement and instructional strategies factors, however a decrease was observed in efficacy relating to aspects of classroom management. The finding that both conditions experienced a small increase in

POSITIVE PSYCHOLOGY INTERVENTIONS

efficacy specifically in relation to student engagement, as well as a decrease in relation to classroom management efficacy, suggests that the intervention may be more likely to influence particular aspects of efficacy than others.

In relation to the secondary outcome of burnout, findings were again contrary to expectations, indicating that scores for the dimensions of professional efficacy decreased, whilst scores for cynicism increased at post-intervention in both conditions. Decreases in the dimension of exhaustion in the intervention condition were in the expected direction, however these did not reach significance, and a non-significant decrease was also observed in the control condition.

Results from the present study are not consistent with previous findings demonstrating a positive impact of such interventions on measures of wellbeing in comparison to a neutral control condition (e.g. Kaplan et al., 2014; Seligman, et al., 2005). However, previous findings within the literature review were mixed, with interventions impacting various facets of wellbeing differentially (Martínez-Martí et al., 2010; Odou & Vella-Brodrick 2013; Rash et al., 2011). A number of theoretical and methodological explanations may be considered in relation to the current findings. Firstly, it is possible that findings were influenced by the limited sample size, which reduced the statistical power of the study. Furthermore, a number of previous studies reported delayed intervention effects which were only significant at follow-up and not at immediate post-test (Gander et al., 2013; Peters et al., 2013, Seligman et al., 2005). In line with the ‘broaden and build’ theory, the building of personal resources may only take place following an initial broadening effect of positive emotions (Fredrickson & Joiner, 2002). However, as the present study did not assess outcomes at a follow-up time point, it was not possible to assess for the possibility of delayed intervention effects.

Differences in findings may also relate to methodological differences between studies. In the present study, participants were allocated to condition and were not informed of the study purpose or hypotheses in order to strengthen internal validity. However, in a number of previous studies (Gander et al., 2013; Seligman et al., 2005), interventions were advertised as a method to improve wellbeing, thereby raising the possibility that results may have been positively influenced by participants having self-selected to take part in the intervention. Evidence suggests that interventions may be more effective when participants have chosen to take part with the aim of improving their wellbeing. For example, Lyubomirsky et al. (2011) found that individuals who self-selected to take part in a happiness intervention demonstrated greater improvements in wellbeing at post-

intervention relative to non-self-selected participants who had responded to an advert to take part in a study involving cognitive exercises. In this way, the authors concluded that optimal conditions for intervention efficacy include a requirement for both a ‘will’ (i.e. motivation to improve wellbeing) and a ‘way’, through an efficacious positive activity.

Further replication with larger samples is therefore required to investigate whether findings may be an artefact of methodological factors, or alternatively whether these may relate to valid theoretical reasons associated with aspects of the intervention format or implementation. For example, one possible explanation is that the intervention duration or frequency was not sufficient to produce immediate post-test effects. Considering the potential role of intervention frequency in influencing wellbeing outcomes, Emmons and McCullough (2003) compared outcomes from both a weekly and a daily gratitude diary intervention. Larger effect sizes were reported for increases in gratitude in the daily diary condition, indicating that practicing the intervention more frequently may be more effective in influencing this outcome. Conversely, improvements in physical symptoms were only observed within the weekly intervention, indicating that intervention frequency may influence specific outcomes differentially.

Findings from the present study also indicated that adherence was positively associated with changes in the student engagement factor of teaching efficacy and negatively associated with changes in the professional efficacy dimension of burnout. This is consistent with previous findings which demonstrated an association between adherence and increases in global measures of mental wellbeing (Seear & Vella-Brodrick, 2013). Although levels of adherence did not significantly differ between conditions, it is possible that variations may have influenced the impact of the intervention in the present study. Further post hoc analyses indicated no significant differences between the positive and neutral diary conditions, and a third, naturally occurring ‘no intervention’ group in which participants demonstrated minimal adherence. However, this analysis was based on a restricted sample size, therefore replication studies involving multiple control conditions are likely to be beneficial (Wood et al., 2010).

To further explore the unexpected direction of changes between conditions, the content of diaries was examined and coded for the frequency of positive, negative or neutral events. In line with previous findings (Harbaugh & Vasey, 2014; Martínez-Martí et al., 2010), results indicated that participants in the control condition recorded a higher number of positive or neutral events compared with the number of negative events, which may have influenced findings by reducing between-group differences. Findings identified some

POSITIVE PSYCHOLOGY INTERVENTIONS

group differences in relation to the types of experiences recorded. Exploration of diary content was based on a rudimentary content analysis approach as appropriate to the amount of data available and purpose of the present study, however the use of such methodologies may constitute a valuable direction for future research.

Further examination of diary content highlighted that the majority of respondents in both conditions did not complete the second part of the diary instruction, which encouraged them to reflect on a causal explanation for each event. Consequently, it was not possible to analyse the possible influence of participant attributions (i.e. internal or external causal explanations for events), however it may be useful for future studies to examine this aspect. It is possible that this compromise to intervention fidelity may have negatively influenced the potential impact of the intervention. However, intervention fidelity was not assessed in the original study by Seligman et al. (2005) and this would therefore constitute an important consideration for future research.

Researchers (e.g. Kaczmarek et al., 2014; Lyubomirsky & Layous, 2013) have suggested that positive psychology exercises may also improve wellbeing by satisfying basic psychological needs, including autonomy, competence and relatedness (Deci & Ryan, 2000; 2008). Feelings of need satisfaction have been associated with increased positive affect and decreased negative affect (Sheldon, Elliot, Kim & Kasser, 2001), and shown to predict subsequent increases in subjective wellbeing (Niemic, Ryan & Deci, 2009).

Consequently, research has begun to investigate the role of need satisfaction in positive psychology interventions. In one study, participants who engaged in autonomy-fulfilling activities demonstrated greater increases in wellbeing than participants who focused on life circumstances (Sheldon et al., 2010). In a further study, Nelson et al. (2014) demonstrated that participants who received autonomy support during a positive psychology intervention experienced greater improvements in wellbeing (increased happiness and decreased negative affect) than those who did not receive this. These results suggest that increases in feelings of need satisfaction, such as autonomy, might precede increases in wellbeing. In this way, it is possible that the neutral condition, which provided less direction in relation to the type of experiences participants should reflect on, provided greater opportunity for perceived autonomy or choice, which in turn influenced increases in positive affect and decreases in negative affect.

In line with previous findings (Schutte, 2013), the hypothesis that changes in positive affect would be associated with changes in teaching efficacy was supported in the present study. This may provide support for the role of efficacy within the ‘broaden and build’ process, however further mediational analyses with larger samples are required in order to investigate this relationship.

Limitations

This study explored the application of a positive psychology intervention within an educational context to investigate effects on the subjective wellbeing and efficacy beliefs of teaching staff. To date, little research has investigated the impact of such interventions within this population, therefore this represents a gap in the available literature.

However, a number of limitations exist within the present study which require consideration when interpreting the present findings. Firstly, the sample size was limited and as such statistical power was reduced, potentially influencing the nature of the results. Reduced participant numbers also limited the use of parametric tests and the range of analyses employed, and results may be more likely to be influenced by outliers or skewed distributions. This was largely due to difficulties in participant recruitment, however attrition considerably reduced participant numbers at post-intervention. Of those who responded to the initial baseline questionnaires, 55% completed the diary intervention and post-intervention measures. A potential reason for the high rate of attrition may relate to the fact that all stages of study participation were completed via the internet. Previous research has indicated that online administration can increase attrition, however attrition rates were comparable to those reported for other self-administered online interventions (Mitchell et al., 2010). Furthermore, findings indicated that no significant differences existed between those who completed the intervention and post-measures and those who dropped out of the study, and that attrition rates did not differ between conditions, suggesting that attrition is unlikely to have led to any bias in the results.

A further consideration is that participants were assigned to an intervention condition in order to strengthen internal validity. Recent directions indicate that features of both person and intervention and the resultant ‘person-activity fit’ may moderate the effectiveness of positive activities on wellbeing (Lyubomirsky & Layous, 2013) and that preferences for types of positive psychology interventions lead to higher rates of completion (Kaczmarek et al., 2015; Schueller, 2010). Thus, allocating participants to a

particular condition may have potentially contributed to increased attrition and attenuated the strength of any effects.

A further limitation is that allocation to condition was not randomised. The study employed a quasi-experimental design in which participants were allocated to intervention condition at the school level, in order to minimise potential confounds arising from participants becoming aware of the existence of two conditions. This resulted in a higher proportion of secondary schools within the control condition. However, analyses indicated no significant differences between groups, suggesting that these were comparable on all demographic and outcome variables and that non-random sampling effects are unlikely to have influenced results. The sample included a higher proportion of female participants overall (67%) which may limit generalisability, however this limitation was identified within the review of the existing literature and is likely to be reflective of the unequal gender distribution within the teaching profession in England (DfE, 2014).

The present study was also limited by the lack of a follow-up period due to practical considerations and lack of participant retention. This limits the potential for conclusions to be drawn regarding the impact of the intervention over time. Indeed, previous studies have reported effects which were only significant at follow-up (e.g. Gander et al., 2013; Peters et al., 2013, Seligman et al., 2005), therefore it would be important for future research to employ longer follow-up periods to assess for any emergent effects over time.

Conclusions, Implications and Future Directions for Research and Practice

The present study is one of few to examine the application of a positive psychology intervention within a teaching population and to investigate impact in relation to efficacy beliefs. Contrary to previous findings, results of the current study did not support the efficacy of the intervention in improving outcomes in comparison to a neutral control group. Findings were based on a limited sample size, therefore further research is required to ensure replication with more representative samples, and to systematically explore factors which may moderate intervention efficacy.

For example, research should investigate the optimal duration and frequency of intervention implementation (Lyubomirsky & Layous, 2013), as well as the impact of participant variables, including motivation and preferences for specific interventions. Within the present study, analysis of diary content indicated that participants in the control condition recorded a greater proportion of neutral or positive events than negative. This is consistent with previous studies in which the content of participant responses was analysed

(Harbaugh & Vasey, 2014; Martínez-Martí et al., 2010), and raises further considerations about the development of adequate control conditions which are identical to the intervention in all aspects apart from the specific aspect of interest (Wood et al., 2010). Examination of the qualitative content of participant responses may also provide a useful avenue for further exploration of group differences which has currently been under investigated in the literature. Findings from the current study indicate that it may be beneficial for future research to consider the influence of intervention fidelity on enhancing or inhibiting efficacy. Furthermore, future research may benefit from investigating intervention factors (such as face-to-face or online delivery methods) which may enhance participant adherence and reduce attrition, as well as examination of participant characteristics to enhance understanding of whether individual differences, such as personality traits or baseline wellbeing levels, may moderate intervention effectiveness (Mitchell et al., 2010).

The present study highlights the need for future research to employ longer follow-up periods to investigate the impact of the intervention over time. Although the current study evaluated subjective outcomes through self-report measures, research investigating the application of positive psychology interventions within applied contexts such as educational settings may benefit from the inclusion of additional outcome measures, such as the use of observer reports, and more objective measures such as workplace absences (Kaplan et al., 2014). Furthermore, some researchers have called for a greater use of qualitative methodologies to explore changes at the organisational level (Critchley & Gibbs, 2012).

A further contribution of the current study was to investigate outcomes relating to the cognitive component of subjective wellbeing through examining intervention impact on participants' satisfaction with teaching. In line with previous studies (Froh et al., 2008), and to support the appropriate application of interventions to relevant contexts, it would be beneficial for future research to examine cognitive and affective outcomes in relation to specific domains of life experience.

In line with findings from the literature review, the present study highlighted a need for further research to investigate mechanisms by which positive interventions may influence wellbeing. The current study identified a significant association between changes in affect and changes in efficacy in relation to teaching, however conclusions were limited due to the correlational nature of these findings. Future research should include measures of intervening variables (e.g. gratitude, affect) and employ statistical mediational analyses to

POSITIVE PSYCHOLOGY INTERVENTIONS

investigate psychological mechanisms responsible for change. In line with the positive activity model (Lyubomirsky & Layous, 2013) a further direction for future research could include investigation into the role of autonomy as a mediator of intervention effectiveness, to examine whether particular positive activities may be better suited to fulfilling particular needs.

Educational Psychologists (EPs) have a key role in supporting schools to identify appropriate, evidence-based interventions. Whilst recent national agendas have focused on promoting the emotional wellbeing of young people, evidence suggests that teachers cannot transmit emotional and social competence effectively to their pupils if their own emotional and social needs are not met (Weare & Grey, 2003). In supporting schools to promote positive outcomes for children and young people, EPs are therefore well placed to communicate psychological perspectives relating to the wellbeing and efficacy of teaching staff, and to support schools to recognise the ways in which these factors may contribute to creating and sustaining positive educational contexts.

Findings from the current study have raised a number of necessary directions for future research in order to further explore the extent to which positive psychology interventions may be considered an evidence-based and professionally appropriate method for supporting the professional wellbeing of teaching staff. EPs are in a strong position to carry out applied research in this area to extend findings into educational contexts. The present research highlights the need for consideration to be given to relevant approaches for supporting the practical implementation of positive psychology interventions within such contexts. This may include examination of factors such as the timing and duration of interventions, as well as the appropriateness of different intervention delivery formats, for example the use of online methods to enhance the potential for accessibility and sustainability compared with more traditional approaches (Mitchell et al., 2010). Such research may also benefit from focusing on the acceptability of such interventions within applied contexts, whilst acknowledging that individual preferences for different types of positive psychology exercises may impact on their efficacy, in line with a requirement for both a 'will' and a 'way' in promoting optimal outcomes (Lyubomirsky et al., 2011).

In their wider work with schools, EPs may draw on theoretical principles suggesting that individuals can facilitate cognitions and behaviours to improve their wellbeing through simple, intentional practices, which may be as effective in enhancing wellbeing as focusing on contextual or individual factors (Lyubomirsky et al., 2005). This may inform EP practice when working with school staff through consultation or supervision (Akin-Little,

Little & Delligatti, 2004; Terjesen et al., 2004) in order to enhance the capacity of schools to respond to a range of professional demands.

Findings from the present study indicated a relationship between an individual's level of teaching experience and associated efficacy beliefs. Accordingly, a relevant role for EP practice may be in promoting an understanding of positive psychological principles and their relationship with wellbeing for new entrants to the profession, for example through the delivery of training. This is likely to be of particular relevance given evidence which indicates a high rate of attrition within the first five years of entering the profession (Hayes, 2004). In line with the principles of positive psychology, EPs are in a key position to work in a preventative and systemic way within educational settings to promote wellbeing at the subjective, individual and organisational level.

Appendices

Appendix A: Search Terms

The following search terms and limiters were applied in line with the identified inclusion and exclusion criteria.

1. PsycINFO via EBSCO

Search terms:

(TI Positive Psychology OR Gratitude OR Counting Blessings) AND DE Intervention

Limiters:

Publication Year: 2000-2015

Language: English

Source Type: Academic Journals

Exclude: Dissertations

2. Web of Science

Search terms:

*(TITLE: Positive Psychology OR Gratitude OR Counting Blessings) AND TOPIC: Intervention**

Limiters:

Timespan: 2000-2015

Languages: English

Document Types: Article

Appendix B: Application of Exclusion Criteria

A systematic search of the electronic databases identified 216 articles. 47 articles were excluded due to duplicates between databases. 114 articles were excluded following the screening of titles and abstracts. A further 36 articles were excluded following examination of the full text. Numbers of articles and reasons for exclusion are listed below:

1. Article not published in a peer reviewed journal, e.g. book chapter or conference presentation (n = 32)
2. Article presents a systematic review or meta-analysis of published studies (n = 5)
3. Theoretical paper/ integrative review of the literature (n = 35)
4. Study did not include an intervention (e.g. cross-sectional/ longitudinal/ case study) (n = 28)
5. Multi-component intervention or intervention not related to positive subjective experience (e.g. character strengths) (n = 16)
6. Study did not include a control or comparison group (n = 2)
7. Clinical population/ application (e.g. spinal cord injury, Type 1 diabetes, cancer patients, suicidal inpatients, brain injury rehabilitation) (n = 32)

Appendix C: Data Extraction Table

Authors / Study	Participant characteristics	Recruitment Strategy	Intervention	Design/ methods	Outcome measures	Significant results/ interactions	Limitations
Boehm, Lyubomirsky & Sheldon (2011)	Community sample. N = 220 (53% female) Ethnicity: 49% identified as Asian American; 51% Anglo American Age range: 20-71 Mean age (SD): 35.6 (11.36) Dropout/incomplete data: None reported	Advertisements on community-based websites, fliers and Chinese-language newspaper advertisement. Study described as potentially improving mental and physical health.	Intervention: Gratitude letter to friend or family member Comparison: Optimism journal (write about best possible future self) Control: Event diary (list past week's experiences) Frequency and duration: 10 minutes once a week for 6 weeks Follow up: 1 month	Experimental design. Participants randomly assigned to condition. Pre- and post-intervention plus follow up measures. Study conducted via internet.	Life Satisfaction: Satisfaction with Life Scale (SWLS) Essay content: Coded using 7-point Likert scale to rate extent of expressed optimism,	Significant increase in gratitude ($p < .01$) and optimism condition ($p < .05$) relative to controls at post-intervention and follow up. Effect of condition qualified by cultural background ($p = .057$). Anglo Americans in the intervention conditions demonstrated larger increases in life satisfaction relative to Asian Americans. Asian Americans benefited marginally more from gratitude intervention (trend towards significant change over time, $p = .09$) than optimism (<i>ns</i> change over time). Gratitude condition accounts less self-focused and more other focused than optimism and control condition ($p < .0001$). No significant differences in ratings when examining	Heterogeneous Asian American sample due to relatively small sample sizes for specific groups. Self-report methodology-possibility of social desirability and response biases. Single subjective wellbeing measure.

					gratitude, self/ other focus, future/past orientation and overall effort.	interaction between condition and cultural background.	
Chan (2013)	Chinese school teachers receiving training for postgraduate degrees through attending university evening courses. N = 78 (81% female) Age range: 22-58 Mean age (SD): 33.73 (7.15) No of years teaching experience: Range = 1-32 years Mean (SD) = 9.18 (7.80) Dropout/incomplete data: 3 participants	Participants recruited through author's teaching webpage. Study described as an 8 week self-improvement project to enhance wellbeing through self-reflection.	Intervention: Gratitude journal (Counting blessings)- list three good things/ events and reflect on the meanings these had for them using Naikan meditation questions. Comparison: Coping journal (Counting misfortunes)- list three bad things/ events and reflect on benefits from the negative events using Naikan meditation questions. Frequency and duration:	Experimental design. Participants randomly assigned to condition. Pre- and post-intervention measures. Study conducted via internet.	Gratitude: GAC Life Satisfaction: SWLS Positive and Negative Affect: PANAS	Significant increase in gratitude condition ($p < .05$, $d = -.38$) Significant increase in gratitude condition ($p < .001$, $d = .85$). Positive affect: ns increase for gratitude or coping condition. Negative affect: Significant decrease in gratitude condition ($p < .01$, $d = .51$).	Lack of neutral control group (no-treatment or waitlist). Overrepresentation of females in sample.

			Once a week for 8 weeks				
			Follow up: None				
Cheng, Tsui & Lam (2015)	Full time Chinese health care practitioners. N= 102 (% female: control, 47%, 59%, 59%) Age: 21+ Years of professional experience, mean (SD): control = 8.11 (4.80) gratitude = 5.72 (3.93) hassle = 4.37 (3.74) Dropout/ incomplete data: None	Participants recruited from 5 public hospitals in Hong Kong. Participants informed that study about the wellbeing of health care workers, without further details about the research objective or hypothesis.	Intervention: Work-related gratitude diary (record at least one event that thankful for in working day) Control: -Work-related hassle diary (record at least one event that annoyed/ angry about) -No diary Frequency and duration: Twice a week for four consecutive weeks. Follow up: 3 months	Double-blind randomised controlled trial. Pre- and post-intervention plus follow up measures.	Depression: CES-D Stress: Perceived Stress Scale	Reported depression significantly lower in gratitude condition than controls at follow up ($p = .048$, $d = -0.49$). Perceived stress significantly lower in gratitude condition than controls at post-intervention ($p = .004$, $d = -0.70$) and follow up ($p < .001$, $d = -0.95$). Significant treatment x time interaction effects for gratitude condition compared with hassle and controls ($p < .001$), with decline in reported stress and depression over time. No significant differences between hassle and control condition. Content of gratitude and hassle diaries focused on	Demographic differences between groups following randomisation.

					Coded by two independent raters	similar themes, but with opposite valence.	
Critchley & Gibbs (2012)	Teaching staff in two primary schools in North West England. N = 70 (% female not reported) Age range: Not reported Mean age (SD): Not reported Dropout/incomplete data: None	Schools recruited through discussion with headteachers. No information provided about how individual staff members recruited. Presentation about principles of positive psychology and intervention process given to staff in intervention group. No information on how study described to control group.	Intervention: Three good things (Seligman et al., 2005) Control: No intervention Frequency and duration: Daily for one week Follow up: None	Mixed methods approach-interview and focus group data informed the development of a questionnaire used to gather pre and post-intervention data relating to efficacy beliefs.	Efficacy beliefs 14 item Likert-scale questionnaire developed from focus group responses	Efficacy beliefs significantly increased in intervention group in comparison to controls ($p = .007, r = .58$) Significant change in intervention group scores in relation to themes derived from focus group data ($p < .05$).	Schools not well matched and small sample limiting generalisability. Lack of follow up measures.
Digdon & Koble (2011)	Undergraduate students at a Canadian	Participants recruited through posters and	Intervention:	Parallel groups design to enable comparison of 3	Sleep Quality: Sleep Quality Scale	Non-significant change.	Results restricted to baseline /

	<p>university with self-reported poor sleep due to disruptive thoughts and worries. N = 41 (78% female) Age range: Not reported Mean age (SD): 23.22 (6.11) Dropout/incomplete data: 20/41 completed post-intervention questionnaires</p>	<p>electronic newsletters. Participants informed that intervention may or may not have positive impact on sleep.</p>	<p>Gratitude diary (write about a positive event) Comparison: 1) Constructive worry (setting aside 15 mins to record worries earlier in day) 2) Imagery distraction (imagine interesting and relaxing situation) Frequency and duration: Daily for 7 days Follow up: None</p>	<p>interventions compared to no-treatment baseline. Random assignment of participants to condition, stratified by gender. 1-week baseline (daily sleep log-continued during intervention) plus post-intervention measures. Study conducted via internet.</p>	<p>Pre-Sleep Arousal Pre-Sleep Arousal Scale Daily sleep log (Sleep onset latency and total sleep time)</p>	<p>Non-significant change. Pre-sleep arousal and worry decreased across interventions ($p < .01, d = 0.63$) Non-significant change in sleep onset latency. Total sleep time increased across all interventions ($p < .001, d = .60$)</p>	<p>intervention comparisons due to a lack of power. No control group (no-treatment/placebo).</p>
<p>Emmons & McCullough (2003) Study 1</p>	<p>Undergraduate Health Psychology students in USA N = 201 (73% female) Age range/ mean: Not reported Drop out/incomplete</p>	<p>Students participated to fulfil course requirements. Not informed that study purpose relating to gratitude and wellbeing.</p>	<p>Intervention: Gratitude diary (record up to 5 things that grateful or thankful for) Control: -Hassles diary (record up to five</p>	<p>Experimental design. Participants randomly assigned to condition. Pre-, post- and during intervention measures.</p>	<p>Positive and Negative affect 27 adjectives (PANAS) Gratitude Gratitude-related adjectives (GAC)</p>	<p>No significant difference between conditions Gratitude condition significantly higher than hassles ($p < .05, d = 0.56$)</p>	<p>Lack of follow up to examine maintenance effects.</p>

	data: 9 participants		hassles that have occurred) -Events diary (record 5 events that had an impact on you) Frequency and duration: Weekly for 10 weeks Follow up: None	Data reduction-aggregate scores for affect.	Physical symptoms Checklist Time spent exercising Reactions to aid Checklist of coping behaviours Global appraisals Concurrent and prospective wellbeing (two individual scaling items)	Gratitude significantly fewer symptoms than hassles or events ($p < .05$) Gratitude significantly greater than hassles condition ($p < .005$) Grateful emotions significantly associated with higher ratings of joy and happiness, favourable life appraisals and optimism for upcoming week ($p < .01$). Gratitude significantly more favourable ratings on both items compared with hassles and events ($p < .05$)	
Emmons & McCullough (2003) Study 2	Undergraduate Health Psychology students in USA N = 166 (75% female) Age range/ mean: Not reported Drop out/incomplete	Students participated to fulfil course requirements. Not informed that study purpose relating to gratitude and wellbeing.	Intervention: Gratitude diary (record up to 5 things that grateful or thankful for) Control: -Hassles diary (record up to five	Experimental design. Participants randomly assigned to condition. Pre-, post- and during intervention measures.	Positive and Negative affect 27 adjectives (PANAS) Gratitude Gratitude-related	Gratitude condition significantly more positive affect than hassles ($p < .05$) No significant difference in negative affect between conditions. Gratitude condition significantly higher than hassles ($p < .05, d = 0.88$)	Lack of follow up to examine maintenance effects.

data: 9 participants	hassles that have occurred)	Data reduction-aggregate scores for affect.	adjectives (GAC)	Physical symptoms Checklist	No significant difference		
	-Downward social comparison (record ways in which better off than others)			Time spent exercising	No significant difference		
	Frequency and duration: Daily for 2 weeks)			Health behaviours Type of exercise, alcohol/caffeine/painkiller consumption, sleep quantity and quality	No significant difference		
	Follow up: None			Prosocial behaviours Helping behaviours/emotional support (frequency)	Gratitude condition more likely to offer emotional support than hassles or social comparison ($p < .05$). Marginally higher frequency of helping behaviour compared with hassles condition ($p = .08$)		
Froh, Kashdan, Ozimkowski & Miller (2009)	Students from a religious school in USA. N = 89 (51% female)	Parental consent and student assent.	Intervention: Gratitude letter (deliver to recipient) and	Quasi-experimental design. Students matched by grade and randomly	Gratitude GAC	No significant main effect of time. Positive affect moderated effects of condition >	Limited power Additional differences between

	Age range: 8-19 years Mean age (SD): 12.74 (3.48) Drop out: None	No information on how study described to participants.	reflect on experience. Control: Write about events from previous day and associated feelings. Frequency and duration: Five 10-15 minute sessions during 2 week period. Follow up: 1 and 2 months	assigned to condition. Pre- and post-intervention plus follow up measures. Measures counterbalanced to control for order effects.	Positive and negative affect PANAS-C	Individuals low in PA and in gratitude condition reported significantly higher gratitude ($p < .01$) compared with low PA controls (immediately post-intervention). No significant differences at 1 or 2 month follow up. Positive affect moderated effects of condition > Individuals low in PA and in gratitude condition demonstrated higher positive affect compared with low PA controls at post-intervention ($p = .04$) and 2 month follow up ($p = .03$). Trend towards significance at 1 month follow up ($p = .06$). No significant difference in negative affect across conditions. NA did not significantly moderate effects.	conditions, i.e. social contact.
Froh, Sefick & Emmons (2008)	Middle school students in USA. N = 221 (41% female) Age range: 11-13	11 classes enrolled in mandatory curriculum asked to participate (to obtain	Intervention: Gratitude diary (list up to 5 things) Control:	Quasi-experimental design. 11 classes randomly assigned to condition.	Gratitude GAC	Gratitude condition greater than hassles at post-test ($p = .01$) and follow up ($p < .01$).	

Mean age (SD): 12.17 (0.67) Dropout/ incomplete data: None reported	representative sample). Participants informed that study about 'how kids think and feel'.	-Hassles diary -No treatment Frequency and duration: Daily for 2 weeks Follow up: 3 weeks	Pre-, post- and during intervention measures plus follow up. Use of aggregate scores / composites for affect and life satisfaction.	Positive and negative affect PANAS Global appraisals Concurrent and prospective wellbeing (two individual scaling items) Life Satisfaction Brief Multidimensio nal Students' Life Satisfaction Scale (BMSLSS) Physical symptoms	No significant difference in positive affect across conditions. Gratitude condition and controls reported significantly less negative affect compared with hassles condition at post- test and follow up ($p < .01$). Concurrent: Gratitude condition trend towards significance compared with hassles at post-test ($p = .063$) Prospective: Gratitude condition rated upcoming week more favourably than hassles at follow up ($p < .05$) No significant difference on total BMSLSS score at post- test or follow up. Gratitude condition significantly higher satisfaction with school experience (subscale) than either hassles or control condition at post-test and follow up ($p < .05$). No significant difference
---	---	--	--	---	--

Checklist

Reactions to aid
 Checklist of coping options

Significantly more grateful emotion in response to aid in gratitude condition and controls compared with hassles condition at follow up ($p < .01$). No significant differences at post-intervention.

Gratitude in response to aid mediated the relationship between condition and gratitude in general at follow up.

Prosocial behaviours
 Helping behaviours/
 emotional support
 (frequency)

No significant difference

Examination of written themes

Patterning of most common gratitude themes (in order): family, friends, material goods/ basic needs, teachers/ education.

Gander, Proyer, Ruch & Wyss (2013)	German-speaking convenience	Participants recruited through an article in a	Intervention: I1) Gratitude visit	Internet based randomised	Happiness Authentic Happiness	All interventions except I3 associated with increase in happiness over time.	Sample not gender balanced.
---	-----------------------------	--	---	---------------------------	---	--	-----------------------------

						No effect on depressive symptoms.
Geraghty, Wood & Hyland (2010)a	Convenience sample in UK aged over 18 and not currently undergoing psychological treatment. N = 247 (86% female) Age range: 18-72 Mean age (SD): 37 (not reported) Drop out: 111 participants	Information advertised in local newspapers and on radio in South West England. Study described as opportunity to take part in internet administered self-help study to reduce worry.	Intervention: Gratitude diary (list up to 6 things felt grateful for) Comparison: Worry Diary (Recording and challenging worries- CBT technique) Control: Waitlist for each condition Frequency and duration: Daily for 14 days Follow up: None	Experimental design. Participants randomly assigned to condition or waitlist control. Pre- and post-intervention measures. Study conducted via internet.	Worry Penn State Worry Questionnaire (PSWQ) Anxiety Brief Generalised Anxiety Disorder Scale (GAD-7) Depression Patient Health Questionnaire (PHQ-9) Hope Adult Hope Scale (AHS)	Both gratitude diary ($p < .001$, $d = 1.8$) and worry diary ($p < .001$, $d = 1.2$) significantly reduced worry relative to controls. No significant differences between intervention- intention to treat analysis revealed that both produced equivalent reduction in worry. Non-significant predictor of attrition. Non-significant predictor of attrition. Two hope components significantly predicted attrition in opposite directions; Agency predicted completion ($p = .004$) and pathways predicted dropout ($p = .003$).

Dispositional Optimism Life Orientation Test – Revised (LOT-R)	Non-significant predictor of attrition.
Expectancy Single-item scale	Non-significant predictor of attrition.
Self-control Brief Self-Control Scale (BSCS)	Non-significant predictor of attrition.
Attrition Non-completion of post-measures	Group = significant predictor of attrition ($p < .05$) (gratitude condition 2.24 times more likely to complete than worry condition).

Geraghty, Wood & Hyland (2010)b	Convenience sample in UK aged over 18 and not currently undergoing psychological treatment. N = 479 (96% female) Age range: 18-76 Mean age (SD): 36 (10)	Study information and website advertised through local newspapers in South West of England, and on weight loss websites. Study described as free opportunity to	Intervention: Gratitude diary (list up to 6 things felt grateful for) Comparison: Thought monitoring and restructuring (completing Automatic	Experimental design. Participants randomly assigned to condition or waitlist control. Pre- and post-intervention measures.	Body dissatisfaction Multi-dimensional Body-Self Relations Questionnaire (MBSRQ-AS): - Appearance subscale (AE)	AE: Gratitude diary significantly reduced body dissatisfaction compared with waitlist control ($p < .001, d = .71$). 52% clinically significant change. Thought monitoring significantly reduced compared with waitlist control ($p < .001, d = .48$). 46% clinically significant change.	Largely female sample. No follow up measure.
--	--	--	---	---	---	--	---

Drop out/ incomplete data: 297 participants (62%)	receive internet- administered self- help techniques for body dissatisfaction.	Thought Records- CBT technique)	Study conducted via internet.	-Body Areas Satisfaction Scale (BASS)	BASS: Gratitude diary significantly reduced compared with waitlist control ($p < .001$, d $= .62$). 50% clinically significant change.
		Control: Waitlist for each condition			Thought monitoring significantly reduced compared with waitlist control ($p < .001$, $d = .74$). 59% clinically significant change.
		Frequency and duration: Daily for 2 weeks			
		Follow up: None		Expectancy of intervention efficacy Single-item scale	Higher expectancy predicted completion ($p < .05$).
				Locus of control Multidimensio nal Health Locus of Control Scale (MHLC)	Higher internal health locus of control predicted completion ($p < .05$).
				Attrition Non- completion of post-measures	Intervention condition significantly predicted attrition ($p < .05$). Gratitude condition 2.13 x more likely to complete intervention than monitoring condition.

						Attrition not significantly predicted by age, gender or baseline severity.	
					Adherence and difficulty 2 single-item scales	No significant difference in adherence between conditions. No significant relationship with body dissatisfaction outcome measure.	
						Difficulty not significantly related to attrition.	
Harbaugh & Vasey (2014)	Undergraduates at a large university in the USA. N = 164 (70% female) Age range: 18-54 Mean age (SD): 19.53 (3.52) Dropout/incomplete data: 3 participants	Not reported	Intervention: Gratitude list (with / without rationale) Control: Events list Frequency and duration: Daily for 2 weeks Follow up: None	CESD administered to large pre-screening sample of undergraduate students, similar numbers of participants who scored in each quartile randomly assigned to each condition. Pre-, post- and during intervention measures. Study conducted via internet.	Happiness Subjective Happiness Scale (SHS) Depressive symptoms CESD Positive and negative emotions -Adapted Differential Emotions Scale (ADES)	Individuals low in trait gratitude and in gratitude condition maintained their level of happiness relative to controls. Gratitude exercise decreased depressive symptoms among participants high in symptoms at baseline. Individuals low in trait gratitude and in gratitude condition experienced less decline in positive emotions over time than controls. Negative emotions- non significant Gratitude + rationale condition showed significantly larger increases in immediate	Use of largely Caucasian and young convenience sample may limit generalisability. Conditions not equivalent in timeframes (daily events last 24 hours, gratitude unspecified).

						positive mood than Gratitude + no rationale ($p = .03$) and control condition ($p < .01$), but no significant difference between groups over time, suggesting that a rationale may only be effective in enhancing efficacy in the short term.	
					Gratitude GQ-6	Gratitude exercise not associated with increased gratitude (regardless of baseline trait gratitude or depressive symptoms)	
						Baseline trait gratitude not associated with changes in happiness, daily positive emotions or depressive symptoms in gratitude condition.	
					Analysis of diary content	Control condition events predominantly positive (66.9%), however not associated with immediate improvement in mood ($p = .40$).	
Homan, Sedlak & Boyd (2014)	Female undergraduates N = 67	Participants recruited from undergraduate psychology	Intervention: Grateful reflection and	Experimental repeated measures design.	Body dissatisfaction Eating Disorders	Significant increase in body dissatisfaction in hassles/thin images condition, compared	Lack of neutral control condition.

	Age range: Not reported Mean age (SD): 19.96 (0.90) Dropout/incomplete data: 5 participants	courses, offered course credit for participation. Participants informed that study about media exposure and life satisfaction.	viewing thin images Control: - Reflection on life hassles and viewing neutral images - Reflection on life hassles and viewing thin images Duration and frequency: 5 minutes once per week	Participants randomly assigned to order of administration (counterbalanced) All participants completed 3 experimental conditions one week apart.	Inventory (EDI; BD subscale) Body Mass Index BMI	with hassles/neutral images ($p = .003$). Significant decrease in body dissatisfaction in gratitude/thin images condition, compared with hassles/thin images condition ($p = .044$). No significant difference between hassles/neutral images and gratitude/thin images ($p > .999$). Magnitude of decrease in body dissatisfaction greater in individuals with higher BMI in gratitude condition ($p = .048$).	Limited generalisability due to all female sample. Potential demand characteristic.
Kaplan et al. (2014)	University employees N = 67 (87% female) Age range: Not reported Mean age (SD): 42.93 (12.25) Drop out/incomplete data: 45 / 112 participants (40%)	Staff members from two large public universities in USA invited to participate in study about workplace wellbeing. Recruitment email with link to initial measures.	Intervention: Work-related gratitude diary Comparison: Social connectedness (engage in and describe attempts at fostering social connectedness) Frequency and duration:	Experimental design. Participants randomly assigned to condition. Pre- post- and follow up intervention measures. Study conducted via internet.	Gratitude at work GAC Social connectedness Social connectedness subscale from published measure of belongingness	Gratitude increased in gratitude condition relative to social connectedness condition ($p < .01$). No significant difference between conditions.	Statistical power limited due to sample size and high attrition rates. Nature of interventions differed (i.e. behavioural/ cognitive emphasis).

			3 days a week for 2 weeks		Positive and Negative affective wellbeing Job-Related Affective Wellbeing Scale (JAWS)	Significant increase in PAWB in gratitude condition, relative to social connectedness ($p < .05$) Within-subjects decrease in NAWB approached significance in gratitude condition ($p = .055$). Changes in wellbeing not associated with changes in gratitude ($p = .271$).
			Follow up: 1 month		Absence due to illness	Significant reduction in both gratitude ($p < .05$) and social connectedness condition ($p < .01$).
					Adherence Number of completed entries	Higher for gratitude condition but non-significant difference ($p = .36$). Adherence not significantly associated with outcomes.
Lambert et al. (2013) Study 4	Undergraduate students in USA. N = 137 (85% female) Age range: 17-31 Median age: 20 (Mean (SD) not reported)	Course credit awarded for participation. No information on how study described to participants.	Intervention: -Gratitude diary (shared with partner) -Gratitude diary (not shared) Control:	Experimental design. Participants randomly assigned to condition.	Happiness SHS Satisfaction with Life SWLS	Higher in shared gratitude condition than unshared ($p < .05$, $d = .30$) and event diary ($p < .01$, $d = .35$) Higher in shared gratitude condition than unshared (p)

	Dropout/ incomplete data: 21 /158 participants (13%)		Event diary (shared with partner)	Pre- and post- intervention measures.		= .03, $d = .38$) and event diary ($p < .05$, $d = .48$)	
			Duration and frequency: Daily for 4 weeks, shared with partner 2x per week	Study conducted via internet.	Positive Affect PANAS	Increased in shared gratitude diary condition compared with unshared ($p = .06$, $d = .38$) and event diary ($p < .04$, $d = .38$).	
			Follow up: None		Vitality 7-item scale	Higher in shared gratitude condition than unshared (p $< .05$, $d = .44$) and event diary ($p < .01$, $d = .67$)	
Lambert, Clark, Durtschi, Fincham & Graham (2010)	Undergraduate students enrolled on introductory family development course in USA. N = 75 (80% female) Age range: 18-23 Median age: 19 Dropout/incomplete data: 22/97 participants	Participants offered course credit for participation. No information on how study described to participants.	Intervention: -Express gratitude to a friend -Think grateful thoughts about a friend Control: -Pay attention to daily activities -Positive interactions with a friend	Experimental design. Participants randomly assigned to condition. Pre- and post- intervention measures. Study conducted via internet.	Perceived communal strength (degree of felt responsibility for a partner's welfare)	Significant main effect of condition on communal strength post intervention (p $= .01$). Higher in expression of gratitude condition compared with thoughts of gratitude condition ($p = .01$, $d = 0.34$), neutral condition ($p = .05$, $d =$ 0.48), and positive interaction condition ($p < .001$, $d = 0.67$).	Exclusive use of college student samples- restricts generalisability
			Frequency and duration: Twice a week for 3 weeks				
			Follow up:				

None						
<p>Layous, Lee, Choi & Lyubomirsky (2013)</p>	<p>College students from USA and South Korea N = 520 (61% female) Age range: not reported Mean age (SD): Not reported Dropout/incomplete data: 4/520 participants</p>	<p>No information on how study advertised/described to participants.</p>	<p>Intervention: Gratitude letter Comparison: Perform 3 kind acts Control: List what did in past 24 hours/keep track of 3 locations visited Frequency and duration: Once a week for 6 weeks Follow up: 1 month</p>	<p>Experimental design. Participants randomly assigned to condition. Intervention and comparison participants swapped activity half way through intervention. Baseline, mid-point, post-test and follow up intervention measures. Study conducted via internet.</p>	<p>Wellbeing composite: -Life Satisfaction SWLS -Emotions Modified Differential Emotions Scale (mDES) Effort (Single item scale)</p>	<p>Across cultures, practising the gratitude ($p = .03$) and kindness activities ($p = .056$) predicted greater changes in wellbeing than practising the control activity. The effect of practising gratitude or kindness was moderated by culture. US participants increased in WB in both gratitude ($p = .0006$) and kindness conditions ($p = .03$) compared with controls. South Korean participants showed similar increased in WB as US participants in the kindness condition, but benefited significantly less from practising gratitude than US participants ($p = .002$). All significant trends remained at least marginally significant at follow up. Greater self-reported effort predicted gains in WB across the sample ($p = .0001$). However the strength of this effect varied by culture;</p>

						greater effort trended towards less benefit for South Korean participants ($p = .13$).	
Lyubomirsky, Dickerhoof, Boehm, & Sheldon (2011)	Undergraduate students in USA N = 330 (71% female) Age range: 18-46 Mean age (SD): 19.66 (2.91) Dropout/incomplete data: 25/ 355 participants	Students participated in exchange for course credit. Self-selection into 'low'/'high' motivation group- participants offered the option to take part in one of two studies: one advertised as a happiness intervention and the other as a study involving cognitive exercises. Once allocated to condition, all participants told that the aim of the study was to improve well-being.	Intervention: Gratitude letter (not sent) Comparison: Expressing optimism (Best possible selves) Control: List previous week's activities Frequency and duration: Once a week for 8 weeks Follow up: 6 months	Experimental design. Participants randomly assigned to condition. Pre-, post- and follow up intervention measures obtained. Study conducted via internet with initial face-to-face introduction session.	Overall wellbeing composite: -Affect Pleasant and unpleasant adjectives -Life Satisfaction SWLS -Happiness SHS	Post-test: No significant differences between conditions at immediate post-intervention. Self-selected students reported greater increases in wellbeing relative to non-self-selected participants at post-test ($p = .02$). Self-selected students in optimism or gratitude condition reported greater increases in wellbeing relative to those in these conditions who were non-self-selected, and those in the control group ($p = .03$). Follow up: Trend towards greater increases in wellbeing in gratitude and optimism conditions relative to controls ($p = .16$). Trend towards greater wellbeing increases in self-	Self-report measures- possibility of social desirability and response bias. Convenience sample.

						selected students relative to non-self-selected ($p = .11$).	
						Self-selected students who had participated in gratitude or optimism condition continued to report greater increases in wellbeing than those who practised these activities but had not self-selected, and those in control groups ($p = .05$).	
					Effort Single item scale (assessed by naïve coders)	Effort significantly predicted wellbeing ($p = .03$) Effect of effort was significant for experimental conditions ($p = .004$) but not for controls ($p = .95$).	
Martínez-Martí, Avia & Hernández-Lloreda (2010)	Spanish undergraduate Psychology students N = 105 (90% female) Age range: Not reported Mean age (SD): 20.7 (1.48) Drop out/incomplete data:	Voluntary participation, course credit awarded for participation. Participants informed that taking part in a study about mood.	Intervention: Gratitude diary (list 5 things grateful for) Control: -Hassles diary -Event diary Frequency and duration: Daily for 14 days Follow up:	Replication of Emmons & McCullough (2003). Experimental prospective design. Participants randomly assigned to condition.	State gratitude GAC	Significantly increased in gratitude condition compared with hassles condition ($p = .035$, $d = .61$). State gratitude mediated effect of intervention on positive affect. Inclusion of pre-test and follow up measures: non-significant	Translation of GAC

54 /159 participants	2 weeks	Pre-, post- and during intervention measures.	Positive and negative affect PANAS	Positive affect: Significantly increased in gratitude condition compared with hassles condition ($p = .011$, $d = .69$).
		Data reduction-use of aggregate scores for gratitude and affect.		Inclusion of pre-test and follow up measures: Effect of intervention on positive affect remained ($p = .011$). Difference not significant at follow up. Decrease in positive affect in hassles group ($p = .05$) and no significant increase in gratitude condition from pre- to post-test.
			Global appraisals of subjective wellbeing Concurrent and prospective scales	Positive affect mediated effect of intervention on state gratitude. Negative affect: Non-significant Non-significant. Pre-test levels not significant moderator of positive affect at post-test.

Physical symptoms Checklist	Non-significant
Pain relief Single item	Non-significant
Sleep Quality Checklist	Non-significant
Quality of relationship with significant other 4-item scale	Trend: Gratitude group scored higher than other two groups ($p = .072$)
Sensitivity to others' needs Single item	Non-significant
Trait gratitude GQ-6	Non-significant. Pre-test levels not significant moderator of positive affect at post-test.
Observer report at follow up -Global SWB (GSW)	Higher SWB in gratitude group than hassles ($p = .007$, $d = .76$) Trend: Significant others' ratings higher than

						participants' own in gratitude group ($p = .05$)
					-Gratitude (single item)	Non-significant
					-Sensitivity to others (single item)	Non-significant
					Analysis of diary entries	Participants in control condition recorded more positive events than neutral or negative.
Mongrain & Anselmo-Matthews (2012)	Canadian sample, social media users aged over 18. N = 1447 (83% female) Age range: 18-72 Mean age: 33 (SD not reported) Dropout/incomplete data: 344 (24%) completed all requirements of study up to 6 month follow up	Advertisements on Facebook, stating: 'Feel better: Participate in Project HOPE'	Intervention: Three good things Comparison: Using signature strengths Control: -Expectancy control (write about an early memory) -Positive placebo (write about an early <i>positive</i> memory)	Replication of Seligman et al. (2005). Experimental design. Participants randomly assigned to condition. Pre-, post- and follow up intervention measures. Study conducted via internet.	Happiness Steen Happiness Index (SHI)	Expectancy control group: Increase in happiness at 1 week ($p = .07$, $d = .10$) but returned to baseline at 1, 3 and 6 month follow up. Positive placebo group: Significant increases in happiness at 1 month ($p < .001$, $d = .27$), 3 months ($p = .001$, $d = .25$) and 6 months ($p = .01$, $d = .20$). Three good things: Happiness increased significantly at 1 week ($p = .004$, $d = .15$), 3 months ($p = .001$, $d = .22$) and 6 months ($p = .02$, $d = .16$).

			<p>Frequency and duration: Daily for 1 week</p> <p>Follow up: 1, 3 and 6 months</p>		<p>Using signature strengths: Happiness significantly increased at 1 week ($p < .001$, $d = .29$), 1 month ($p = .03$, $d = .16$), and 6 months ($p = .01$, $d = .24$).</p>		
				<p>Depressive Symptoms CES-D</p>	<p>Significant decreases in depressive symptoms over time ($p = .001$) but no time by condition interaction effect.</p>		
				<p>Attrition</p>	<p>Those who dropped out by 6 months were more depressed ($p = .04$) and less happy ($p < .001$) at baseline. Did not differ significantly by condition.</p>		
<p>Odou & Vella-Brodrick (2013)</p>	<p>Australian sample of adult volunteers N = 210 (75% female) Age range: 18-74 Mean age (SD): 34 (13.99) Dropout/incomplete data: 36% completion rate at Time 1; 18% at Time 2</p>	<p>Participants recruited from the general public through online discussion forums, a local newspaper advertisement and posters and fliers. No information on how study described.</p>	<p>Intervention: Three Good Things</p> <p>Comparison: Best Possible Selves</p> <p>Control: No activity</p> <p>Frequency and duration: Daily for 7 days</p>	<p>Experimental design. Participants randomly assigned to condition.</p> <p>Pre-, post- and follow up intervention measures. Study conducted via internet.</p>	<p>Positive and negative affect PANAS</p> <p>Mental Wellbeing Warwick-Edinburgh Mental Wellbeing</p>	<p>Negative affect at Time 2 significantly lower in TGT and BPS groups compared to control, when controlling for Time 1 NA ($p = .02$)</p> <p>Positive affect: non-significant</p> <p>Non-significant at post-test and follow up (High MIA did not increase efficacy of intervention on wellbeing)</p>	<p>High attrition and lack of power due to insufficient group sizes.</p>

Follow up: 2 weeks	Scale (WEMWBS)	High MIA positively associated with wellbeing at baseline.
	Mental Imagery Ability -Vividness (Shortened Questionnaire Upon Mental Imagery – SQMI)	Non-significant at post-test and follow up
	-Controll-ability (Test of Visual Imagery Control-TVIC)	
	Gratitude GQ-6	No significant differences across groups at baseline.
	Hope Trait Hope Scale	No significant differences across groups at baseline.
	Motivation Single-item scale	Motivation significantly associated with increased mental wellbeing and PA at Time 2 and mental wellbeing at Time 3 ($p < .001$).

					Effort Frequency and duration	Frequency significantly associated with increased mental wellbeing and decreased NA ($p < .001$).	
Owens & Patterson (2013)	Elementary school-aged children in USA N = 62 (52% female) Age range: 5-11 Mean age (SD): 7.35 (1.73) Drop out/incomplete data: 18/ 80 participants	Participants recruited from after school care and summer day camp programmes. Recruitment letters and consent forms distributed to parents/ guardians and participant assent obtained. No information on how study described.	Intervention: Gratitude (draw a picture of something grateful for that day) Comparison: Best Possible Selves (draw a future version of themselves as happy and engaged) Control: Draw a picture of something did that day Frequency and duration: Once per week for 4-6 weeks Follow up: None	Quasi-experimental design. After school-centres randomly assigned to condition. Pre- and post-intervention measures.	Positive and negative affect PANAS-C Life satisfaction Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS-modified version) Self-esteem Perceived Competence Scale for Children (global subscale) Content analysis of pictures	No significant main effects or interactions for PA or NA. Marginally significant gender x time interaction ($p = .056$) – girls increased over time, boys decreased over time across all conditions Significant increase in BPS condition compared with gratitude or controls ($p = .004$). Gratitude: Most frequently occurring categories – activities, people, animals; no significant relationship	Reduced sample size due to attrition. Lack of validated gratitude measure for children.

						between content and age/ gender. BPS (realistic/ unrealistic)- significant effects of age and gender, no significant effect on outcome variables.	
Peters, Mevissen & Hanssen (2013)	Graduate students N = 82 (84% female) Age range: 18-65 Mean age: 22.8 (SD not reported) Dropout/ incomplete data: 8/90 participants	Flyers distributed across university premises. Participation remunerated with gift voucher or partial fulfilment of credit points. Participants informed that they would practice imagery for one week in order to improve their spatial orientation abilities (reduce demand effects)	Intervention: Gratitude with imagery task (List things grateful for in life- personal, relational and professional) Comparison: Best Possible Selves with imagery task (write about best possible future self- personal, relational and professional domains) Control: Record typical daily activities with imagery task (spare time, social and professional)	Experimental design. Participants randomly assigned to condition. Pre-, post- and follow up intervention measures. Bogus spatial orientation test administered pre- and post- intervention to support credibility of the rationale. Two change scores computed (Week 1 and Week 2)	Life Satisfaction SWLS Dispositional optimism Revised Life Orientation Test (LOT-R) Optimistic explanatory style	BPS: Significant increase compared with controls at 1 week ($p = .01$) and trend towards significance at 2 weeks ($p = .057$). Gratitude: No significant difference compared with BPS or controls at either time point, however significant linear increase in SWLS scores across time points (p $= .029$). No difference between conditions at immediate post- test, but trend towards increase in BPS condition at one week follow up relative to gratitude condition ($p = .055$) or controls ($p = .057$) (delayed effect). Only BPS differed significantly from controls at 1 week ($p = .024$) and 2 week ($p = .043$).	Modest sample size. Small positive effect in control condition- expectancy effect/ active mechanism (e.g. effect of imagery)?

			Duration and Frequency: Daily for one week		Attributional Style Questionnaire (ASQ)		
			Follow up: 1 week		Adherence Motivation and focus	No significant group differences. No significant change over time.	
Proyer, Gander, Wellenzohn & Ruch (2014)	Swiss convenience sample, aged >50 years not undergoing psychological treatment N = 163 (100% female) Age range: 50-79 Mean age (SD): 55.58 (5.16) Dropout/incomplete data: 347/ 510 participants (32% completed intervention and all 4 follow ups)	Advertised in German magazine with predominantly female readers, described as part of a series of articles on resilience. Participants registered at free website affiliated with a higher education institution in German speaking region of Switzerland.	Intervention: -Three Good Things -Gratitude visit -Three funny things Comparison: -Using signature strengths Placebo control: Early memories Duration and frequency: Daily for 1 week Follow up: 1, 3 and 6 months	Experimental design. Participants randomly assigned to condition. Pre-, post- and follow up intervention measures. Reanalysed data available from earlier study (Gander et al. 2013) Study conducted via internet.	Happiness Authentic Happiness Inventory (AHI) Depressive symptoms CES-D	Gratitude visit marginally significant increase relative to control group at 1 month follow up ($p = .07$, $\eta^2 = .03$). TGT significantly higher than control group at post-test only ($\eta^2 = .09$) TFT increased happiness at 6 months ($\eta^2 = .04$) SS most effective in increasing happiness (differences at all time points and largest effect of all interventions at 1 month follow up: $\eta^2 = .12$) Gratitude visit significantly lower than control group at 1 month follow up ($p = .07$, $\eta^2 = .03$).	Entirely female sample. Low statistical power due to sample size.

						TGT significantly lower than control group at post-test only ($\eta^2 = .02$)	
						TFT most effective in reducing depressive symptoms at all time points (consistent with Gander et al., 2013)	
						SS reduced depressive symptoms at post test ($\eta^2 = .04$) and 1 month follow up ($\eta^2 = .02$).	
Rash, Matsuba & Prkachin, 2011	Adults from small urban area in Canada. N = 56 (46% female) Age range: Not reported Mean age (SD): 22.5 (3) Dropout/incomplete data: 9/56 participants	Advertisements on city radio, posters distributed at university and sports complex. Study advertised as the 'HEW' study (Health, Emotions and Wellbeing) intended to examine impact that emotions associated with past events have on physical and psychological health and wellbeing.	Intervention: Gratitude contemplation and journal (Bring to mind people, items or moments for which grateful during past week and maintain grateful feelings) Control: Memorable events and journal (Bring to mind a memorable event from past week and sustain	Experimental design. Participants randomly assigned to condition. Pre-, post- and during intervention measures.	Gratitude GQ-6 Positive and negative affect PANAS Life Satisfaction	Trait gratitude moderated effect on life satisfaction ($p = .02$) (Individuals lower in trait gratitude benefited more from intervention) Did not moderate effect on self-esteem. Gratitude condition significantly lower NA than memorable events ($p < .01$, $\eta^2 = .21$) Positive affect: non-significant PA and NA did not moderate effects of intervention on wellbeing. Significantly higher in gratitude condition compared	Small sample size.

			associated emotions)		SWLS	with memorable events ($p < .05$)	
			Duration and frequency: Laboratory visit then twice a week for 4 weeks (8 entries)		Self-esteem Rosenberg Self-Esteem Scale (RSE)	Significantly higher in gratitude condition compared with memorable events ($p < .05$)	
			Follow up: None		Cardiac coherence Physiological measure	Coherence significantly higher in gratitude condition than memorable events ($p < .05$), which was marginally higher than baseline ($p = .08$).	
					Analysis of diary content	Participants in gratitude condition described more people-related experiences compared with memorable events condition ($p < .01$) Memorable events condition described more school, events and negative emotions-related experiences relative to gratitude condition ($p < .05$).	
						No significant mediation effects of content on wellbeing.	
Seear & Vella-Brodrick (2013)	Self-selected adults who were part of a wider	Participants recruited through local advertisements,	Intervention: Three good things Comparison:	Experimental design. Participants randomly	Wellbeing Warwick-Edinburgh Mental	No significant differences between conditions at post-intervention or follow up.	Predominantly female sample.

<p>wellbeing study in Australia. N = 211 (75% female) Age range: 18-74 Mean age (SD): 34 (13.97) Dropout/incomplete data: N = 73 (Time 2), N = 37 (Time 3)</p>	<p>poster displays in public areas, distribution of flyers and online discussion forums. No information on how study described.</p>	<p>Best Possible Selves Control: No activity control group Frequency and duration: Daily for 7 days Follow up: 2 weeks</p>	<p>assigned to condition. Participants divided into higher or lower dispositional mindfulness by median split. Pre-, post- and follow up intervention measures. Study conducted via internet.</p>	<p>Wellbeing Scale (WEMWBS) Positive and negative affect PANAS Dispositional mindfulness Mindful Attention Awareness Scale (MAAS) Motivation and adherence</p>	<p>Post intervention: NA significantly lower for BPS condition compared with controls ($p = .032$, $\eta^2 = .099$). No significant differences between Three Good Things condition and controls. PA- no significant effects. Only participants with lower initial mindfulness experienced a significant increase in PA in the BPS condition, relative to the control group ($p = .046$, $\eta^2 = 0.180$). Dispositional mindfulness did not moderate intervention effect on PA at post-intervention, or mental wellbeing and NA at post-intervention or follow up. Adherence ($r = .534$, $p < .01$) and motivation ($r = .495$, $p < .01$) associated with greater increases in mental wellbeing.</p>
--	--	---	--	---	--

					Two single items		
Seligman, Steen, Park & Peterson (2005)	Convenience sample in USA N = 577 (58% female) Age range: Not reported Mean age (SD): Not reported Dropout/incomplete data: 411 participants (71%) completed all follow up assessments	Participants recruited via Positive Psychology website. Study described as an opportunity to help test new exercises designed to increase happiness. Participants informed that exercises not guaranteed to make them happier and that they might receive an inert (placebo) exercise.	Intervention: -Three Good Things (record three things that went well and their causes) -Gratitude visit (write and deliver gratitude letter) Comparison: -You at your best -Identifying signature strengths -Using signature strengths in a new way Placebo control: Write about early memories Frequency and duration: Daily for one week Follow up: 1 week, 1, 3 and 6 months	Randomised, placebo controlled internet study. Pre-, post- and follow up intervention measures.	Happiness Steen Happiness Index (SHI)	TGT: Significantly increased at 1 month ($p < .05$, $\eta^2 = .21$), 3 month ($p < .05$, $\eta^2 = .36$), and 6 month ($p < .05$, $\eta^2 = .50$) follow up. Gratitude visit: Significantly increased at immediate post-test ($p < .05$, $\eta^2 = .49$), 1 week ($p < .05$, $\eta^2 = .39$), and 1 month ($p < .05$, $\eta^2 = .06$), follow up. Using SS: Significantly increased at 1 month ($p < .05$, $\eta^2 = .42$), 3 month ($p < .05$, $\eta^2 = .33$), and 6 month ($p < .05$, $\eta^2 = .42$) follow up.	Selection bias (motivated participants).
					Depressive symptoms CES-D	TGT: Significantly decreased at 1 month ($p < .05$, $\eta^2 = .31$), 3 month ($p < .05$, $\eta^2 = .30$) and 6 month ($p < .05$, $\eta^2 = .28$) follow up. Gratitude visit: Significantly decreased at immediate post-test ($p < .05$, $\eta^2 = .36$), 1 week ($p < .05$, $\eta^2 = .29$) and 1 month ($p < .05$, $\eta^2 = .32$) follow up.	

						Using SS: Significantly decreased at 1 month ($p < .05$, $\eta^2 = .29$), 3 month ($p < .05$, $\eta^2 = .27$), and 6 month ($p < .05$, $\eta^2 = .26$) follow up.
					Reported adherence and continuation of exercise	Happiness: Significant interactions for adherence and continuation at all time points. Depression: Significant interaction for adherence and continuation at 1 month follow up.
Sergeant & Mongrain (2011)	Nationwide community sample in Canada. N = 772 (81% female) Age range: 18-72 Mean age: 34 (SD not reported) Dropout/incomplete data: 82% completion rate at 1 month follow up, 60% at 3 month follow up and 37% at 6 month follow up.	Newspaper advertisements and postings on Facebook. No information on how study described.	Intervention: Gratitude diary (recall 5 things grateful for that day) Comparison: Listen to uplifting music Control: Write about early memories Frequency and duration: Daily for 7 days Follow up: 1, 3 and 6 months	Experimental design. Participants randomly assigned to condition. Pre-, post- and follow up intervention measures. Study conducted via internet. Personality traits as moderators (Individuals identified as having self-	Depression CES-D Depressive Experiences Questionnaire (DEQ) Gratitude GQ-6 Physical symptoms Physical Symptoms Measure (PS)	No significant effects for time or time x condition. Non-significant intervention effect Decrease over time across participants. No significant effect of condition or personality. Self-critics: Significant decreases in gratitude and music condition compared with controls ($p < .01$)

critical/ needy personality styles)		‘Needy’ individuals (reliance on others to meet their needs): Greater decrease in control condition, no change in either intervention condition.
	<p>Self-esteem Rosenberg Self-Esteem Scale (RSE)</p>	<p>No significant effect for time. Time x condition effect approached significance.</p> <p>Highly needy individuals in music condition experienced <i>reduction</i> in self-esteem compared with controls.</p> <p>Self-critics: Gratitude condition ($p = .09$) and music condition ($p = .07$) increased self-esteem relative to controls.</p>
	<p>Happiness Steen Happiness Index (SHI)</p>	<p>Gratitude ($p = .022$) and music conditions ($p = .01$) greater increases in happiness over time than controls.</p> <p>Self-critical participants experienced a greater increase in gratitude condition compared with music condition or controls ($p < .05$).</p>

Sheldon & Lyubomirsky (2006)	Psychology students in USA. N = 67 (75% female) Age range: Not reported Mean age: Not reported Dropout/incomplete data: 3 participants	Participants signed up online. Study described as investigating positive mood and the factors that sustain it. Participants informed that they would be asked to do something which might affect their mood, and had been shown to have positive effects on people's lives.	Intervention: Gratitude diary (outline things grateful for in as much detail as possible)	Experimental design. Participants randomly assigned to condition.	Positive and negative affect PANAS	PA: Gratitude and BPS condition increased relative to controls ($p < .05$)	Mood only dependent variable.
			Comparison: Best Possible Selves	Pre-, post- and follow up intervention measures.		BPS condition significantly higher than controls ($p < .01$)	
			Control: Daily details (outline typical day in as much detail as possible)	Initial small group laboratory session, followed by online survey at 2 and 4 weeks.		No significant difference between gratitude and controls ($p < .20$).	
			Frequency and duration: 2-4 weeks. Instructed to try to complete at least twice.		Self-concordant motivation 4 item scale (external, introjected, identified and intrinsic motivation)	NA: Significant main effect of time in all conditions ($p < .01$). Interactions non-significant.	
			Follow up: 2 and 4 weeks			Gratitude and BPS reported greater SCM than controls ($p < .05$).	
						Significant difference between BPS and controls ($p < .01$).	
						No significant difference between gratitude and controls ($p < .25$).	
						SCM predicted exercise performance ($p < .02$). More strongly associated with exercise performance in gratitude and BPS condition ($p < .15$) than control.	

					<p>Exercise performance 2 items: How many times completed exercise during 2 weeks; Whether still doing exercise at 4 weeks.</p>	<p>Significant effect of exercise performance on PA ($p < .05$). Marginally significant interaction between BPS and exercise performance ($p = .057$) (continuing to perform BPS exercise had stronger effect on sustained increases in positive mood than other two exercises).</p> <p>SCM and exercise performance interacted significantly to influence final NA ($p < .05$).</p>	
<p>Toepfer & Walker (2009)</p>	<p>Student participants from 3 campuses in USA university system. N = 85 (75% female) Age range: 18-52 Mean age (SD): 26.7 (8.44) Dropout/incomplete data: None</p>	<p>Experimental condition consisted of a class assignment which resulted in a grade for participation. No information on how study described.</p>	<p>Intervention: Gratitude letter (typed or hand-written, sent to recipient) Control: No letter (passive control) Frequency and duration: 3 letters over 8 week period. Follow up: 3 weeks</p>	<p>6 classes randomly allocated to condition. Measurements taken at baseline (T1) and following letter writing (T2, 3 and 4)</p>	<p>Happiness Subjective Happiness Scale (SHS) Life Satisfaction SWLS Gratitude GQ6</p>	<p>Significant time x group interaction- gratitude greater than controls across all time points ($p < .05$). Gratitude greater than controls at time 4 ($p < .01$), T2 and 3 non-significant.</p> <p>Significant effect of time ($p < .05$). Non- significant time x group interaction.</p> <p>Significant time x group interaction- gratitude greater than controls across all time points ($p < .05$)</p>	<p>Homogenous sample (gender, educational level, initially high scores on happiness and life satisfaction)</p>

Toepfer, Cichy & Peters (2012)	Students in USA. N = 219 (86% female) Age range: 18-65 Mean age (SD): 25.7 (11) Dropout/incomplete data: None	Randomly selected from a research pool across three university campuses. Course credit received for completion. No information about how study described to participants.	Intervention: Gratitude letter (sent to recipient following completion of data collection phase) Control: No letter (passive control) Frequency and duration: 3 letters during 3 week period Follow up: None	Experimental design. Participants randomly assigned to condition. Measurements taken at baseline (T1) and following letter writing (T2, 3 and 4)	Gratitude GQ-6 Happiness Subjective Happiness Scale (SHS) Life satisfaction Satisfaction with Life Scale (SWLS) Depressive symptoms CESD-10	No-significant effect of time or condition. Significant increase in gratitude condition relative to controls ($p < .01$). Significant increase in gratitude condition relative to controls ($p < .001$). Significant decrease in gratitude condition relative to controls ($p < .01$).	Lack of follow up.
Watkins, Woodward, Stone & Kolts (2003) Study 4	Undergraduate Psychology students in USA. N = 157 (% female not reported) Age range: Not reported Mean age (SD): Not reported Dropout/incomplete data: 1 participant	Partial course credit received for participation. No information on how study advertised/described.	Intervention: -Grateful thinking -Grateful letter (not sent) -Grateful essay Control: Write about layout of living room. Frequency and duration:	Experimental design. Participants randomly assigned to condition.	Positive and negative affect -PANAS -8 bi-polar affect scales	Gratitude conditions increased in positive affect relative to controls ($p < .05$, $\eta^2 = .119$). PANAS change scores: Grateful thinking condition showed strongest effect, followed by grateful essay then grateful letter. Negative affect: non-significant	

Appendices

Single time point (five minutes)	Gratitude Gratitude and Resentment Appreciation Test (GRAT)	Correlational analyses: GRAT scores reliably predicted increases in positive affect for 3 gratitude conditions.
Follow up: None		

Appendix D: Teaching Satisfaction Scale (TSS; Ho & Au, 2006)

Below are five statements with which you may agree or disagree. Please use the scale below to indicate your level of agreement with each item. Please be open and honest in your responding.

	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Agree	Strongly Agree
In most ways, being a teacher is close to my ideal.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The conditions of being a teacher are excellent.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with being a teacher.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
So far I have got the important things I want in teaching.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I could choose my career over, I would change almost nothing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendices

Appendix E: Positive and Negative Affect Schedule (PANAS; Watson et al., 1988)

This scale consists of a number of words that describe different feelings and emotions.

Please read each item and use the scale next to each word to indicate to the extent to which you have felt this way **over the past week**.

	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
Interested	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Distressed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Excited	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Upset	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strong	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Guilty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scared	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hostile	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enthusiastic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Proud	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Irritable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ashamed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inspired	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nervous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Determined	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attentive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jittery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Active	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Afraid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix F: Teachers' Sense of Efficacy Scale- Short Form (TSES; Tschannen-Moran & Woolfolk Hoy, 2001)

This questionnaire is designed to help gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below.

	Nothing		Very Little		Some Influence		Quite A Bit		A Great Deal
	1	2	3	4	5	6	7	8	9
How much can you do to control disruptive behaviour in the classroom?	<input type="radio"/>								
How much can you do to motivate students who show low interest in school work?	<input type="radio"/>								
How much can you do to get students to believe they can do well in school work?	<input type="radio"/>								
How much can you do to help your students value learning?	<input type="radio"/>								
To what extent can you craft good questions for your students?	<input type="radio"/>								
How much can you do to get children to follow classroom rules?	<input type="radio"/>								
How much can you do to calm a student who is disruptive or noisy?	<input type="radio"/>								
How well can you establish a classroom management system with each group of students?	<input type="radio"/>								
How much can you use a variety of assessment strategies?	<input type="radio"/>								
To what extent can you provide an alternative explanation or example when students are confused?	<input type="radio"/>								
How much can you assist families in helping their children do well in school?	<input type="radio"/>								
How well can you implement alternative strategies in your classroom?	<input type="radio"/>								

Appendix G: Maslach Burnout Inventory (MBI; Maslach & Jackson, 1986)

Below are 16 statements of job-related feelings. Please read each statement carefully and decide if you ever feel this way about your job. If you have *never* had this feeling, please select this option next to the corresponding statement. If you have had this feeling, indicate *how often* you feel it by choosing the statement that best describes how frequently you feel that way.

Copyright © 1986 by CPP, Inc. All rights reserved in all mediums.

Published by Mind Garden, Inc., www.mindgarden.com

Example Questionnaire Items:

	Never	A few times a year	Once a month or less	A few times a month	Once a week	A few times a week	Every day
	1	2	3	4	5	6	7
Working all day is really a strain for me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can effectively solve the problems that arise in my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have become less enthusiastic about my work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix H: Ethics Committee Approval

Subject: Your Ethics Submission (Ethics ID:12254) has been reviewed and approved

From: ERGO [ergo@soton.ac.uk]

To: fn4g12@soton.ac.uk

Date: 07 October 2014 11:24

Submission Number: 12254

Submission Name: Establishing the effects of a positive psychology intervention on the subjective wellbeing and efficacy beliefs of teaching staff

This email is to let you know your submission was approved by the Ethics Committee.

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

Comments

1. not an approval comment, but in ethics form you say you are asking the control group to record neutral events, this is not the instruction given to them, which simply asks them to record 3 events.

[Click here to view your submission](#)

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

DO NOT REPLY TO THIS EMAIL

Appendix I: Participant Information Sheet

21/11/14 – V4

Participant Information Sheet

Study Title: Investigating subjective wellbeing and efficacy beliefs in teaching staff

Researcher: Francesca Nagle

Ethics number: 12254

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

What is the purpose of this study?

The purpose of this study is to investigate the impact of completing a daily reflective diary on levels of teacher wellbeing and self-efficacy. This study is being conducted as part of a doctoral research project supported by the University of Southampton.

Why have I been invited?

You have been invited to take part in this study as this research specifically aims to investigate methods for supporting the wellbeing of teaching professionals. We have invited teachers working in both primary and secondary schools to participate, in order to ensure that the study is representative across both sectors.

What will happen to me if I take part?

If you consent to take part in this study, you will be invited to take part in an online survey. This will involve completing a set of four short questionnaires about your self-efficacy beliefs, satisfaction with teaching, experience of positive and negative emotions and responses to work-related stress.

Following this, you will be invited to complete a daily online diary through recording 3 events which have occurred each day and reflecting on what has caused these. This will require approximately 5 minutes at the end of each day, for a period of two working weeks (a total of 10 diary entries).

You will be contacted by email one week and one month following this period to repeat the same wellbeing questionnaires.

What are the benefits of taking part?

Your participation in this study will contribute to research developments in understanding teachers' experience of stress and of effective methods for supporting wellbeing within the profession. Your school will receive a written summary of the research findings.

Are there any risks involved?

Completion of the reflective diary will require a minimal daily time commitment, however this is designed to be brief and easy to complete at the end of the school day, thereby minimising possible inconvenience to your working commitments.

Appendices

We have tried to ensure that the questions in this study do not cause any distress. However, it is not uncommon to experience some anxieties or concerns when completing questionnaires about your personal and professional wellbeing and support is available. If participating in this study raises any issues for you, we recommend that you contact one of the following resources:

Teacher Support Network

Website: www.teachersupport.info

Phone: 08000 562 561

Email: support@teachersupport.info

Mind UK

Website: www.mind.org.uk

Phone: 0300 123 3393

email: info@mind.org.uk

What will happen to the information that I provide?

This research aims to investigate the impact of completing a daily reflective diary on levels of teacher wellbeing and self-efficacy. This will involve the analysis of a range of completed questionnaire measures. As part of the analysis, the researcher may also wish to access the content of diary entries to complete further qualitative analyses. You will be given the opportunity to provide consent for the use of your questionnaire and diary responses through completing the online consent form provided at the beginning of the survey.

Will my participation be confidential?

All questionnaire responses and diary entries will be accessed via a secure, password protected online survey. Any information that you provide will remain confidential and will not be shared with any other participant or member of school staff. All information collected will be held in accordance with the Data Protection Act 1988. All data will be anonymised and will be stored securely on a password protected computer for ten years before it is destroyed. The results of this study will not include your name or any other identifying characteristics.

What happens if I change my mind?

Your participation is voluntary and you may withdraw from the study at any time without your legal rights being affected.

What happens if something goes wrong?

If you wish to report a concern or complaint about this research, please contact the Chair of the Ethics Committee, School of Psychology, University of Southampton, Southampton, SO17 1BJ.

Email: fshs-rso@soton.ac.uk

Tel: 02380 593856

Where can I get more information?

If you have any questions about this research please feel free to contact Francesca Nagle (email: fn4g12@soton.ac.uk) by email, or at the University of Southampton, School of Psychology, Shackleton Building (B44), Highfield Campus, Southampton SO17 1BJ (Tel: 02380 595321).

Appendix J: Online Statement of Consent

Teacher Wellbeing 1

Statement of Consent

I have read and understood the information about this study. In consenting, I understand that my legal rights are not affected. I also understand that data collected as part of this research will be kept confidential and that published results will maintain that confidentiality. I understand that if I have any questions about my rights as a participant in this research, or if I feel that I have been placed at risk, I may contact the chair of the Ethics Committee, Psychology, University of Southampton, SO17 1BJ, UK. Phone: +44 (0)23 8059 4663, email fshs-rso@soton.ac.uk

I certify that I am 16 years or older. I have read the consent form and I give consent to participate in the described research and for my questionnaire responses to be used for the purposes of this study.

I give consent for my completed diary entries to be used for the purposes of data analysis.

You may withdraw from the study at any time by closing this webpage.

Please tick (check) this box to indicate that you consent to taking part in this survey

[Click here to start this survey](#) 

Appendix K: Debrief Statement**Establishing the effects of a positive psychology intervention on the subjective wellbeing and efficacy beliefs of teaching staff****Debriefing Statement (V1, 12.09.14)**

The aim of this research was to investigate the impact of completing a daily reflective diary on levels of teacher wellbeing and self-efficacy.

Participants were randomly allocated to one of two conditions in which they were asked to specifically reflect on either positive or neutral events within the school day. It was necessary that participants were not informed of which condition they would be taking part in prior to commencing the study, as this may have influenced the results of the study.

Previous studies have indicated that interventions designed to promote reflection on positive events can be effective in increasing levels of self-reported wellbeing (Emmons & McCullough, 2003; Seligman et al., 2005). Furthermore, recent studies with teaching staff have demonstrated significant effects of such interventions in promoting life satisfaction, positive emotions and self-efficacy, and in reducing symptoms of teacher burnout (Chan, 2010; 2011; Critchley & Gibbs, 2012).

It is therefore expected that the application of a positive psychology intervention designed to promote reflection on positive events will lead to an increase in the reported wellbeing and efficacy beliefs of teaching staff, compared with reflection on neutral events.

Your participation in this study will contribute to important research developments in understanding teachers' experience of stress and of effective methods for supporting wellbeing within the profession.

We have tried to ensure that the questions in this study do not cause any distress. However, it is not uncommon to experience some anxieties or concerns when completing questionnaires about your personal and professional wellbeing and support is available. If participating in this study raises any issues for you, we recommend that you contact one of the following resources:

Teacher Support Network

Website: www.teachersupport.info

Phone: 08000 562 561

Email: support@teachersupport.info

Appendices

Mind UK

Website: www.mind.org.uk

Phone: 0300 123 3393

email: info@mind.org.uk

Once again results of this study will not include your name or any other identifying characteristics. All participating schools will receive a written summary of the research findings which you will be able to access if you wish.

If you have any further questions about this research please feel free to contact Francesca Nagle (email: fn4g12@soton.ac.uk) by email, or at the University of Southampton, School of Psychology, Shackleton Building (B44), Highfield Campus, Southampton SO17 1BJ (Tel: 02380 595321).

If you have questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you may contact the Chair of the Ethics Committee, Psychology, University of Southampton, Southampton, SO17 1BJ. Phone: +44 (0)23 8059 4663, email slb1n10@soton.ac.uk

Thank you for your participation in this research.

Appendix L: Examples of diary items by event category

Event category	Example
Colleague relationships/ interaction	
Positive	<i>Had a nice chat with colleagues from other departments- that 10 or 15 minutes makes all the difference.</i>
Negative	<i>TA not happy with something. Did not want me there when trying to scan and save on new copier. Was uncomfortable but I don't understand why it became an issue.</i>
Neutral	<i>Met with my year group partner to plan some lessons for next week.</i>
Student engagement/ progress	
Positive	<i>One of my key worker children achieved their writing target. She was incredibly proud of her work and read it back to me. I took her to see the head teacher and she was praised there also. Job satisfaction.</i>
Negative	<i>Spoke to 6th form students about deadlines. Many very behind with deadline approaching and results not looking good. Students just don't seem bothered.</i>
Neutral	<i>Meeting with student over lunchtime to review content missed in revision lesson.</i>
Student behaviour / emotional needs	
Positive	<i>Unstructured art activity with outstanding behaviour.</i>
Negative	<i>Year 10- demotivated and disengaged in the work set. A real behaviour battle.</i>
Neutral	<i>Student not in school so attendance officer chasing me up...No criticism of her she had to do it.</i>

Parental involvement/ communication

- | | |
|----------|--|
| Positive | <i>Parents Evening. A chance to talk to parents and give praise which is always really positive. Reminds me why I do this job.</i> |
| Negative | <i>Having a battle with a parent... she feels we are blocking and is angry that we won't take this further forward.</i> |
| Neutral | <i>Parents meetings were scheduled for today. Management have requested that we offer a late slot for appointments... This is so parents with siblings can attend appointments near each other and to allow opportunity for working parents to attend.</i> |

Workload, roles and responsibilities

- | | |
|----------|--|
| Positive | <i>Managed to do lots of jobs I normally don't have time for. That was such a bonus- so good to feel well organised.</i> |
| Negative | <i>Doubted if teaching a good job- I work hard but still can't keep on top of marking.... I would like a night off this week. Don't see that happening... Another night not spent with my wife. It's just not right.</i> |
| Neutral | <i>Attended weekly staff meeting and led phase group meeting within that about consistency of rewards and marking.</i> |

List of References

Asterisk indicates empirical studies included in systematic literature review.

- Aguayo, R., Pecino, C. V., de la Fuente Solana, E. I., & Fernández, L. M. L. (2011). A meta-analytic reliability generalization study of the Maslach Burnout Inventory. *International Journal of Clinical and Health Psychology, 11*(2), 343-361. Retrieved from: <http://www.redalyc.org/revista.oa?id=337>
- Akin-Little, K. A., Little, S. G., & Delligatti, N. (2004). A preventative model of school consultation: Incorporating perspectives from positive psychology. *Psychology in the Schools, 41*(1), 155-162. doi: 10.1002/pits.10147
- Arthaud-Day, M.L., Rode, J.C., Mooney, C.H., & Near, J.P. (2005). The subjective well-being construct: a test of its convergent, discriminant and factorial validity. *Social Indicators Research, 74*, 445-476. doi: 10.1007/s11205-004-8209-6
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W.H. Freeman.
- *Boehm, J. K., Lyubomirsky, S., & Sheldon, K. M. (2011). A longitudinal experimental study comparing the effectiveness of happiness-enhancing strategies in Anglo Americans and Asian Americans. *Cognition & Emotion, 25*(7), 1263-1272. doi: 10.1080/02699931.2010.541227
- Bolier, L., Haverman, M., Westerhof, G.J., Riper, H., Smit, F., & Bohlmeijer, E. (2013). Positive psychology interventions: A meta-analysis of randomized controlled studies. *BMC Public Health, 13*(1), 119-139. doi:10.1186/1471-2458-13-119
- Brickman, P., & Campbell, D. T. (1971). Hedonic relativism and planning the good society. In M. H. Appley (Ed.), *Adaptation-level theory* (pp. 287–305). New York: Academic Press.
- Brown, C. G. (2012). A systematic review of the relationship between self-efficacy and burnout in teachers. *Educational and Child Psychology, 29*(4), 47-63.
- Carver, C. S., Scheier, M. F., & Segerstrom, S. (2010). Optimism. *Clinical Psychology Review, 30*, 879-889. doi:10.1016/j.cpr.2010.01.006

List of References

- Chan, D. W. (2010). Gratitude, gratitude intervention and subjective well-being among Chinese school teachers in Hong Kong. *Educational Psychology, 30*(2), 139-153. doi: 10.1080/01443410903493934
- Chan, D. W. (2011). Burnout and life satisfaction: does gratitude intervention make a difference among Chinese school teachers in Hong Kong? *Educational Psychology, 31*(7), 809-823. doi: 10.1080/01443410.2011.608525
- *Chan, D. W. (2013). Counting blessings versus misfortunes: positive interventions and subjective well-being of Chinese school teachers in Hong Kong. *Educational Psychology, 33*(4), 504-519. doi: 10.1080/01443410.2013.785046
- *Cheng, S. T., Tsui, P. K., & Lam, J. H. (2015). Improving mental health in health care practitioners: Randomized controlled trial of a gratitude intervention. *Journal of Consulting and Clinical Psychology, 83*(1), 177-186. doi 10.1037/a0037895
- Collie, R. J., Shapka, J. D., & Perry, N. E. (2012). School climate and social-emotional learning: Predicting teacher stress, job satisfaction, and teaching efficacy. *Journal of Educational Psychology, 104*(4), 1189-1204. doi: 10.1037/a0029356
- *Critchley, H., & Gibbs, S. (2012). The effects of positive psychology on the efficacy beliefs of school staff. *Educational and Child Psychology, 29*(4), 64-76.
- Deci, E. L., & Ryan, R. M. (2000). The 'what' and 'why' of goal pursuits: Human needs and the self-determination of behaviour. *Psychological Inquiry, 11*(4), 227-268. doi: 10.1207/S15327965PLI1104_01
- Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology, 49*(3), 182-185. doi: 10.1037/a0012801
- Department for Education [DfE]. (2014). School workforce in England: November 2013. Retrieved from: <https://www.gov.uk/government/collections/statistics-school-workforce>
- Diener, E. (1984). Subjective well-being. *Psychological Bulletin, 95*, 542-575.
- Diener, E. (2000). Subjective well-being: The science of happiness and a proposal for a national index. *American Psychologist, 55*(1), 34-43. doi: 10.1037/0003-066X.55.1.34

- Diener, E. D., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, *49*(1), 71-75. doi: 10.1207/s15327752jpa4901_13
- Diener, E., Lucas, R.E., & Oishi, S. (2002). Subjective well-being: The science of happiness and life satisfaction. In C.R. Snyder & S.J. Lopez (Eds.), *The handbook of positive psychology* (pp. 63-74). New York: Oxford University Press.
- *Digdon, N., & Koble, A. (2011). Effects of constructive worry, imagery distraction, and gratitude interventions on sleep quality: A pilot trial. *Applied Psychology: Health and Well-Being*, *3*(2), 193-206. doi:10.1111/j.1758-0854.2011.01049.x
- Emmons, R. A. (2004). An introduction. In R. A. Emmons & M. E. McCullough (Eds.), *The psychology of gratitude* (pp. 3-16). New York: Oxford University Press.
- *Emmons, R. A., & McCullough, M. E. (2003). Counting blessings versus burdens: an experimental investigation of gratitude and subjective well-being in daily life. *Journal of Personality and Social Psychology*, *84*(2), 377-389. doi: 10.1037/0022-3514.84.2.377
- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioural, and biomedical sciences. *Behaviour Research Methods*, *39*(2), 175-191. Retrieved from: www.ncbi.nlm.nih.gov/pubmed/17695343
- Field, A. (2009). *Discovering statistics using SPSS*. London: Sage Publications.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, *56*, 218-226. doi: 10.1037/0003-066X.56.3.218
- Fredrickson, B. L., & Branigan, C. (2005). Positive emotions broaden the scope of attention and thought-action repertoires. *Cognition & Emotion*, *19*(3), 313-332. doi: 10.1080/02699930441000238
- Fredrickson, B. L., & Joiner, T. (2002). Positive emotions trigger upward spirals toward emotional well-being. *Psychological Science*, *13*, 172-175. doi: 10.1111/1467-9280.00431

List of References

- Fredrickson, B. L., Cohn, M. A., Coffey, K. A., Pek, J., & Finkel, S. M. (2008). Open hearts build lives: positive emotions, induced through loving-kindness meditation, build consequential personal resources. *Journal of Personality and Social Psychology, 95*(5), 1045-1062. doi: 10.1037/a0013262
- Fredrickson, B. L., Tugade, M., Waugh, C. E., & Larkin, G. R. (2003). What good are positive emotions in crises? A prospective study of resilience and emotions following the terrorist attacks on the United States on September 11th, 2001. *Journal of Personality and Social Psychology, 84*, 365-376. doi: 10.1037/0022-3514.84.2.365
- Friedman, I. A. (2003). Self-efficacy and burnout in teaching: The importance of interpersonal-relations efficacy. *Social Psychology of Education, 6*(3), 191-215. doi 10.1023/A:1024723124467
- *Froh, J. J., Kashdan, T. B., Ozimkowski, K. M., & Miller, N. (2009). Who benefits the most from a gratitude intervention in children and adolescents? Examining positive affect as a moderator. *The Journal of Positive Psychology, 4*(5), 408-422. doi: 10.1080/17439760902992464
- *Froh, J. J., Sefick, W. J., & Emmons, R. A. (2008). Counting blessings in early adolescents: An experimental study of gratitude and subjective well-being. *Journal of School Psychology, 46*(2), 213-233. doi:10.1016/j.jsp.2007.03.005
- *Gander, F., Proyer, R. T., Ruch, W., & Wyss, T. (2013). Strength-based positive interventions: further evidence for their potential in enhancing well-being and alleviating depression. *Journal of Happiness Studies, 14*(4), 1241-1259. doi 10.1007/s10902-012-9380-0
- *Geraghty, A. W., Wood, A. M., & Hyland, M. E. (2010a). Dissociating the facets of hope: Agency and pathways predict dropout from unguided self-help therapy in opposite directions. *Journal of Research in Personality, 44*(1), 155-158. doi:10.1016/j.jrp.2009.12.003
- *Geraghty, A. W., Wood, A. M., & Hyland, M. E. (2010b). Attrition from self-directed interventions: Investigating the relationship between psychological predictors, intervention content and dropout from a body dissatisfaction intervention. *Social Science & Medicine, 71*(1), 30-37. doi:10.1016/j.socscimed.2010.03.007

- Gibbs, S., & Miller, A. (2014). Teachers' resilience and well-being: a role for educational psychology. *Teachers and Teaching: Theory and Practice*, 20(5), 609-621. doi: 10.1080/13540602.2013.844408
- *Harbaugh, C. N., & Vasey, M. W. (2014). When do people benefit from gratitude practice? *The Journal of Positive Psychology*, 9(6), 535-546. doi: 10.1080/17439760.2014.927905
- Harter, J. K., Schmidt, F. L., & Keyes, C. L. (2003). Well-being in the workplace and its relationship to business outcomes: A review of the Gallup studies. In C. L. Keyes & J. Haidt (Eds.), *Flourishing: The positive person and the good life* (pp. 205–224). Washington, DC: American Psychological Association.
- Hayes, D. (2004). Recruitment and retention: Insights into the motivation of primary trainee teachers in England. *Research in Education*, 71, 37-49. Retrieved from: <http://www.ingentaconnect.com/content/manup/rie/2004/00000071/00000001/art00005?crawler=true&mimetype=application/pdf>
- Ho, C. L., & Au, W. T. (2006). Teaching Satisfaction Scale Measuring Job Satisfaction of Teachers. *Educational and Psychological Measurement*, 66(1), 172-185. doi: 10.1177/0013164405278573
- *Homan, K. J., Sedlak, B. L., & Boyd, E. A. (2014). Gratitude buffers the adverse effect of viewing the thin ideal on body dissatisfaction. *Body Image*, 11(3), 245-250. doi: 10.1016/j.bodyim.2014.03.005
- Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9), 1277-1288. doi: 10.1177/1049732305276687
- Ingersoll, R. M., & Smith, T. M. (2003). The wrong solution to the teacher shortage. *Educational Leadership*, 60(8), 30-33. Retrieved from: http://www.gse.upenn.edu/pdf/rmi/EL_TheWrongSolution_to_theTeacherShortage.pdf
- Johnson, S., Cooper, C., Cartwright, S., Donald, I., Taylor, P., & Millet, C. (2005). The experience of work-related stress across occupations. *Journal of Managerial Psychology*, 20(2), 178-187. doi: 10.1108/02683940510579803
- Judge, T. A., Locke, E. A., Durham, C. C., & Kluger, A.N. (1998). Dispositional effects on job and life satisfaction: The role of core evaluations. *Journal of Applied Psychology*, 83, 17-34. doi: 10.1037/0021-9010.83.1.17

List of References

- Kaczmarek, L. D., Goodman, F. R., Drażkowski, D., Kashdan, T. B., Połatyńska, K., & Komorek, J. (2014). Instructional support decreases desirability and initiation of a gratitude intervention. *Personality and Individual Differences, 64*, 89-93. doi:10.1016/j.paid.2014.02.022
- Kaczmarek, L. D., Kashdan, T. B., Drażkowski, D., Enko, J., Kosakowski, M., Szäefer, A., & Bujacz, A. (2015). Why do people prefer gratitude journaling over gratitude letters? The influence of individual differences in motivation and personality on web-based interventions. *Personality and Individual Differences, 75*, 1-6. doi: 10.1016/j.paid.2014.11.004
- Kahneman, D. (1999). Objective happiness. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 3–25). New York: Russell Sage Foundation.
- *Kaplan, S., Bradley-Geist, J. C., Ahmad, A., Anderson, A., Hargrove, A. K., & Lindsey, A. (2014). A test of two positive psychology interventions to increase employee well-being. *Journal of Business and Psychology, 29*(3), 367-380. doi: 10.1007/s10869-013-9319-4
- Klassen, R. M., & Chiu, M. M. (2010). Effects on teachers' self-efficacy and job satisfaction: Teacher gender, years of experience, and job stress. *Journal of Educational Psychology, 102*(3), 741-756. doi: 10.1037/a0019237
- Klassen, R. M., Bong, M., Usher, E. L., Chong, W. H., Huan, V. S., Wong, I. Y., & Georgiou, T. (2009). Exploring the validity of a teachers' self-efficacy scale in five countries. *Contemporary Educational Psychology, 34*(1), 67-76. doi: 10.1037/a0019237
- Kondracki, N. L., & Wellman, N. S. (2002). Content analysis: Review of methods and their applications in nutrition education. *Journal of Nutrition Education and Behaviour, 34*(4), 224-230. doi: 10.1016/S1499-4046(06)60097-3.
- Kyriacou, C. (2001). Teacher stress: directions for future research. *Educational Review, 53*, 27-35. doi: 10.1080/00131910120033628
- *Lambert, N. M., Clark, M. S., Durtschi, J., Fincham, F. D., & Graham, S. M. (2010). Benefits of expressing gratitude to a partner changes one's view of the relationship. *Psychological Science, 21*(4), 574-580. doi: 10.1177/0956797610364003

- Lambert, N. M., Graham, S. M., & Fincham, F. D. (2009). A prototype analysis of gratitude: Varieties of gratitude experiences. *Personality and Social Psychology Bulletin*, 35(9), 1193-1207. doi: 10.1177/0146167209338071
- *Lambert, N. M., Gwinn, A. M., Baumeister, R. F., Strachman, A., Washburn, I. J., Gable, S. L., & Fincham, F. D. (2013). A boost of positive affect: The perks of sharing positive experiences. *Journal of Social and Personal Relationships*, 30(1), 24-43. doi: 10.1177/0265407512449400
- Lauchlan, F., Gibbs, S., & Dunsmuir, S. (2012). Guest Editorial. *Educational & Child Psychology*, 29(4), 5-6.
- *Layous, K., Lee, H., Choi, I., & Lyubomirsky, S. (2013). Culture matters when designing a successful happiness-increasing activity: A comparison of the United States and South Korea. *Journal of Cross-Cultural Psychology*, 44(8), 1294-1303. doi: 10.1177/0022022113487591
- Lyubomirsky, S., & Layous, K. (2013). How do simple positive activities increase well-being? *Current Directions in Psychological Science*, 22(1), 57-62. doi: 10.1177/0963721412469809
- *Lyubomirsky, S., Dickerhoof, R., Boehm, J. K., & Sheldon, K. M. (2011). Becoming happier takes both a will and a proper way: an experimental longitudinal intervention to boost well-being. *Emotion*, 11(2), 391-402. doi: 10.1037/a0022575
- Lyubomirsky, S., Sheldon, K. M., & Schkade, D. (2005). Pursuing happiness: The architecture of sustainable change. *Review of General Psychology*, 9(2), 111-131. doi: 10.1037/1089-2680.9.2.111
- *Martínez-Martí, M. L., Avia, M. D., & Hernández-Lloreda, M. J. (2010). The effects of counting blessings on subjective well-being: A gratitude intervention in a Spanish sample. *The Spanish Journal of Psychology*, 13(2), 886-896. Retrieved from: <http://www.redalyc.org/articulo.oa?id=17217376033>
- Maslach, C., & Jackson, S.E. (1986). *Maslach Burnout Inventory Manual*. Palo Alto, CA: Consulting Psychologist Press.
- McCullough, M. E., Emmons, R. A., & Tsang, J. A. (2002). The grateful disposition: A conceptual and empirical topography. *Journal of Personality and Social Psychology*, 82, 112-127. doi: 10.1037/0022-3514.82.1.112

List of References

- McCullough, M. E., Tsang, J. A., & Emmons, R. A. (2004). Gratitude in intermediate affective terrain: Links of grateful moods to individual differences and daily emotional experience. *Journal of Personality and Social Psychology*, *86*, 295-309. doi: 10.1037/0022-3514.86.2.295
- Mitchell, J., Vella-Brodrick, D., & Klein, B. (2010). Positive psychology and the internet: A mental health opportunity. *Sensoria: A Journal of Mind, Brain & Culture*, *6*(2), 30-41. doi: 10.7790/ejap.v6i2.230
- *Mongrain, M., & Anselmo-Matthews, T. (2012). Do positive psychology exercises work? A replication of Seligman et al. (2005). *Journal of Clinical Psychology*, *68*(4). doi: 10.1002/jclp.21839
- Nelson, S. K., Della Porta, M. D., Jacobs Bao, K., Lee, H. C., Choi, I., & Lyubomirsky, S. (2014). Does supporting autonomy facilitate the pursuit of happiness? Results from an experimental longitudinal well-being intervention. *Manuscript submitted for publication*.
- Niemiec, C. P., Ryan, R. M., & Deci, E. L. (2009). The path taken: Consequences of attaining intrinsic and extrinsic aspirations in post-college life. *Journal of Research in Personality*, *43*(3), 291-306. doi:10.1016/j.jrp.2008.09.001
- *Oudou, N., & Vella-Brodrick, D. A. (2013). The efficacy of positive psychology interventions to increase well-being and the role of mental imagery ability. *Social Indicators Research*, *110*(1), 111-129. doi: 10.1007/s11205-011-9919-1
- *Owens, R. L., & Patterson, M. M. (2013). Positive psychological interventions for children: A comparison of gratitude and best possible selves approaches. *The Journal of Genetic Psychology*, *174*(4), 403-428. doi: 10.1080/00221325.2012.697496
- Park, N., & Peterson, C. (2003). Virtues and organizations. In K.S. Cameron, J.E. Dutton, & R. E. Quinn (Eds.), *Positive organizational scholarship: Foundations of a new discipline* (pp. 33-47). San Francisco, CA: Berrett- Koehler Publishers, Inc.
- Park, N., Peterson, C., & Seligman, M. E. (2004). Strengths of character and well-being. *Journal of Social and Clinical Psychology*, *23*(5), 603-619. doi: 10.1521/jscp.23.5.603.50748

- Parks, A. C., & Biswas-Diener, R. (2013). Positive interventions: Past, present and future. In A. C. Parks, R. Biswas-Diener, T. Kashdan, & J. Ciarrochi (Eds.), *Bridging acceptance and commitment therapy and positive psychology: A practitioner's guide to a unifying framework*. Oakland, CA: New Harbinger
- *Peters, M. L., Meevissen, Y. M., & Hanssen, M. M. (2013). Specificity of the Best Possible Self intervention for increasing optimism: Comparison with a gratitude intervention. *Terapia Psicológica, 31*(1), 93-100. doi: 10.4067/S0718-48082013000100009
- Peterson, C., Park, N., & Seligman, M. E. (2005). Orientations to happiness and life satisfaction: The full life versus the empty life. *Journal of Happiness Studies, 6*(1), 25-41. doi: 10.1007/s10902-004-1278-z
- Pluskota, A. (2014). The application of positive psychology in the practice of education. *SpringerPlus, 3*(1), 147-153. Retrieved from: <http://www.springerplus.com/content/3/1/147>
- *Proyer, R. T., Gander, F., Wellenzohn, S., & Ruch, W. (2014). Positive psychology interventions in people aged 50-79 years: long-term effects of placebo-controlled online interventions on well-being and depression. *Aging & Mental Health, 18*(8), 997-1005. doi: 10.1080/13607863.2014.899978
- *Rash, J. A., Matsuba, M. K., & Prkachin, K. M. (2011). Gratitude and Well-Being: Who Benefits the Most from a Gratitude Intervention? *Applied Psychology: Health and Well-Being, 3*(3), 350-369. doi:10.1111/j.1758-0854.2011.01058.x
- Robertson, C., & Dunsmuir, S. (2013). Teacher stress and pupil behaviour explored through a rational-emotive behaviour therapy framework. *Educational Psychology, 33*(2), 215-232. doi: 10.1080/01443410.2012.730323
- Ryan, R. M., Huta, V., & Deci, E. L. (2008). Living well: A self-determination theory perspective on eudaimonia. *Journal of Happiness Studies, 9*(1), 139-170. doi: 10.1007/s10902-006-9023-4
- Ryff, C.D., & Keyes, C.L.M. (1995). The structure of psychological wellbeing revisited. *Journal of Personality and Social Psychology, 69*, 719-727. doi: 10.1037/0022-3514.69.4.719

List of References

- Schueller, S. M. (2010). Preferences for positive psychology exercises. *The Journal of Positive Psychology, 5*(3), 192-203. doi: 10.1080/17439761003790948
- Schutte, N. S. (2013). The broaden and build process: Positive affect, ratio of positive to negative affect and general self-efficacy. *The Journal of Positive Psychology, 9*(1), 66-74. doi: 10.1080/17439760.2013.841280
- Schwarzer, R., & Hallum, S. (2008). Perceived teacher self-efficacy as a predictor of job stress and burnout: Mediation analyses. *Applied Psychology, 57*(1), 152-171. doi: 10.1111/j.1464-0597.2008.00359.x
- *Seear, K. H., & Vella-Brodrick, D. A. (2013). Efficacy of positive psychology interventions to increase well-being: Examining the role of dispositional mindfulness. *Social Indicators Research, 114*(3), 1125-1141. doi: 10.1007/s11205-012-0193-7
- Seligman, M. E. P. (2002). *Authentic Happiness: Using the Science of Positive Psychology to Realise Your Potential for Lasting Fulfilment*. London: Nicholas Brealey.
- Seligman, M. E. P. (2003). Positive psychology: fundamental assumptions. *The Psychologist, 16*, 126-127. doi: 10.1037/0003-066X.55.1.5
- Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55*(1), 5-14. doi: 10.1037//0003-066X.55.1.5
- Seligman, M. E. P., Ernst, R. M., Gillham, J., Reivich, K., & Linkins, M. (2009). Positive education: Positive psychology and classroom interventions. *Oxford Review of Education, 35*(3), 293-311. doi: 10.1080/03054980902934563
- Seligman, M. E. P., Rashid, T., & Parks, A. C. (2006). Positive psychotherapy. *American Psychologist, 61*(8), 774-788. doi: 10.1037/0003-066X.61.8.774
- *Seligman, M. E. P., Steen, T. A., Park, N., & Peterson, C. (2005). Positive psychology progress: empirical validation of interventions. *American Psychologist, 60*(5), 410-421. doi.org/10.1037/0003-066X.60.5.410
- *Sergeant, S., & Mongrain, M. (2011). Are positive psychology exercises helpful for people with depressive personality styles? *The Journal of Positive Psychology, 6*(4), 260-272. doi: 10.1080/17439760.2011.577089

- *Sheldon, K. M., & Lyubomirsky, S. (2006). How to increase and sustain positive emotion: The effects of expressing gratitude and visualizing best possible selves. *The Journal of Positive Psychology, 1*(2), 73-82. doi: 10.1080/17439760500510676
- Sheldon, K. M., Abad, N., Ferguson, Y., Gunz, A., Houser-Marko, L., Nichols, C. P., & Lyubomirsky, S. (2010). Persistent pursuit of need-satisfying goals leads to increased happiness: A 6-month experimental longitudinal study. *Motivation and Emotion, 34*(1), 39-48. doi: 10.1007/s11031-009-9153-1
- Sheldon, K. M., Elliot, A. J., Kim, Y., & Kasser, T. (2001). What is satisfying about satisfying events? Testing 10 candidate psychological needs. *Journal of Personality and Social Psychology, 80*(2), 325. doi: 10.1037/0022-3514.80.2.325
- Sin, N. L., & Lyubomirsky, S. (2009). Enhancing well-being and alleviating depressive symptoms with positive psychology interventions: A practice-friendly meta-analysis. *Journal of Clinical Psychology, 65*(5), 467-487. doi: 10.1002/jclp.20593
- Snyder, C.R., & Lopez, S.J. (2007). *Positive psychology: The science and practical explorations of human strengths*. Thousand Oaks, CA: Sage Publications.
- Stajkovic, A. D., & Sommer, S. M. (2000). Self-Efficacy and Causal Attributions: Direct and Reciprocal Links. *Journal of Applied Social Psychology, 30*(4), 707-737. doi: 10.1111/j.1559-1816.2000.tb02820.x
- Terjesen, M. D., Jacofsky, M., Froh, J., & DiGiuseppe, R. (2004). Integrating positive psychology into schools: Implications for practice. *Psychology in the Schools, 41*(1), 163-172. doi: 10.1002/pits.10148
- Tesch, R. (1990). *Qualitative research: Analysis types and software tools*. Bristol, PA: Falmer.
- *Toepfer, S. M., & Walker, K. (2009). Letters of gratitude: Improving well-being through expressive writing. *Journal of Writing Research, 1*(3), 181-198. Retrieved from: <http://www.jowr.org/Ccount/click.php?id=12>
- *Toepfer, S. M., Cichy, K., & Peters, P. (2012). Letters of gratitude: Further evidence for author benefits. *Journal of Happiness Studies, 13*(1), 187-201. doi: 10.1007/s10902-011-9257-7

List of References

- Tschannen-Moran, M., & Hoy, A. W. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education, 17*(7), 783-805. doi:10.1016/S0742-051X(01)00036-1
- *Watkins, P. C., Woodward, K., Stone, T., & Kolts, R. L. (2003). Gratitude and happiness: Development of a measure of gratitude, and relationships with subjective well-being. *Social Behaviour and Personality: An International Journal, 31*(5), 431-451. doi: 10.2224/sbp.2003.31.5.431
- Watkins, P.C. (2004). Gratitude and subjective well-being. In R.A. Emmons & M.E. McCullough (Eds.), *The psychology of gratitude* (pp. 167-192). New York: Oxford University Press.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology, 54*(6), 1063-1070. doi: 10.1037/0022-3514.54.6.1063
- Weare, K., & Grey, G. (2003). *What works in developing children's emotional and social competence and wellbeing?* (DfES Research Report No. 456). Nottingham: Department for Education and Skills [DfES]. Retrieved from: <http://webarchive.nationalarchives.gov.uk/20130401151715/http://www.education.gov.uk/publications/eOrderingDownload/RR456.pdf>
- Weiner, B. (2000). Interpersonal and intrapersonal theories of motivation from an attributional perspective. *Educational Psychology Review, 12*(1), 1-14. doi: 10.1023/A:1009017532121
- Wolters, C. A., & Daugherty, S. G. (2007). Goal structures and teachers' sense of efficacy: Their relation and association to teaching experience and academic level. *Journal of Educational Psychology, 99*(1), 181. doi: 10.1037/0022-0663.99.1.181
- Wood, A. M., Froh, J. J., & Geraghty, A. W. (2010). Gratitude and well-being: A review and theoretical integration. *Clinical Psychology Review, 30*(7), 890-905. doi:10.1016/j.cpr.2010.03.005
- Wood, A. M., Maltby, J., Gillett, R., Linley, P. A., & Joseph, S. (2008). The role of gratitude in the development of social support, stress, and depression: Two longitudinal studies. *Journal of Research in Personality, 42*, 854-871. doi:10.1016/j.jrp.2007.11.003