UNIVERSITY OF SOUTHAMPTON

FACULTY OF SOCIAL AND HUMAN SCIENCES

School of Psychology

Could sharing gratitude on Facebook improve the well-being of young people?

By

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Thesis for the degree of Doctorate in Educational Psychology

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ABSTRACT

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COULD SHARING GRATITUDE ON FACEBOOK IMPROVE WELL-BEING IN YOUNG PEOPLE?

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The first chapter presents a systematic review of the literature around expressing gratitude and Facebook use and the impact of these behaviours on the well-being of young people. Studies were included if they evaluated the effects of Facebook use, keeping a gratitude log or sharing gratitude (online or otherwise) on measures of well-being. The review searched three electronic databases for peer-reviewed journal articles from 1995 onwards. No reports were found concerning the specific intervention of sharing of gratitude on Facebook. A total of seven Facebook interventions and 14 gratitude interventions were included. The analysis of these 21 interventions showed that overall, Facebook usage appears to have a negative impact on participants' well-being whilst gratitude interventions appear to have a positive impact on well-being. Based on these findings it is concluded that now is a good time to begin a new program of research exploring effect of sharing gratitude on Facebook.

   The empirical paper examined the effectiveness of a Facebook based gratitude intervention to promote well-being in young people aged 16-18 (N = 70). Participants completed online questionnaire measures pre and post intervention as well as at a six-week follow up. Participants posted grateful or neutral learning status update to Facebook daily for ten consecutive college days. ANOVAs revealed no significant effect of condition. Moderation analysis found that the intervention has a positive impact on well-being but only for individuals who perceived peer reactions to be positive. This tentatively suggests that simply expressing gratefulness is not enough to boost well-being, expressed gratitude needs to be positively acknowledged by others. The findings extend the evidence base in the fields of post-16 well-being, Facebook use and gratitude sharing.

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DECLARATION OF AUTHORSHIP

I, Rebecca Claire Horner declare that this thesis entitled **"Could sharing gratitude on Facebook improve the well-being of young people?"** and the work presented in it are my own and has been generated by me as the result of my own original research.

I confirm that:

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

Signed: ....

Date: ....

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Without the distractions provided by my fantastic family and friends, I would have been far more strung out at this point. I am indebted to you all, I intend to repay your kindness in home-baked cake and hand-sewn clothing.

Finally, thank you to Darren. Who encouraged me to take the first step, who married me despite my status as a broke (and broken) student, and who always makes me feel special. Thank you for always being there to pick up the pieces and put me back together again. It's your turn next!

Definitions and Abbreviations

ANOVA	Analysis of Variance
ANCOVA	Analysis of Covariance
$\acute{б}$	Beta statistics
BTEC(s)	British and Technology Education Council (vocational qualification(s))
CG(s)	Control Group(s)
χ^2	Chi-Squared
d	Cohen's d
K	Cohen's Kappa
α	Cronbach's Alpha
df	Degrees of Freedom
DfE	Department for Education
DV	Dependant Variable
EP(s)	Educational Psychologist (s)
F	Test statistic for ANOVA
FE	Further Education
GAC	Gratitude Adjective Checklist
GCSE	General Certificate of Secondary Education
GQ-6	Gratitude Questionnaire 6
GRAT	Gratitude Resentment and Appreciation Test
GRAT-R	Gratitude Resentment and Appreciation Test Revised
GRAT-S	Gratitude Resentment and Appreciation Test Short Form
INCOM	Iowa-Netherlands Comparison Orientation Measure
IV	Independent Variable
M	Mean
MTCSES	Multi-Tasking Computer Self-Efficacy Scale
N	Number of participants/studies
NA	Negative Affect
ns	Non-significant
NVQ(s)	National Vocational Qualification(s)
ONS	Office for National Statistics
η_p^2	Partial-Eta Squared
p	Probability, significance of test statistic

PA	Positive Affect
PANAS	Positive and Negative Affect Scale
r	Pearson's Correlation
SD	Standard Deviation
SE	Standard Error
SPS	Social Provision Scale
SWL	Satisfaction with Life
t	T-Score
T1	Time 1 (pre-intervention)
T2	Time 2 (post-intervention)
T3	Time 3 (follow-up)
US	United States (of America)
WHO	World Health Organisation

Chapter 1:   Review Paper

Introduction

Data gathered by the Office for National Statistics in 2015 revealed that 18% of those young people asked reported high levels of anxiety in 2014-2015. Additionally, young peoples' reported mental well-being has worsened between 2009-2010 and 2012-2013 (from 25 out of 35 to 24.2 out of 35) (Office for National Statistics, 2015). In 2003, the World Health Organisation (WHO) recognised an urgent need for action to reduce the impact of mental health illnesses worldwide (WHO, 2003). Ten years later, in 2013, a global Mental Health Action plan was published by the WHO. This contains specific targets and recommendations around early intervention and prevention (World Health Organisation, 2013). According to the WHO, a newly emerging vulnerable group within society that is at significantly higher risk of experiencing mental health issues are the young unemployed (in addition to groups such as adolescents first exposed to substance abuse, minority groups etc.). Suicide is the second most common cause of death in young people (aged 15-29) worldwide (World Health Organisation, 2014). Within the action plan, the WHO suggests that early identification and management of mental disorders can be an effective way to protect vulnerable young people at risk of suicide. The action plan sets two global goals in this area:

"Global target 3.1: 80% of countries will have at least two functioning national, multi-sectoral promotion and prevention programmes in mental health by the year 2020

Global target 3.2: The rate of suicide in countries will be reduced by 10%"

(World Health Organisation, 2013, p. 17)

The proposed actions to enable the above targets to be met include tasks centred around the provision of mental health programmes at the early stages of life. The WHO suggest that up to fifty percent of mental disorders seen in adults begin before the age of fourteen years (WHO, 2013). In 2012, the sixty-fifth World Health Assembly noted that there is increasing evidence on the effectiveness (and cost-effectiveness) of early intervention to promote mental health and prevent mental health issues in children and adolescents (WHO, 2013). In terms of intervention, the Mental Health Action Plan suggests that early intervention for children and adolescents should be evidence-based, psychosocial and other non-pharmacological, community-based interventions that respect

the rights of the child (under the United Nations Convention on the Rights of the Child and other human rights regulations) and avoid medicalisation and hospitalisation where appropriate and possible. The Department for Education (DfE) have begun a consultation to find out more about what works for children and young peoples' mental health, specifically focusing on peer support (i.e. helping a friend to discuss their problems, buddying/befriending, 1:1 and group support sessions). Within the consultation information the DfE identifies good mental health and well-being as a key priority and that they want to create:

"An environment, in schools, colleges, community groups and online, which promotes good mental wellbeing and helps young people to have the knowledge and confidence to be able to support one another."

(Department for Education, 2016, p. 1)

Concurrent with this increase in mental health difficulties, the usage of social media amongst young people is also reported to be increasing significantly (Lenhart, Purcell, Smith, & Zickuhr, 2010, Kross, et al., 2013), such that it is now a key daily element of many young people's lives (Madden, et al., 2013) . Research into the impact on mental health of this relatively new component to social interaction suggests that it might be having a negative impact on young people's self-reported well-being (e.g. Brooks, 2015; Vogel, Rose, Okdie, Eckles, & Franz, 2015)."

Young people appear to be so eager to use Facebook that they frequently break the site rules and use it before they are officially permitted to. A survey carried out in October 2013 by 'Opinium' for Nominet's internet advice site 'Knowthenet.org.uk' found that, of all the social network sites, Facebook is the one most likely to have underage users breaching its minimum age (13) rules. 52% of eight to 16 year olds reported that they had ignored the age limit (Opinium, 2013).

One activity that might have a positive impact on mental health is expressing gratitude. (e.g. Emmons, 2007; Lambert, Fincham, & Stillman, 2012). Studies suggest that, when compared to an active control group, the daily completion of a gratitude log or diary can improve participants reported levels of happiness, positive affect and life satisfaction whilst reducing low mood, symptoms of physical illness and negative affect (e.g. Emmons & McCullough, 2003; Froh, et al., 2014; Harbough & Vasey, 2014). Moreover, this impact appears to be increased when gratitude is shared with a friend or partner (e.g Froh,

Kashdan, Ozimkowski, & Miller, 2009; Lambert, Clark, Durtschi, Fincham, & Graham, 2010; Lambert, Fincham, & Stillman, 2012; Lambert, et al., 2012).

As young people are increasingly experiencing mental health issues and concurrently using social media more to communicate, a site such as Facebook, could be a good platform for a gratitude intervention aimed at potentially improving young peoples' mental health and well-being.

This literature review critically evaluates the research around gratitude interventions, Facebook interventions and what benefits or costs interventions like these may have for young people in educational settings. The evaluation of these specific areas is carried out with a view to exploring the possible benefits of a combined Facebook and gratitude intervention on this population.

Definition of 'well-being'

'Well-being' is a term frequently used within the literature, and yet, is not defined clearly. There are a lot of aspects of well-being that could be included in a definition (e.g. self-acceptance, morale, positive interpersonal relations, autonomy, sense of mastery, self-esteem etc.). This paper will adopt a general definition of well-being that encompasses increased positive affect, satisfaction with life, vitality and happiness, and decreased negative affect.

Definition of internet, social media

The current review will adopt DiMaggio, Hargittai, Neuman, & Robinson's (2001) definition of the 'internet' which refers to the global electronic network of networks that link information and people through digital devices (such as personal computers, tablet computers, and smartphones) thus allowing communication between people and the retrieval of information. Additionally, Kaplan and Haenlein's (2010) definition of 'social media' will be used: "…a group of internet-based applications that…allow the creation and exchange of user-generated content" (p. 61).

Social Media

The way people use the internet has changed dramatically since the 1990s, when it was primarily used for information and entertainment. Increasingly, people now use the internet for interpersonal communication (Kwon, D'Angelo, & McLeod, 2013). In the last

few years there has been a significant increase in the number of opportunities for young people to communicate on the internet with friends and family as well as increasing opportunities to build new relationships (Valkenburg & Peter, 2007). Social media use by young people has increased dramatically, with their online activities now essentially comprising of interpersonal communication via social media sites and through the instant messaging or headset features of particular gaming platforms (Gross, 2004; Lenhart, Madden, & Hitlin, 2005). The specific issue of mental health issues, well-being and online gaming platforms (such as virtual worlds) is suggested to be centred on addiction (e.g. Lo, Wang, & Fang, 2005; Chappell, Eatough, Davies, & Griffiths, 2006). As such, the area of online gaming presents an additional complex issue beyond the remit of this paper. This review will remain focused on digital platforms specifically designed to support online social communication (such as Facebook) and their impact on mental health and well-being.

Development of social media use in children

Children's social media development appears to begin at around age nine with internet activity evolving over the next four years from viewing content to being socially active on sites like Facebook by the age of 16 (Opinium, 2013). O'Keeffe & Clarke-Pearson (2011) suggest that children and teenagers are at risk when they navigate and experiment on social media due to having a limited capacity for self-regulation and are more susceptible to peer pressure.

Social media and its relationship to well-being

Despite a surge of research into internet use, it is still unclear what the impact is on the individual in terms of their well-being due to research in the field being largely dichotomous. Some authors suggest that the use of social media impedes the well-being of young people because it reduces the amount of time they could be spending with existing friends and that this might impact on the forming and maintenance of 'in-person' relationships (Selfhout, Branje, Delsing, ter Bogt, & Meeus, 2009; Amichai-Hamburger & Ben-Artzi, 2002; Caplan, 2003). In support of this argument, a number of cross-sectional survey studies found that depression in young people was associated with their internet use (Cooper, 2006; Sun, et al., 2005). Additionally, a phenonmenon known as 'Facebook depression' has been proposed by researchers (Selfhout, Branje, Delsing, ter Bogt, & Meeus, 2009; Kross, et al., 2013), whereby depressive symptoms in young people appear

to be caused by excessive time spent on Facebook. Research exploring this phenomenon has found that people appear to feel depressed after spending time on Facebook because comparison to others makes them feel bad about themselves (e.g. Steers, Wickham, & Acitelli, 2014; Vogel, Rose, Okdie, Eckles, & Franz, 2015; Mukesh, Mayo, & Goncalves, 2014). Blease (2015) attempts to explain how social media could trigger depression by expanding the 'time online' hypothesis and identifying four specific circumstances that may increase susceptibility to depression. These are: (a) that the user has a large number of online 'friends'; (b) the user spends a great deal of time reading updates from their pool of friends; (c) the user regularly reads updates from friends; and (d) the content of the updates from the large group of friends tends to be of a 'bragging' nature (Blease, 2015). Young people who are frequently reading a large number of 'bragging' status updates, from a large number of online 'friends', may perceive themselves as having a low social value relative to their 'friends' thus triggering 'Facebook depression'.

On the other hand, the contrasting research viewpoint is that use of the internet, and sites like Facebook, increases opportunities to communicate with peers and therefore enhances well-being. For example, early cross-sectional studies by Morgan and Cotten (2003) and LaRose, Eastin and Gregg (2001) found that when young people used the internet for social communication (i.e. via email, chat rooms and instant messages) this was both directly and indirectly related to less depression. More recently, Ziv and Kiassi (2016) found that Facebook use correlates positively with psychological well-being, especially for those with low mental resilience. Some studies suggest that, as the internet can increase relationship formation, it can lead to increases in perception of social support (i.e. belief that one is cared for, has assitance available from other people and sense of belonging to a supportive social network) and more opportunities to share positive experiences and difficulties (e.g. Wolak, Mitchell, & Finkelhor, 2003; Choi & Toma, 2014; Lin, 2015). By providing more opportunities for meaningful contact with peers, it could be argued that this viewpoint is supported by Reis & Shaver's (1988) model of the 'intimacy process' which suggests that in order to build intimate relationships a person must express personal, revealing information or feelings to another. The listener must respond supportively and empathetically in order for the discloser to feel understood, cared for and validated. Equally, well-being could be undermined in social media use that does not foster meaningful interactions and relationship building communication (Gross, Juvonen, & Gable, 2002; Gross, 2004; Lin, 2015)

Although the evidence around the impact of Facebook on well-being in young people is mixed, it is conceivable that it presents a platform for connecting with others in a way that has a positive impact on well-being, depending on how it is used. One possible way of creating a positive interaction online is through the sharing of gratitude.

Definition of gratitude.

Gratitude, as a psychological phenonmenon, has a very broad classification. For example, it has been defined by some authors simply as a 'transient emotional state', a 'positive emotion', a 'coping response 'and as a 'socially desirable virtue' (McCullough, 2002; Watkins, Woodward, Stone, & Kolts, 2003; Emmons, McCullough, & Tsang; 2003; Emmons, 2008; Wang, Wang, & Tudge, 2015). Gratitude can also be viewed as a 'character strength' (Reivich, 2009). From the strength perspective, a person could be described as having a grateful disposition or strength of gratitude if they habitually acknowledge what has been received from others, express thanks easily without prompting and generally view life with appreciation (Peterson & Seligman, 2004; Park, Peterson, & Seligman, 2004). Similarly, Wood, Froh, & Geraghty's (2010) theorectical integration and review of the constuct of gratitude states that "gratitude arises following help from others, but also a habitual focusing on and appreciating the positive aspects of life" (p. 80). It is important to note the difference between gratitude and appreciation. The main difference is that gratitude is considered to involve an interpersonal exchange and acknowledgement of the particular benefit received, whereas appreciation involves a more general feeling of gratitude for the good things in life (Adler & Fagley, 2005). Emmons (2007), suggests two stages in the experience of gratitude. Firstly, there must be acknowledgement of something positive in life (i.e. receiving a gift, enjoying an experience). Secondly, there must be an understanding that the source of the gift or experience is external to oneself.

The working definition that will be used in this systematic review comes from Nelson and Lyubomirsky (2016) who consider both lay and broad definitions and suggest that most commonly gratitude is defined as "the recognition of a positive outcome from an external source, including a felt sense of wonder or thankfulness for the benefits received" (p. 277).

Gratitude and well-being

Within the domain of positive psychology, gratitude and its impact on subjective well-being has been well-documented (Reivich, 2009). Gratitude is studied as either a

state (fleeting emotion, felt at a particular time point) or as a trait (reflects individuals' likelihood of experiencing gratitude as a normal part of daily life) (Emmons, McCullough, & Tsang, 2003). A wide range of stimuli can cause people who exhibit trait gratitude to experience gratitude with high frequency and intensity. As a state, or emotion, the specific feelings that people experience in response to a benefit are referred to as 'gratitude'. Improved well-being is consistently linked to gratitude in evidence from both state and trait gratitude research (Nelson & Lyubomirsky, 2016).

It can be found within the literature that generally, people who express gratitude regularly report a number of positive outcomes including an increase in positive emotion, a reduction in negative emotions, improved relationships and improved reported physical health (Lambert, et al., 2012; Algoe, Fredrickson, & Gable , 2013; Emmons, 2007; Emmons & Shelton, 2002). There are a growing number of studies that have explored techniques to build gratitude with children and early adolescents and found the techniques to be successful at improving self-reported measures of well-being such as optimism, life satisfaction and decreases in negative affect (Froh, Sefick, & Emmons, 2008; Froh, Bono, & Emmons, 2010). Techniques used to encourage participants to express gratitude include; daily written diaries or journals (e.g. Emmons & McCullough, 2003) and sharing them (Lambert, et al., 2012); writing 5 things one is grateful for (e.g. Flinchbaugh, Moore, Chang, & May, 2011); learning about the social-cognitive perceptions that elicit gratitude (e.g. Froh, et al., 2014); writing a gratitude letter and sharing it (e.g. Froh, Kashdan, Ozimkowski, & Miller, 2009); thinking about gratitude and writing letters (Lyubomirsky, Dickerhoof, Boehm, & Sheldon, 2011); listing blessings (Watkins, Uhder, & Pichinevskiy, 2014); and writing a gratitude essay (Watkins, Woodward, Stone, & Kolts, 2003). Many of these techniques involve writing the gratitude and sharing it with others. The idea of writing about and sharing positive experiences (such as grateful experiences) is supported by Choi and Toma (2014) who explored the impact of online social sharing of emotional events on sharers' emotions. They found that regardless of the medium used participants reported increased positive affect after sharing positive events online and increased negative effects after sharing negative events online (including social media platforms such as Facebook).

The following review will focus on examining the results and quality of current empirical literature that make use of gratitude and Facebook interventions, with samples of children and young people, and measure the impact on measures of well-being.

Review Methodology

Search Strategy

Studies included in this review were acquired through a manual search of the references of prior reviews and a systematic search of the published literature carried out in three electronic databases: PsychINFO via EBSCO, the Educational Research Information Centre and Web of Science through Web of Knowledge between December 2015 and February 2016. Search terms (Appendix A) were generated using the key terms from the review question and sub-questions as well as key words identified in pivitol papers (e.g. Lambert, et al., 2012; Emmons & McCullough, 2003; Verduyn, et al., 2015; Brooks, 2015).

Inclusion and Exclusion Criteria

All studies retrieved from the systematic literature search were screened and subjected to the inclusion and exclusion criteria listed in Table 1. These were related directly to the research question.

Table 1: *Inclusion and exclusion criteria used for the screening of studies.*

Study Item	Inclusion Criteria	Exclusion Criteria
Intervention	Interventions designed to increase well-being through gratitude. Interventions designed to increase well-being through social media.	A multi-intervention approach that targets many psychological factors making it difficult to isolate the impact of gratitude or social media from other interventions. Empirical studies that do not have a specific intervention to increase gratitude or well-being.
Comparison condition	Gratitude or Social Media intervention is compared to an active or alternative intervention.	Within-subject designs with no comparison condition. Comparison to a passive or non-active control group. Comparison to an alternative intervention without an active control group present.
Participants	Participants of all ages Participants from English speaking, Western cultures.	Non-English speaking, non-Western participants, non-student samples.

Study Item	Inclusion Criteria	Exclusion Criteria
Publication requirements	Published in English Full-text access to articles published in peer-reviewed academic or professional journals.	Published in any language other than English.
Type of research	Empircal papers using primary data Published in a peer-reviewed journal	Review articles. Articles not peer-reviewed.

The result of the gratitude related systematic search was 13 relevant studies. The procedure of the systematic search is illustrated in the following PRISMA (Moher, Liberati, Tetzlaff, Altman, & The Prisma Group, 2009) flow diagram (see figure 1).
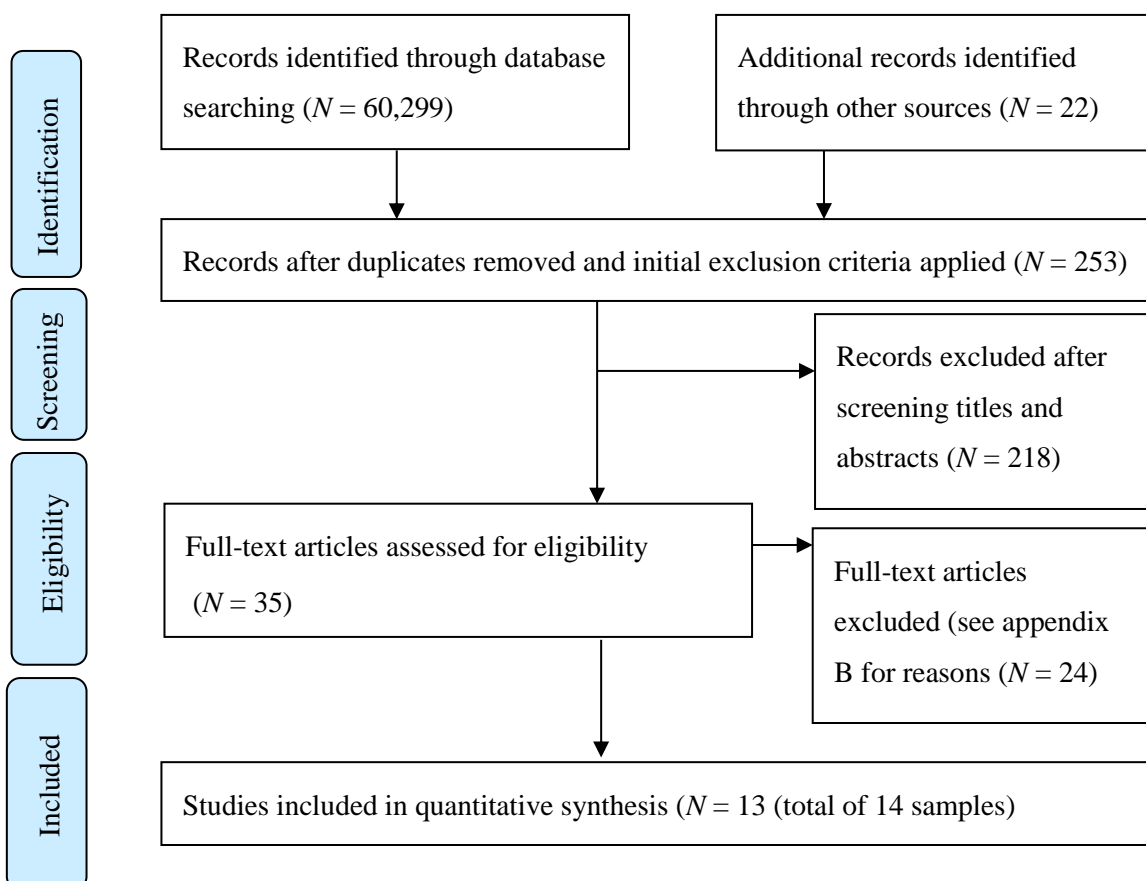
Figure 1: *Summary of gratitude literature search results* .

The procedure of this systematic search is illustrated in a second PRISMA (Moher, Liberati, Tetzlaff, Altman, & The Prisma Group, 2009) flow diagram below (see figure 2).

Data Extraction and Syntheses

Extracted data included: descriptive information about the population sample; information about the intervention used; study design; outcome measures; effectiveness of the intervention and significant variables that may have moderated or mediated the data (see Appendix C [gratitude] and Appendix E [Facebook] for the completed tables of extracted data). Each study has been allocated a number which can be found in front of the authors' names within Appendix C and Appendix E. References to studies are given in numerical form (in brackets) throughout the results section.
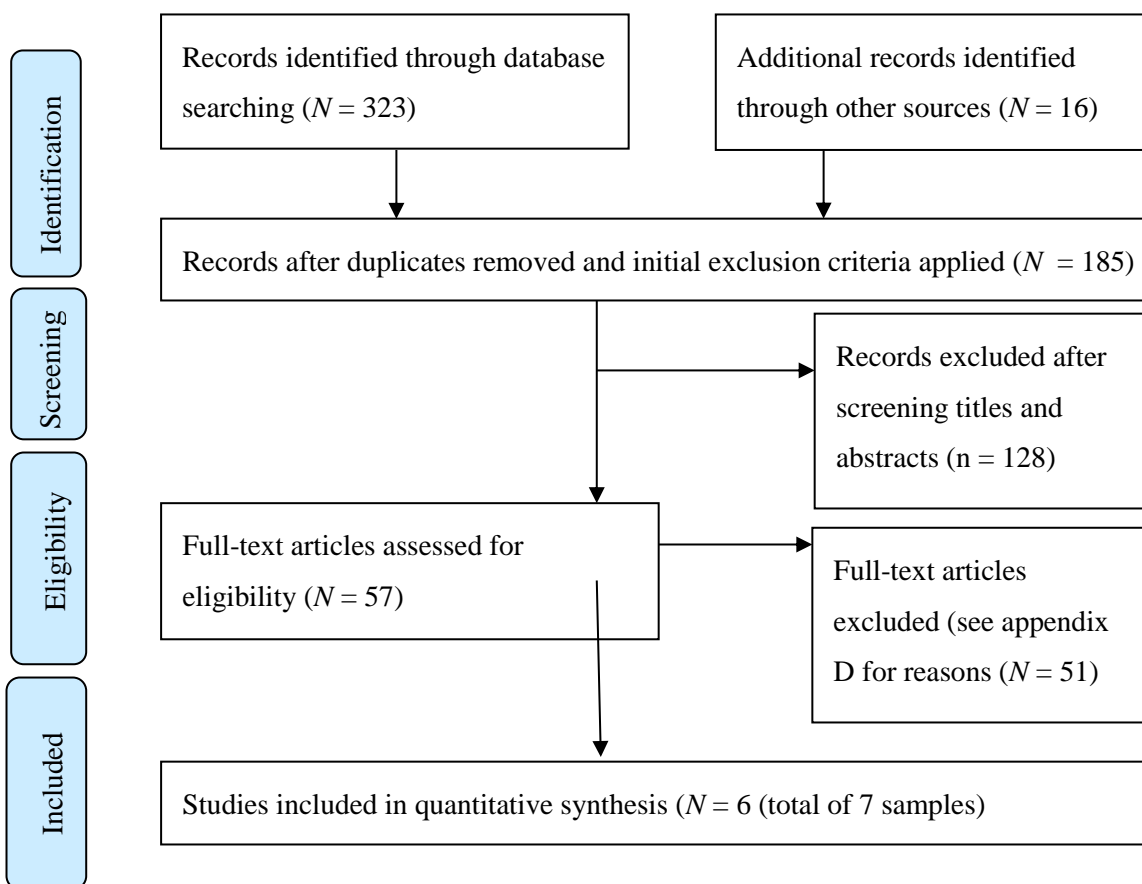
Figure 2: *Summary of social media literature search results*

Quality Assessment

Studies eligible for inclusion in the review were quality assessed using aspects of the Downs and Black (1998) checklist. Despite being particularly designed for use within the healthcare sector to assess the methodological quality of research, this framework provides a useful structure to analyse the quality of the studies included in this review. The

framework consists of 27 questions split across five sub-sections: reporting, external validity, internal validity, confounding bias and power. The checklist can be used to quantitatively score the methodological quality of each study. However, Booth, Papaioannou and Sutton (2011) suggest that a numerical system may not be the most useful method of analysing the quality of research findings. Within this review, the checklist was used as a framework to provide a qualitative summary of the strengths and weaknesses of the studies included for review and enable consideration of their overall quality.

Description of Data Extraction

Gratitude Study Characteristics

Participants

Collectively, the 14 samples included provided intervention or active-comparison activities to 1,798 participants. All of the studies included in the review used student participants. Of those that reported age ranges (3, 4, 5, 6, 7, 8, and 9) participants were aged between eight and 54 years old. 11 of the 14 samples considered used participants from US universities. The remainder were made up of a US elementary school (4), a US middle school (5) and a US Christian faith school (6). Female participants featured highly in the study samples. 3 of the 14 samples did not report on gender within the sample (12, 13 and 14). Across those that did report on gender, the average percentage of males across the samples was 34.7%. The majority of participants came from a university undergraduate background (60%) and of these the majority of participants were reported to be studying on psychology courses (61%). Studies inconsistently reported ethnicity and socio-demographic status.

Research Methodology

Research design

Ten studies utilised an experimental design, randomly allocating participants to conditions (1, 2, 7, 8, 9, 10, 11, 12, 13, 14); four studies used a quasi-experimental design and allocated participants to condition by class (3, 4, 5, 6); three of the studies that used a quasi-experimental design used participants under eighteen years old (4, 5, 6). All of the

studies used an active control group; one study had a passive control condition in addition to the active and experimental conditions (3).

Whilst control intervention activities were varied across the studies, a neutral event diary was used the most frequently (6, 7, 10, and 11). Other control groups included hassle journals (1, 2, and 5), learning journals (8, 9), memory activities (12, 13, and 14); two studies used control group activities that received training or teaching of different topics (stress management (3) and emotionally neutral topics (4)) and finally a broad range of writing activities were used. These involved writing about optimism (10), best possible selves (11), life details (11), prideful experiences (12) and describing ones' living room (14).

Gratitude intervention activities were also varied across the studies. Gratitude diaries were the most frequently used intervention (see table 2: 1, 2, 3, 7, 5, 8, 9, 11, 13) with the majority basing the instructions given to participants on those of Emmons and McCullough (2003). Within the diaries the number of entries required varied between one and five. Some studies used more than one intervention (7, 12, and 14) or used a gratitude diary condition plus another style of intervention (1, 2, 5, 9, 10, 11, and 14).

Table 2: *Gratitude Diary Interventions: type, frequency, length and follow-up*

Study	Type of Diary Intervention & Comparison group/s (CG/s)	Shared?	Frequency	Length	Follow-up?
1	List 5 things. CG: Hassles diary & event diary.	N	Weekly	10 weeks	N
2	List 5 things. CG: hassles diary, social comparison.	N	Daily	13 days	N
3	List 5 things. CG: Stress management	N	Weekly	12 weeks	N
5	List 5 things. CG: Hassles diary, events diary.	N	Daily	2 weeks	Y – 3 weeks
7	Write 5 things & read rationale. CG: Gratitude list, events list.	N	Daily	2 weeks	N
8	Answer Qs aimed at triggering grateful emotion. CG: Learning diary.	N	Daily	4 weeks	N
9	5 minutes writing journal. CG: Learning diary (shared), thoughts diary (unshared).	Y	Daily, shared twice a week	4 weeks	N

Study	Type of Diary Intervention & Comparison group/s (CG/s)	Shared?	Frequency	Length	Follow-up?
11	Write once in lab, then try and write again at least twice. CG: 'best possible selves', life details.	N	Weekly	2-4 weeks	Y – 4 weeks
12	List of three 'blessings'. CG: Memory placebo, pride 3 blessings.	N	Daily	1 week	Y – 5 weeks
13	Answer Qs aimed at triggering grateful emotion. CG: Emotion linked to memory, plans for tomorrow.	N	Daily	3 days	Y - 1 week

More novel interventions included: a gratitude letter that the participants delivered to the intended receiver in person (6); a gratitude letter that was not given to intended recipient in one study (14), but in another study participants were told that it would be sent by the researcher on their behalf at the beginning (10); a thinking about gratitude activity (14); a writing a gratitude diary and sharing it with a romantic partner activity (9); a completing a gratitude diary after reading rationale about why such an activity might be helpful to the participant task (7); and finally instruction from a teacher about the social cognitive perceptions that elicit gratitude followed by writing a gratitude diary (4).

Participants were required to complete their gratitude diaries daily (2, 5, 7, 8, 9, 12, 13), weekly (1, 3) or encouraged to write their grateful experiences at least twice over a two to four-week period (11), although this was just a suggestion, not an instruction. Of those that were required to write daily, the period of time the daily intervention lasted varied widely: three-days (13), seven-days (12), 13-days (2), two-weeks (5, 7) and four-weeks (8, 9). Of those that were required to write weekly, the period of time the intervention lasted was much longer and did not vary as much: 2-weeks (11), ten-weeks (1) and 12-weeks (3). Four of the ten studies utilising a gratitude diary intervention took follow-up measures (5, 11, 12, and 13). These were taken at periods ranging from one week (13) through three weeks (5), four weeks (11) and five weeks (12) post intervention.

Measures

All the studies utilised at least one published self-report measure; the most popular being the Positive and Negative Affect Scale (PANAS or PANAS-C, for children; Watson, Clark, & Tellegen, 1988) which was used with eleven samples (1, 2, 4, 6, 8, 9, 10, 11, 12, 13, and 14). Four different measures of gratitude were used: Gratitude Adjective Checklist

(McCullough, Emmons, & Tsang; 2002, 1, 2, 4, 6); Gratitude Resentment and Appreciation Test (Watkins, Woodward, Stone, & Kolts; 2003); 14); Gratitude Resentment and Appreciation Test – Short Form (Diessner & Lewis, 2007; 12); Gratitude Resentment and Appreciation Test - Revised (Thomas & Watkins, 2003; 13) and Gratitude Questionaire-6 (McCullough, Emmons, & Tsang, 2002; 7). Six studies did not use any measure of gratitude (3, 5, 8, 9, 10, 11). Other measures included pro-social behaviour (5), health behaviours (11), vitality (9), happiness (9, 10) classroom specific stress (3), life satisfaction (3, 4, 5, 9, 10, and 12), physical symptoms (1, 2, and 5), time exercising (1, 2), sleep (8) and specific depressive symptoms (7, 8, 12, and 13). Many of the studies also considered long-term impact of the intervention and completed one or several additional periods of data collection between one week and five months after intervention (4, 5, 6, and 12).

Summary of Gratitude Study Results

Across the 14 samples five different types of gratitude interventions were implemented. The studies are grouped by the intervention they used in order to explore, compare and analyse the results.

Gratitude Diaries

Studies that analysed a gratitude diary intervention compared to a hassles intervention (1, 2, 5) generally found significant differences between the group expressing gratitude and the group writing about daily hassles, with gratitude diary participants expressing increased life satisfaction post intervention. However, studies that also compared the experimental group to a 'daily events' group (1, 5) found that the amount of negative affect reported by participants in the gratitude and daily events conditions was significantly less than that reported by the hassles group at measures taken immediately post intervention and at a three-week follow-up. Additionally, the gratitude and daily events groups in this study indicated more life-satisfaction than the daily hassles group.

Of the studies that involved participants completing diaries once a week (1, 3, 11) only one reported effect sizes (1). One study explored a gratitude diary intervention compared to stress management training (3) and found "no significant quantitative effect" (Flinchbaugh, Moore, Chang, & May, 2011) on classroom specific stress or life-satisfaction of participants. The researchers suggest a combination of stress management techniques and gratitude diaries as being the most effective approach to improve students'

well-being and engagement in lessons. Sheldon & Lyubomirsky's (2006) study (11) compared a weekly gratitude diary (writing lines about grateful experiences) to a 'best possible selves' condition (an exercise adapted from King, 2001) writing about what oneself would be like in the future after everything has gone well and all life goals are accomplished) and a 'life details' condition (where participants were asked to "pay more attention" to their lives). They found that all three of the conditions resulted in immediate reducations in reported negative affect, however, only the 'best possible selves' condition resulted in a significant immediate increase in positive affect. The 'best possible selves condition' also resulted in the highest level of self-motivation to continue the exercise in the following weeks and that self-concordant motivation predicted whether or not participants chose to carry on with the activity over time. Suggesting that those who identify with and enjoy an activity are more likely to continue doing it, supporting the self-concordance model (Sheldon & Lyubomirsky, 2006; Sheldon & Houser-Marko, 2001). The researchers of the study that reported effect sizes (1) identified that although there appeared to be some positive benefits to those in the gratitude condition, in relation to the hassles and life events control group, the gratitude condition did not influence global positive and negative affect. Emmons & McCullough (2003) suggest that this issue could be down to participants completing only one diary per week and designed a second study (2) in order to trial a daily diary intervention.

There were seven studies that implemented a daily gratitude diary intervention (2, 5, 7, 8, 9, 12, 13). Only one of these studies (7) reported no significant improvements in any measures taken from the gratitude diary participants compared to measures from the control and comparison participants. This particular study compared a group completing a gratitude diary (listing 5 things) and reading the rationale for doing so daily for two weeks to a gratitude diary condition (listing 5 things, no rationale) and a daily events list group. Despite there being no significant differences, the researchers reported that the experimental group appeared to trend towards a decline in negative symptoms over time and that gratitude appeared to protect 'low trait gratitude' participants from persistant depression and low-mood. But, the experimental group was not associated with any improvements in negative emotion or gratitude, regardless of baseline measures (Harbough & Vasey, 2014). The other six studies that implemented a daily gratitude diary (2, 5, 8, 9, 12, 13) reported a number of positive significant results in comparison to the control groups: the gratitude diary condition elicited more gratitude and positive affect than the hassles diary group (2); the gratitude diary condition were more likely to offer help and emotional support compared to both a hassles diary and social comparison groups (2); the

gratitude diary condition reported less depressive symptoms and slightly higher positive affect post intervention compared to a learning diary condition (8); positive emotion mediated the relationship between gratitude and depressive symptoms (8); the shared gratitude diary participants reported higher levels of positive affect, happiness, life satisfaction and vitality compared to those thinking about gratitude (and not sharing it) and the learning diary comparison groups (9); well-being of participants increased post intervention across all conditions (3 blessings list, prideful blessings list, memory placebo) but a non-significant trend leant towards the well-being of the gratitude participants (3 blessings) continuing to improve after treatment and gratitude group reported significantly lower levels of depression than both comparison groups (12); the memories of the gratitude diary participants were significantly more pleasant at follow-up than a 'plans for tomorrow' comparison group but this was non-significant compared to the emotion control group and there was evidence of a decline in intrusiveness of open memories for the gratitude diary group compared to the emotion control group (but not significant for 'plans for tomorrow' group) giving support to the theory that one-way gratitude enhances happiness by promoting positive memory bias (13, Watkins, Cruz, Holben, & Kolts, 2008).

Gratitude Letters

Three studies used a gratitude letter exercise as the experimental condition. Of these, one (10) told participants that their letters would not be sent to the intended recipient. The researchers compared this to an 'expressing optimism' group and a past events diary group. In this study, participants were also grouped as either being 'self-selected, having opted in to the group of their choosing, or they were grouped as being 'non-self-selecting' having been put into a group by a researcher. In another gratitude letters study (14), researchers told participants that their letter would be sent to the intended recipient, but the letters were never sent; the participants only found this out after their participation had finished. The researchers compared the results from this group to a group writing a gratitude essay, a group thinking about gratitude and a group writing about their living rooms. The final study that utilised a gratitude letter activity (6) required participants to write their letters over two weeks and to hand-deliver their letter to the intended recipient. The researchers compared the results of this group to a group of participants completing a daily events diary for two weeks. Results from this research (6) found that positive affect increased for the gratitude letter group and decreased for the daily events comparison group post-intervention and at the 2-month follow-up (although this was non-significant). They also found that increases in positive affect were more

pronounced for those participants lower in positive affect at baseline (Froh, Kashdan, Ozimkowski, & Miller, 2009). Similarly, the results of study 10 (where letters were not mailed out, despite participants being told that they would be) found that participants in the gratitude letter condition (regardless of being self-selecting or not) showed a non-significant trend towards increases in well-being compared to the past events comparison group 6-months post-intervention. However, the researchers in this study (10) also reported that whether or not participants self-selected into their group made a difference to the outcome. Self-selected participants reported greater increases in well-being compared to non-self-selected participants across all groups' 8-weeks post-intervention. Participants who self-selected into the gratitude letter group reported greater increases in well-being compared to those in the gratitude group who were non-self-selected and compared to the past events comparison group (Lyubomirsky, Dickerhoof, Boehm, & Sheldon, 2011). This adds further support to the self-concordance model (suggested in study 11), that those who identify with an activity are more likely to continue doing it (Sheldon & Houser-Marko, 2001). The study that compared a gratitude letter to a gratitude essay, gratitude thinking and 'writing about ones living room' (14) found that all the gratitude interventions resulted in an increase in participants reported positive affect compared to the 'writing about ones living room' condition (significant, moderate effect size) and a reduction in negative affect (signifcant, moderate effect size). Gratitude thinking participants reported the highest level of increased in positive effect, followed by grateful essay participants and then grateful letter participants. They also found that negative affect decreased for all three gratitude conditions between pre and post intervention measures. Grateful letter participants reported the greatest decrease in negative effect, followed by grateful essay participants and grateful thinking participants.

Gratitude Essay and Gratitude Thinking (14)

One study (14) utilised gratitude essay and gratitude thinking conditions, the results of these have already been discussed above as they were compared to a gratitude letter condition.

Gratitude Instruction (4)

The last gratitude activity implemented is a gratitude 'instruction' activity in which participants were delivered teaching on the socio-cognitive perceptions that elicit gratitude. This group was compared to a group taught about emotionally neutral topics (i.e. daily school activities). The teaching occurred for 30 minutes, once a week for five weeks.

Measures were taken pre and post intervention and at seven-week, 12-week and 20-week follow-ups. The results of this study showed that only participants in the gratitude instruction condition had a linear increase in their grateful thinking across the 20 weeks of the study. Positive affect also increased for participants in the gratitude condition, but stayed stable for those in the comparison condition. Interestingly, negative affect decreased and life satisfaction increased for both groups.

Is there an optimal context in which gratitude interventions improve well-being?

14 samples involving student participants who received a gratitude intervention were reviewed. Whilst all the studies evaluated the effectiveness of various gratitude interventions that were intended to increase trait and state gratitude levels as well as increase scores on measures of well-being; the type, length and frequency of intervention varied substantially. Analysis across the studies indicates that interventions targeted to increase opportunities to express (and share) grateful thoughts might increase levels of well-being and pro-social, adaptive behaviours within the populations observed. However, it is difficult to make comparisons between data sets as the studies used such a wide variety of gratitude activities, comparison activities and measures. Additionally, some of the studies did not provide complete data sets, measuring positive affect but not negative (9) or did not include positive and negative affect as outcome measures at all (3). In addition, some studies that found an increase in positive emotion did so when comparing to a hassles condition (1, 2, and 5). Effect size was not always reported following intervention (3, 5, 6 did not report), which makes it difficult to evaluate their effectiveness. Despite this, I feel that there is some evidence across the studies included that a gratitude intervention could have the potential to improve levels of well-being in a student population.

Facebook Study Characteristics

Participants

Collectively, the seven samples included in the review provided intervention or active-comparison activities to 689,632 participants with one study sample representing 689,003 of these participants (17). Sample 17 did not identify the age ranges, gender, ethnicity, background or locality of participants. This sample is unusually large and as such, will not be included in the discussion about participants that follows, as with such large numbers its lack of information could dramatically sway the discussion. When sample 17 is excluded, the rest of the samples included in the review all used student

participants from US universities (15, 16, 18, 19, 20, 21) with an average age of range between 18 and 21 years old. Excluding study 17, the other six samples all reported the gender divide. Across these, the average percentage of males in the samples was 38.7%.

Research Methodology

Research design

Four of the seven samples utilised an experimental design where participants were randomly allocated to conditions (16, 17, 19, 21); three studies utilised a quasi-experimental design in which participants naturally occurring Facebook usage data was used to compare more or less use against pre and post usage questionnaire measures (15, 18, 20). Some of the studies used an active control group (16, 17, 19, and 20); one study had a non-Facebook control condition in addition to a Facebook experimental condition and Facebook control condition (21).

Comparison conditions were varied across the studies dependent on what the study was attempting to measure. One study omitted Facebook content from participants Facebook feeds at random and compared between removing positive posts and negative posts (17). Another study had a passive Facebook condition compared to an active Facebook condition (19), three studies compared naturally occurring low, high and differing types of Facebook usage to measures taken pre-, post- and during the experimental period (15, 18, 20). One study compared an 'included' group to an 'excluded' group (16) and one study compared the experimental condition to both an active control and a passive control group (21).

Experimental activities also varied across the seven studies. These activities included; a questionnaire followed by a video activity and then a further questionnaire asking about Facebook usage (15); a mocked up experience to make participants feel either socially included or excluded followed by a questionnaire asking about subsequent Facebook usage and well-being (16); one week of researchers removing positive/negative statuses from Facebook newsfeeds and analysis of subsequent positive/negative participant status updates (17); a series of questionnaires followed by a period of daily surveys (up to six times a day) and a follow-up questionnaire to analyse well-being (18, 20); an active Facebook use versus passive Facebook use lab based activity (19) and finally an activity involving a questionnaire, a period of time to look at a friend's Facebook profile followed by another questionnaire (21).

Measures

Some of the studies used published self-report measures such as; the Beck depression inventory (18, 20), the Rosenburg self-esteem scale (18, 20), the revised UCLA loneliness scale (18, 20), satisfaction with life scale (18, 19, and 20), social provision scale (18, 20), trait self-perception (21), state self-esteem (21) and the Iowa-Netherlands Comparison Orientation measure (21). Other measures used included: frequency of viewing profiles, screen shots of Facebook posts (20), number of Facebook friends (18, 20), motivation for using Facebook (18, 19, 20), quantity of active/passive Facebook usage (19), quantity of other social media usage (15, 19), comparison of quality of life to others (19), loneliness (19), connection to others (19), life satisfaction ratings (19), perceived Facebook support (18, 20), an emotional contagion measure (17), a multi-tasking computer self-efficacy scale (15), attentional control measures (15) and level of feeling accepted or rejected (16). Participation time across the studies ranged from less than one day to 14 days. The long term impact of findings was not explored by the studies included, only one study included a follow-up at a later point, this occurred a few hours after a day of participation at 9pm (19).

Summary of Facebook Study Results

In the study exploring performance and social media usage (15), results indicate that social media usage negatively affected participants' performance on the task. Neither attentional control nor multi-tasking computer self-efficacy had a significant effect on this relationship. Social media usage positively correlated with technostress levels (stress caused by working with computer technology on a regular basis (Brooks, 2015)), whilst high levels of technostress were associated with lower levels of happiness. Social media usage was also associated with lower levels of happiness. Similarly, in a study exploring naturally occurring Facebook use and participant well-being (18), participants who used Facebook more saw more of a decline in their life-satisfaction levels over-time (including when controlling for affect). However, the lonelier participants felt in this study, the more they used Facebook over time (Kross, et al., 2013). Interestingly, this is supported by research into social inclusion/exclusion and social media use (16). Participants in this study were deliberately socially included or excluded by the research and their subsequent computer use monitored, in addition to measures of well-being. Participants who were socially excluded engaged in twice as many social behaviours via social media (e.g. Facebook) compared to those who were socially included. But, the socially excluded group

also engaged in twice as much texting and emailing than the socially included participants (Knowles, Haycock, & Shaikh, 2015).

Four studies considered the way in which the content on Facebook feeds affects the user. In the largest scale study included for review (17) participants Facebook feeds were manipulated to increase or decrease the amount of positive or negative words that they were seeing on screen. The researchers found that when positive emotional content was reduced in the feeds the percentage of positive words in participants' status updates decreased and negative words increase. Compared to when the percentage of negative words were decreased, which saw the number of negative words decrease and the number of positive words increase (both compared to a control group whose newsfeed content were omitted randomly). The researchers suggest that this supports an 'emotional contagion' theory – that the emotions observed on a Facebook feed cause the person reading them to feel and express that same emotion (Kramer, Guillory, & Hancock, 2014). One study (21) explored how the content on Facebook feeds affect participants well-being by considering social comparison theory, participants who scored highly on a 'Social Comparison Orientation' (SCO) scale appeared to also showed lower trait self-esteem, more negative affect and exhibited heavier Facebook use compared to those lower in SCO (Vogel, Rose, Okdie, Eckles, & Franz, 2015). The final two studies that considered the way in which the content on Facebook feeds affects the user focussed on 'passive' (looking and reading Facebook feeds, not interacting with or responding to comments or status updates) versus 'active' (responding to status updates and interacting with other people's comments or status updates) Facebook use. One study (19) asked participants to use Facebook actively or passively for 10 minutes (pre/post and follow-up measures taken). The other, linked, study (20) asked participants to complete five questionnaires a day for six consecutive days in which the responded to questions about well-being and active/passive Facebook use. They then returned to the lab and provided additional responses to questionnaires and screenshots of the Facebook feeds. In the first study (19) neither active nor passive Facebook usage affected participants well-being immediately following the intervention. However, passive usage significantly reduced well-being at the end of the day relative to both baseline and post-intervention measures and when compared to the active Facebook condition. The second study (20) expanded on the results of the initial study (19) and found that passive Facebook use predicted declines in how good participants felt over time. Participants felt worse when they engaged in passive Facebook use compared to when they did not use Facebook passively at all. Passive Facebook use also predicted envy and envy predicted declines in affective well-being. Additionally,

active and passive Facebook use predicted decreases in cognitive well-being. The researchers suggest that passive Facebook use undermines a person's well-being because it increases the amount of envy they feel towards others (Verduyn, et al., 2015). This links to the social comparison hypothesis suggested in study 21.

Summary

Seven studies involving participants who were involved in an experimental Facebook study were reviewed. Whilst all the studies explored the impact of Facebook use on the individual; what the studies were measuring varied substantially. Analysis across the studies indicates that Facebook usage can negatively affect aspects of well-being such as self-esteem (20, 21), affective (19) and cognitive well-being (18), life satisfaction (18) and happiness (15). One study (15) found that Facebook usage could cause higher levels of technostress and lower levels of performance. One study (20) found that levels of envy mediated the relationship between Facebook usage and decreases in affective well-being. One large-scale study (17) suggested that the content of Facebook posts could cause an 'emotional contagion' effect in which other people's emotions are effected by the presence and quantity of positive or negative emotion viewed within their Facebook feed. Across all the studies reviewed, only one positive outcome was described; when the percentage of negative words on a participants' newsfeed was reduced, the percentage of negative words used by the participant also decreased and a rise in the percentage of positive words used by the participant in their subsequent status updates was observed (17).

Quality Assessment

Reporting

All of the 19 studies (21 samples) considered within both the gratitude and Facebook searches described the key aims and objectives, the main outcomes being measured, the interventions used with both experimental and control groups and the main conclusions. Over 60% of the studies failed to provide complete descriptions of participant characteristics. Missing participant data often included age range, gender and attrition. One study did not include any participant information at all (17). Most described hypotheses but failed to describe potential confounders or validity threats such as existing psychological conditions or environmental issues that could have impacted on the data collected. Most of the studies reported effect sizes, Studies 3, 5, 6, 15, 18, 20 and 21 did not report effect sizes.

External Validity

Participant samples were often drawn from a local university and utilised leaflets or fliers to recruit (1, 2, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19, 20, and 21. Some studies used samples on specific courses where pupils opted in at the request of the teacher (3, 4, 5, 6, and 15). One study utilised existing Facebook consents (previously given by Facebook users) to manipulate the Facebook pages of participants without informing them (17). Across the 21 samples included for review, none reported the proportion of the source population from which the sample was derived, therefore it was impossible to determine the representativeness of the sample. Additionally, none of the studies gave information about whether the interventions, facilities and staff used were typical of those that the participants would normally be familiar with in their everyday lives.

Internal Validity

Bias

The studies generally reported using valid and reliable outcome measures (usually at least one published self-report measure) and appropriate statistical tests (i.e. ANCOVA). Most studies reported that the time period between post intervention testing and follow-up measures remained consistent across all participants. Many of the studies reported attempts to control for order effects through the counterbalancing of measures. Some studies attempted to confirm adherence to the intervention and fidelity through measures such as self-reports of performance and adherence, independent observer reports and review of online content (10, 11, 15, and 20). Only three studies used a single blind procedure in which a teacher or researcher was blinded to the group condition (5, 10, 16) the remaining studies either made no attempt to blind or did not report these attempts in the study article. Five studies reported attempts to blind participants to the aims of the condition, usually through the inclusion of additional questions (not relevant to the study) in the questionnaire packs at pre and post intervention data collection points (1, 10, 12, 15, and 19). A common limitation in reducing issues around internal validity and bias was the lack of use or attempted use of a double blind procedure.

Confounding/selection bias

Randomisation procedures were reported to have been used to allocate participants to condition (intervention, active control or passive control) in 13 of the 20 included

samples. In eight studies, the participants were allocated to condition by class or by year group (five gratitude studies, three Facebook studies), with some matching participants by age and gender first. It is possible that the use of random allocation could have been compromised, as those studies that utilised this method did not report how long this information was concealed from participants. If it was revealed before follow-up measures were taken, then true randomisation may have been compromised. All studies recruited participants from the same population for both intervention and control conditions. Most studies made it clear where group differences had occurred pre-intervention and where data had been lost at follow-up (following attrition, missing responses from participants and researcher error) and reported subsequent adjustments made for these potential confounding factors (e.g. covariate use).

Power

Only one study reported the power calculations used to determine target sample size (4). Only one other study gave evidence of thinking around target sample sizes (20). They did this by referencing a prior study (19) with a similar procedure and intervention.

Discussion

Summary of findings

The 14 samples in the review that used a gratitude intervention, evaluated the effectiveness of gratitude interventions on a variety of measures of well-being (i.e. positive and negative affect, sense of belonging, sense of connectedness etc.). The initial measures and intervention instruction were predominantly delivered in a lab or classroom setting. Participants then completed the intervention in their normal environments and returned to complete the post-intervention and follow-up measures. The results provide some evidence that gratitude interventions can have a positive impact on self-reported well-being with most studies reporting significant, or trends towards significant, group differences (intervention compared to active and passive control groups) following intervention. Additionally, some studies found that the positive impact on well-being measures following intervention was more marked for those participants lower in baseline levels of positive affect or with higher levels of motivation to participate or 'perform' (6, 10, 11). Despite this, Lyubomirsky, Dickerhoof, Boehm, & Sheldon (2011, 10) found that a gratitude letter intervention resulted in no significant increases to well-being compare to active and passive control conditions. The studies that collected follow-up data suggest that

in some cases it is possible for the positive effects of the gratitude intervention to be maintained. Additionally, some studies only found a significant difference between groups at follow-up (5, 6, 13).

Facebook and well-being is an emerging field of study, this could explain why the seven studies reviewed had such differing methodologies and wide ranging intervention activites. These studies largely compared quantity and/or type of Facebook usage against self-reported well-being measures or observed content in participants Facebook posts. The studies often made links to social comparison theory (18, 19, 20,21) and the impact of how lonely or included/excluded participants felt (16, 18). Largely these studies found that Facebook use had a negative impact on aspects of self-reported well-being (such as postive affect, sense of connectedness and happiness). Only one study reported evidence to support Facebook as having a possibly positive impact on participants (17), this was also the study that used the largest sample, but did not record any self-reported well-being measures. The majority of these Facebook studies did not record data at a long-term follow-up so it is difficult to know the longevity of the reported negative effects. However, some studies were able to use additional measures (e.g. analysis of Facebook posts) to support the data gathered from self-report measures (17, 19, 20).

Strengths of the literature reviewed

All the studies compared the experimental group with an active control group and some studies compared to an additional passive control group (e.g. 3) . It could be argued that a passive or neutral control condition does not provide an adequate comparison as the participants may not truly believe that there could be a positive impact on themselves (i.e. no placebo effect in this group). A group that is participating in an active control condition (e.g. writing a daily events log) however, would provide a better comparison as participants are more likely to believe that what they are doing could have a positive impact and therefore be suceptible to the same level of placebo effect as the experimental group. Therefore, studies that compare the experimental group to an active control group are likely to provide a more accurate comparison.

Methodological strengths of some of the studies include the use of randomisation procedures, the use of published self-report measures for well-being and matched designs where possible and appropriate. Lambert, et al., (2012) implemented a particularly strong methodology in order to study the impact of sharing gratitude with a partner. Comparison of the experimental condition to both a simple, unshared gratitude diary condition and a

shared events diary condition allowed subsequent conclusions to be drawn around the specific impact of gratitude writing and gratitude sharing.

Limitations of the literature reviewed

This review revealed mixed findings; some concerning, particularly with reference to the impact of Facebook use; and some more encouraging. However, interpretation of the findings should take into account methodological limitations that are apparent across the majority of the studies included in the review. These include; issues that arise when trying to compare a gratitude intervention to a daily hassles diary (1, 2, 5, 6), studies that measure positive but not negative affect (and vice-versa) (8, 9), the lack of inclusion of a younger age range (across studies that reported participant demographics) are mainly at university), the lack of follow-up data (a particular issue with Facebook research e.g. 15), the wide variation in gratitude and Facebook interventions making comparison difficult which links to the lack of study replications, a sample population made up of mainly American participants and the impact of recruitment strategy on motivation to participate (10, 11). Most studies measured well-being by implementing self-report rating questionaire packs at pre and post intervention time-points. However, it could be argued that it is important to triangulate this data by gathering independent assessment of changes in behaviour and physical symptoms. This is an approach advocated by MacNeil, Lopes, & Minnes (2009) in research exploring anxiety in children and adolescents with autistic spectrum disorders. Tafarodi & Swann Jr (2001) also refer to using behavioural measures as a way of resolving self-report method factors in their research on self-esteem in students. Some studies used independent analysis of Facebook posts (17, 19, 20) and ratings of performance (15), effort (10) and motivation (11) but this was not consistent across the studies included for review. Finally, although well-being and Facebook use have recently come to light as issues within educational settings, surprisingly few of the gratitude interventions, and only one of the Facebook interventions, were delivered within the school, college or university context. Instead they were carried out entirely or partially in an artifical lab setting. The one Facebook intervention that was carried out within the participants' natural environments (17) did not report on the sample demographics.

Conclusions and future research

Despite the methodological issues of the research, the current review extends the literature by comparing empirical evidence for two interventions that could be impactful on

the well-being of young people in school, college or university. The findings offer some tentative evidence to support the possibility that writing and sharing gratitude interventions could have a positive impact on young peoples' self-reported levels of well-being. On the other hand, the review also found considerable evidence of the negative impact of Facebook use on young people's well-being. The systematic approach utilised clear inclusion and exclusion criteria and a thorough quality assessment. This supported a comprehensive anlysis of the methodology and data and minimised opportunities for bias in the studies chosen for review and the way they were analysed.

Data from the Office of National Statistics is suggesting that mental health and well-being issues in students are on the rise (Office for National Statistics, 2015). Few of the studies included for review (particularly involving Facebook interventions) used an educational setting or educational experiences within the intervention. This raises an opportunity to develop interventions to be delivered within an educational context or using education-based experiences. Future research should therefore seek to expand the evidence-base by exploring the impact of gratitude and Facebook interventions that utilise educational environments and educational experiences to improve well-being for young people. Future studies should include an active control group in order to improve confidence when comparing the experimental conditions to control conditions. They should also attempt to triangulate data when using self-reports through collection behavioural data.

As this review demonstrates, there are no empirical studies that explore the use of Facebook as a medium through which to share gratitude. Given that both mental health issues and social media usage are on the rise, particularly in young people, it would be useful to explore the possibility of an evidence-based intervention that utilises Facebook as a tool to increase well-being of students in educational settings. Therefore, the empirical study that follows investigated the effectiveness of sharing gratitude through Facebook on the well-being of young people in further education (aged 16 to 18).

Implications for Educational Psychologists

Educational Psychologists (EPs) have an increasing role in supporting educational settings to meet the needs of the increasing number of students who appear to be exhibiting signs of mental health issues or low levels of well-being. As EPs have a duty to disseminate evidence-informed practice to enable adults to support children in schools, colleges and in the community. A good knowledge and understanding of the impact of

Facebook use on young peoples' well-being is essential in this digital age and any additional research that adds to the field will be important to supplement the small evidence-base that is currently available. Despite a larger evidence base that leans towards a positive impact on well-being, methodological issues and a limited number of samples of young people under 18 years old mean that the true impact of gratitude interventions on young people is, as yet, not completely understood. Further, carefully designed research, is required in order to determine the possible impact of online gratitude interventions. Given their links to schools, colleges, communities, parents and young people, EPs may be well-placed to do this.

Chapter 2:   Empirical Paper

Introduction

Due to the education reforms in England, Educational Psychologists (EPs) are now required to work with a much broader age group including young people aged 16-25. Whilst these young people are in education, colleges and universities hope to ensure their overall well-being. Yet, suicide was reported by the WHO (2014) as the second most common cause of death in young people (aged 15-29) and that young peoples' reported mental well-being had worsened between 2009-2010 and 2012-2013 (Office for National Statistics, 2015). Alongside the increase in mental health difficulties, the amount of time spent by young people using social media has been reported to be increasing significantly (Lenhart, Purcell, Smith, & Zickuhr, 2010; Kross, et al., 2013). Facebook is one social media site that young people often use (Opinium, 2013). One viewpoint is that use of the internet and sites like Facebook increase opportunities to communicate with peers and therefore enhances well-being by increasing opportunities for relationship formation, perception of social support and more opportunities to share positive and difficult experiences (e.g. LaRose, Eastin, & Gregg, 2001; Ziv & Kiassi, 2016; Wolak, Mitchell, & Finkelhor, 2003) On the other hand, the research also suggests that frequent use of Facebook may be having a negative impact on young people's self-reported well-being (e.g. Brooks, 2015; Kross, et al., 2013; Verduyn, et al., 2015). The evidence explored in the systematic review indicates that Facebook usage can negatively affect aspects of well-being such as self-esteem (Verduyn, et al., 2015; Vogel, Rose, Okdie, Eckles, & Franz, 2015), affective (Verduyn, et al., 2015) and cognitive (Kross, et al., 2013) well-being, life satisfaction (Kross, et al., 2013) and happiness (Brooks, 2015). One very large scale study (Kramer, Guillory, & Hancock, 2014) suggested that the emotional nature of the content of some people's Facebook feeds could cause them to feel more or less positive or negative affect. The researchers called this an "emotional contagion" where other people's emotions are effected by the presence and quantity of positive and negative emotion viewed on their Facebook feed. However, the literature review highlighted the many limitations of published empirical research investigating the impact of Facebook. This makes it difficult to generalise about the effectiveness of interventions that ask participants to use Facebook in a particular way to promote well-being. For example, many of the studies failed to provide complete descriptions of participants' characteristics, with the only large scale study failing to provide any participant information at all. As a result, exploring what the

empirical literature says about the impact of Facebook use on particular participant groups is challenging. Increasingly, within the field of positive psychology evidence that individual differences (in factors such as baseline positive emotion, baseline gratitude level and whether or not participants are self-selecting and motivated throughout) can contribute to the effectiveness of interventions (Froh, Kashdan, Ozimkowski, & Miller, 2009; Sin & Lyubomirsky, 2009; Lyubomirsky, Dickerhoof, Boehm, & Sheldon, 2011). By not fully providing this information it is impossible to ascertain the specific impact of Facebook use on particular groups. This information would be useful when considering the targeting of interventions to the groups most likely to benefit from them.

This year (2016) the DfE began a consultation to find out more about what helps children and young peoples' mental health. Within the consultation information, the DfE suggest that they want to create environments for children and young people that promote good mental well-being. Changing more concrete aspects of the environment to improve well-being could prove impractical. Positive psychology is an emerging field of research that hopes to develop a better understanding of positive emotion and its impact on well-being (Seligman, Steen, Park, & Peterson, 2005). From this perspective, interventions that help people to engage with straightforward, intentional activities are believed to be more effective at improving psychological well-being than trying to change more concrete circumstances (Sheldon & Lyubomirsky, 2006). Researchers within positive psychology have explored various interventions that encourage gratitude expression and their impact on well-being (e.g. Emmons, 2007; Froh, Kashdan, Ozimkowski, & Miller, 2009; Lambert, et al., 2012). Gratitude in this sense is defined as "the recognition of a positive outcome from an external source, including a felt sense of wonder or thankfulness for the benefits received" (Nelson & Lyubomirsky, 2016, p. 277). This sort of intervention that can be implemented in college environments may be a realistic and practical way to improve young peoples' sense of well-being at college.

Again, the literature review highlighted the many limitations present within the empirical evidence around gratitude interventions. The variation in type, length and frequency of intervention make it difficult to draw conclusions about the optimum context for a gratitude intervention to have positive impact. Comparison of the gratitude group to a 'hassles diary' group makes it difficult to assess the level of impact because hassle diaries induce negative affect and exaggerate the group differences. In addition, and similarly to the Facebook evidence, gratitude research often overlooks the impact of participants' self-motivation and self-selection to intervention group on their approach to participation and

as a result, reported well-being. Yet, when exploring the impact of self-selection into experimental group and levels of invested effort on well-being, Lyubomirsky, Dickerhoof, Boehm, & Sheldon (2011) found that both initial self-selection and continued effort over time make a difference to outcome in the experimental conditions (sharing gratitude and expressing optimism). They suggest that 'happiness' interventioms are most effective when participants "know about, endorse and commit" to the intervention they are taking part in.

Levels of happiness, positive affect, vitality and satisfaction with life could be considered some of important indicators of a young person's well-being. The literature reviewed often used these measures (amongst others) as important indicators of the impact of intervention. The literature reports that this age-group regularly use Facebook and that the outcomes of this use are not necessarily positive. The research also indicates that sharing gratitude can increase individuals' reported levels of well-being. However, prior research has all been carried out using methods of sharing gratitude such as a diary or face-to-face. This novel piece of research aims to explore the impact of sharing gratitude online via Facebook on young people's self-reported sense of well-being, consider the impact of online feedback and reflect upon young people's motivations in terms of both Facebook use and motivations for taking part in the study.

This study will focus on young people aged 16-18 years old. In addition to the mental health risk for young people in this age group, other reasons for using this sample include; secondary school aged pupils have a different experience at school compared to 16-18 year olds at college and this would make the data difficult to analyse due to environmental factors impacting on the results; there is limited research in the fields of gratitude and Facebook that utilises a sample of 16-18 year olds (but lots with 18+ at university); and there are not enough measures available that encompass 16-18 year olds as well as post-18 young people, therefore making an older sample difficult to include as measures are likely to be different.

Research Questions and Hypotheses

The current study will use a college-based intervention that induces participants' feelings of gratitude specifically related to college and will examine whether this can lead to an increase in reported well-being. This research aims to extend the empirical evidence in the areas of gratitude and Facebook use by answering the following questions:

- What impact does regular sharing of college-related grateful experiences via Facebook over the course of two weeks have on the reported well-being of young people aged 16-18 years old in college?
- Does the quality of perceived peer responses to college-related grateful experiences shared via Facebook impact on reported well-being of young people aged 16-18 years old in college?

It is hypothesised that Facebook gratitude sharing could have a significant positive effect on responses to well-being measures at Time 2 compared to the neutral event recording condition. In addition, Facebook gratitude sharing could have a significant negative effect on responses to the negative affect questionnaire compared to the neutral event recording condition.

Considering 'emotional contagion' theory (Kramer, Guillory, & Hancock, 2014), it is likely that there will be a positive relationship between measurements of well-being and the degree to which participants rate peer responses to their Facebook status updates as positive. This hypothesis is supported by research exploring the impact of receiving feedback on status updates (Tobin, Vanman, Verreynne, & Saeri (2015) found that participants who received no feedback on their status updates reported lower levels of belonging, self esteem, control and 'meaningful existance' compared to those participants that received feedback on their status updates.

Method

Participants

Participants were recruited from a range of Further Education (FE) colleges and Sixth Form Colleges across the South of England. In total 70 students from 21 colleges completed informed consent to participate in the study ($N = 70$). More females ($N = 51$) were recruited than males ($N = 19$). Participants were aged between 16.13 years and 18.67 years. There was no significant difference in age between conditions.

Participants reported a varied range of ethnic backgrounds and were either students on Academic programmes (GCSE, AS, A-Level; $N = 67$) or Vocational programmes (BTEC, NVQ; $N = 3$) across a broad range of subjects. The majority of participants reported studying psychology ($N = 55$) and sociology ($N = 26$). Participants were recruited via staff within their colleges (see figure 3 for process of recruitment flow chart). All

students were shown a study poster (Appendix F) by their class teacher either electronically or in hard-copy form. Rather than relying on class teachers to share the study, direct contact between researcher and students was arranged at two colleges. This increased recruitment by around 5%. Students then opted-in to the study by emailing the researcher for more information and were then emailed a link to a webpage containing detailed information about the study, including a notification that they could withdraw at any point (see Appendix G (experimental group) and Appendix H (control group) for information and instructions given to the participants).
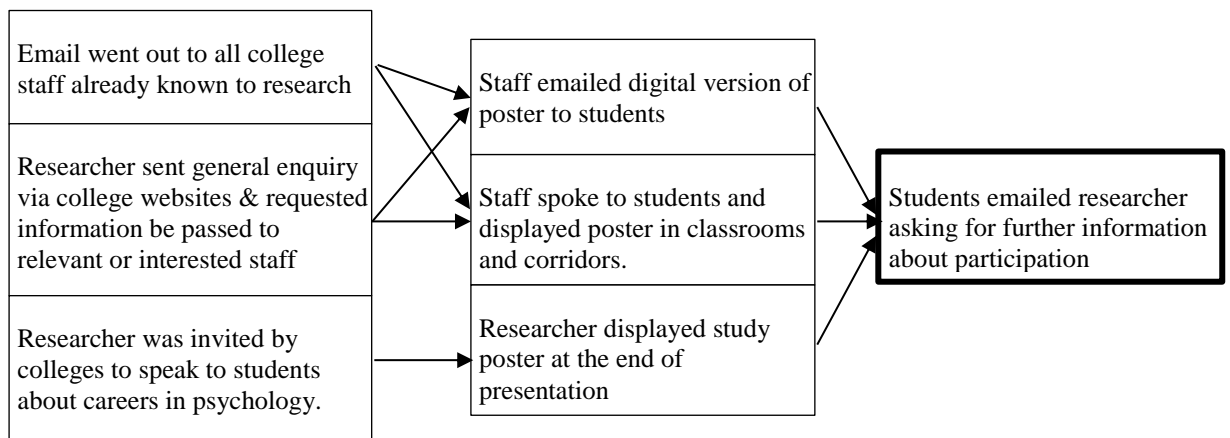
Figure 3: The process of participant recruitment

All participants were randomly allocated (via a coin toss) to a grateful status update (experimental, $N = 43$) or neutral event status update (control, $N = 27$) condition. Both interventions were carried out at the same time during the data collection period of seven months (excluding college holidays). Participants were not made aware that there were two conditions until they received the debrief information at the end of their participation. Information provided online was similar for both groups with slight differences in the instructions (see Appendix G (experimental group) and Appendix H (control group) for information and instructions given to participants). The teachers sharing the study poster were not aware that there were two status update conditions and were not informed about which students were assigned to each group. Measures were taken at baseline (Time 1, pre-intervention), post-intervention (Time 2) and at a six-week follow-up (Time 3).

Measures

In addition to questions about their age, gender, level and subjects of study, socio-economic background, home situation and Facebook use (frequency of use, number of

'friends', typical Facebook activities) at Time 1, participants also completed scales measuring gratitude, happiness, vitality, satisfaction with life, positive affect and negative affect. At Time 2 measures of gratitude, happiness, vitality, satisfaction with life, positive and negative affect were repeated along with questions about the quantity/quality of responses from peers to the status updates and the perceived emotional impact of these responses on the participant. At Time 3 measures of gratitude, happiness, vitality, satisfaction with life, positive and negative affect were repeated a final time. Measures of additional constructs in the study were included (e.g. empathy, narcissism and college belonging). These measures are not discussed further as they are not relevant to the main study purposes.

Gratitude

The GQ-6 (McCullough, Emmons, & Tsang, 2002) was used to measure this construct. This is a six-item self-report measure using a 7-point rating scale (1 = *strongly disagree*, 7 = *strongly agree*). When used with adults (McCullough, Emmons, & Tsang, 2002) the GQ-6 has demonstrated properties of test/retest reliability and of convergent reliability and validity ($\alpha = 0.86$). Four items were worded positively (e.g. "I am grateful to a wide variety of people") and two items were worded negatively and reverse scored (e.g. "When I look at the world, I don't see much to be grateful for"). In the current study, these items formed an index with adequate reliability at Time 1 ($\alpha = .72$, $M = 32$, $SD = 5.07$), Time 2 ($\alpha = .80$, $M = 33.2$, $SD = 5.51$) and Time 3 ($\alpha = .77$, $M = 32.9$, $SD = 5.20$).

Happiness

The construct of 'happiness' was measured using Lybomirsky and Lepper's (1999) four item measure of global subjective happiness. This measure was validated in 14 US and Russian studies ($N = 2,732$). The Subjective Happiness Scale was found to have high internal consistency that was stable across samples (Cronbach's alpha scores ranged from 0.79 to 0.94 ($M = 0.86$) across the samples). Test-retest and self-peer correlations indicated good to excellent reliability with Cronbach's alpha scores across the samples ranging from 0.55 to 0.90 ($M = 0.72$). A seven point Likert scale is used within each question to provide a format for responses where each Likert scale is unique to each question asked. In the current study, initial reliability analyses found that one of the items undermined reliability of the measure (item 4; "Some people are generally not very happy. Although they are not depressed, they never seem as happy as they might be. To what extent does this characterization describe you?"). I removed the item, which led to

adequate reliability estimates (Time 1 α = 0.87, *M* = 12.51, *SD* = 3.85, Time 2 α = 0.91, *M* = 13.55, *SD* = 4.01, Time 3 α = .89, *M* = 13.00, *SD* = 3.85).

Vitality

The Subjective Vitality Scale (Ryan & Frederick, 1997) was used to measure the construct of vitality. This is a seven item questionnaire assessing feelings of 'aliveness' and 'energy' (e.g. "I look forward to each new day") on nine point Likert style scales (ranging from "1 = *Not true at all*" to "9 = *Very true*"). Research (Nix, Ryan, Manly, & Deci, 1999) has found high reliability (α = 0.91). Test-retest correlations indicated good reliability with a Cronbach's alpha score of 0.64 (Ryan & Frederick, 1997). In the current study, these items achieved adequate reliability at all three time points (Time 1 α = 0.76, *M* = 26.41, *SD* = 7.29, Time 2 α = 0.73, *M* = 28.3, *SD* = 7.09, Time 3 α = 0.79, *M* = 27.46, *SD* = 7.28)

Satisfaction with Life

The five item 'Satisfaction with Life Scale' (Diener, Emmons, Larsen, & Griffin, 1985) was used to measure global cognitive judgements of participants' life satisfaction (e.g. "I am satisfied with my life.". Feelings are rated on a seven point Likert style scale that ranges from "7 = *Strongly agree*" to "1 = *Strongly disagree*". A meta-analysis of 60 research studies that assessed the reliability of the Satisfaction with Life Scale (Vasser, 2008) found a mean Cronbach's alpha of 0.78 (95% confidence intervals of 0.766-0.807). In the current study, these items achieved adequate reliability at all three time points (Time 1 α = 0.85, *M* = 21.69, *SD* = 6.48, Time 2 α = 0.49, *M* = 24.32, *SD* = 10.40, Time 3 α = 0.79, *M* = 23.15, *SD* = 5.73)

Positive Affect and Negative Affect

The Positive and Negative Affect Schedule (PANAS; (Watson, Clark, & Tellegen, 1988) was used to measure participant's subjective levels of positive and negative affect. It is a 20-item self-report measure that reflect dispositional dimensions. Participants are asked to rate how much they have felt a particular emotion (e.g. interested, excited, nervous, upset etc.) over the past week on a five point Likert style scale that ranges from "1 = *very slightly or not at all*" to "5 = *extremely*". In previous research exploring the reliability of the PANAS, the positive affect scale achieved a Cronbach's alpha score of .89 whilst the negative affect scale achieved a Cronbach's alpha of 0.85.

Cronbach's alphas for the subscales in this sample were acceptable at all three time points (see table 3).

Table 3: *Cronbach's co-efficient, mean and standard deviation scores for the PANAS across all three time points*

	Time 1	Time 2	Time 3
Positive Affect	$\alpha = 0.81$	$\alpha = 0.88$	$\alpha = 0.88$
	$M = 30.94\ SD = 7.02$	$M = 32.56\ SD = 7.76$	$M = 35.56\ SD = 7.77$
Negative Affect	$\alpha = 0.79$	$\alpha = 0.79$	$\alpha = 0.77$
	$M = 23.23\ SD = 6.51$	$M = 22.06\ SD = 7.98$	$M = 22.38\ SD = 6.67$

Procedure

Ethical approval was obtained from the School of Psychology Ethics Committee and Research Governance at the University of Southampton (See Appendix I). Participants in both experimental and control group completed the consent form (Appendix J) and baseline measures online (via an emailed link to an online survey) and then received a date via email on which they could start their Facebook status updates. This date was usually the next available Monday during term-time. Participants completed ten status updates across two college weeks (Monday to Friday) and submitted screen shots of their status updates via email to the researcher, twice a week where possible (Wednesday and Friday). For three participants this proved difficult, it was arranged that they submitted their screenshots daily or once a week, whichever suited better. After submitting their final screenshots on the last Friday of their two-week intervention, participants were emailed a link to the second online questionnaire. In addition to the happiness, vitality, satisfaction with life and PANAS scales, the second online questionnaire also included questions asking them to report their subjective view of the type and quantity of responses to their status updates and how the responses made them feel. These were completed within 48 hours in all cases. After six weeks, follow-up measures were emailed to participants (see figure 3 for visual representations of intervention and procedure). All those participants that completed the follow-up measures did so within 48 hours of receiving them. Ten participants did not complete the follow-up measures. Six participants did not respond to the final survey email. Four participants six weeks' follow-up survey fell after the analysis was completed therefore they were not able to complete the final measures in time to be included in this report. In order to find out if full completion had a significant effect on subjective well-being, a repeated measures ANOVA was carried out. Analysis determined

that subjective well-being did not differ significantly between T1 and T2, $F(1, 65) = .157$, $p = .693$, $\eta_p^2 = .002$. This suggests that participants who chose not to complete their participation in full (i.e. non-completion of third questionnaire) did not impact on the outcomes of the study.
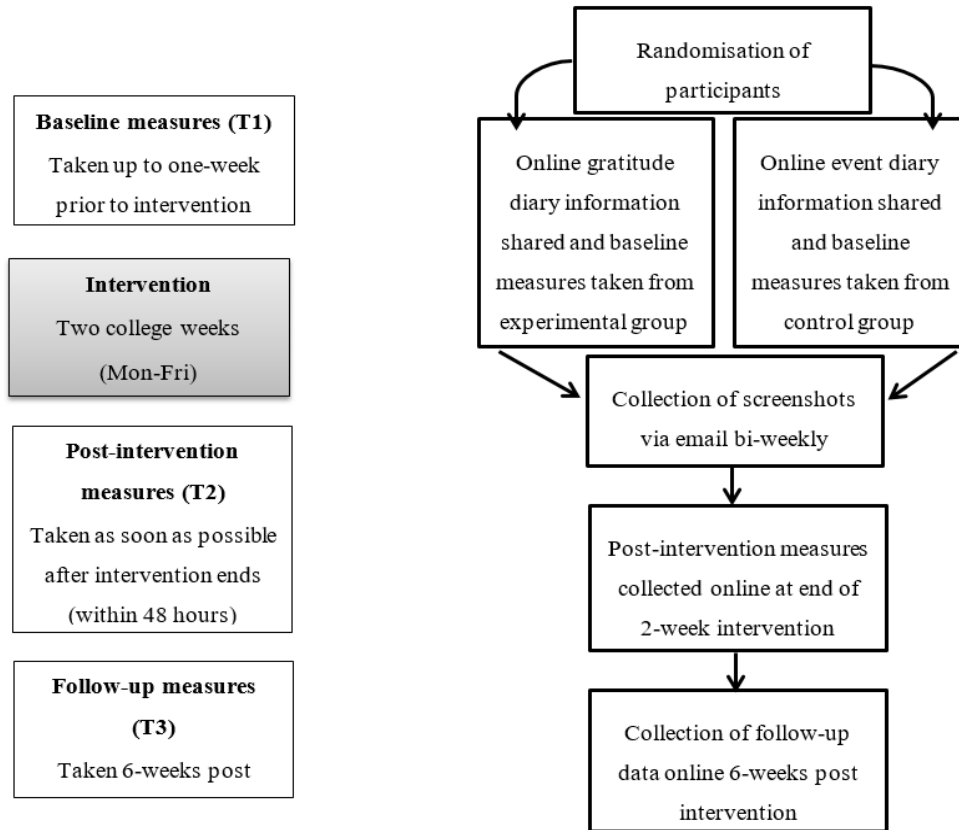
Figure 4: *Visual model of the procedure and intervention*

Participant Well-Being

In order to reduce the likelihood of unhelpful responses to status updates, participants were advised to post before they began participation that they would be taking part in research which might result in some atypical updates; they were also advised to identify these through the use of a 'hashtag' (e.g. #research or #gratitude). Participants were reminded they could speak to their personal tutor or other suitable adult at college if they felt distressed about any aspect of study participation, and were also given contact details for the Samaritans.

Collection of Data

The method of data collection was identical at each of the three time points. Baseline measures were completed online before participants began their status updates, post-data was collected online as soon after completion as the participants were able to

complete the survey (within 48 hours) and follow-up data was collected online six weeks after the end of the intervention. The participants were emailed links to the online surveys where the instructions provided and the order of completion for each measure was identical at each time point. Participants used their email address as a unique identifier for each of the online questionnaires. Online questionnaires were stored on a secure, password protected server. The unique identifier was transferred into a participant number so that once data was moved into the data analysis file it was no longer personally identifiable to the individual. The data analysis file was kept securely in a password protected file and on a password protected computer. Any status updates used as examples were checked for anonymity and all names used by participants were changed. In this way, identifiable participant data was protected and secure until it was made anonymous.

Intervention

Participants within each group received similar online instructions before they completed the baseline measures. The instructions differed slightly between groups where the experimental group were asked to post status updates about "something that had happened at college that they were grateful for" while the control group were asked to post status updates about "something they had learned at college that day" (see Appendix G (experimental group) and Appendix H (control group) for information and instructions given to participants). At the end of the online information and instructions, participants were advised to email the researcher if they did not understand what they needed to do, or if they had any worries or concerns about participation. Four participants emailed additional questions, following the response from the researcher they continued their participation successfully. Table 4 provides examples of status updates posted by participants in each group.

Table 4: *Examples of status updates for the experimental and control conditions.*

Grateful Status Updates	Learning Event Status Updates
"Carried out my favourite kind of reaction in chemistry today! Nice easy lesson"	"Learnt about the trapezium rule in maths today"
"Today I am grateful for a one to one with my teacher"	"In college I learnt that Zoella writes novels. And that she writes about blogging in those novels. Youtubers are the new popstars"
"P2 lesson cancelled today #grateful"	"I learnt about semi-conservative DNA and about how Glasgow is the fattest place in the UK"
"Love a bit of Kahoot in lessons"	"I learned about the New Right and their perspectives on education, in sociology."

"Thankful that another long week at college has come to an end"	"Today I learnt about Bandura's results of his study on children imitating behaviour!"
"Today I am grateful for my psychology teachers because they put useful essay plans on Moodle in case students like I don't understand the work to do."	"Carried on learning about cells and tissues today in Forensics!"
"Really nice music lesson – great supportive atmosphere (even when I maybe started bragging a little bit about my surprisingly good score on the listening test) ;-) "	"Beginning the second crusade in history #1 more to go"

Analytic Approach

The first stage of analysis used SPSS to standardised all the measures of well-being to ensure that all scores fell within the same range. Correlations were then carried out to check that the various measures of well-being mapped onto each other (see table 5). Those that strongly mapped onto each other (.40 or above) were then grouped to create one 'subjective well-being measure'. Group means were compared to explore differences between genders and between conditions across the three data collection time-points.

Table 5*: Correlations between variables*

	Happiness	**Positive Affect**	**Satisfaction with life**
Positive affect	.672**		
Satisfaction with life	.740**	.669**	
Vitality	.739**	.733**	.616**

** correlation is significant at the 0.01 level.

A 2 x 3 mixed ANOVA was carried out to explore mean differences between groups at the three time-points. Moderation analysis was also carried to explore whether the effect of condition is moderated by perceived peer feedback. Correlations were used to explore relationships between dependent variables.

Additionally, a manipulation check was completed to determine whether the intervention had the intended positive effect on gratitude levels and to check for content differences in the two groups status updates. This included two independent researchers analysing the content of 200 random status updates to determine if there were differences between the experimental and control conditions in the types of things participants' chose to write about. Interrater reliability was analysed using the Kappa statistic to determine consistency among raters. The average word length of the 200 random status updates was also analysed to explore possible differences in length of status updates between groups.

Descriptive and qualitative analyses was carried out on the T1 data collected about participants' individual motivations for using Facebook and also on the T2 data collected from the questions: approximate number of Facebook 'likes' received, number of positive/negative/neutral comments received and the self-reports from participants as to how the feedback they received from peers made them feel (in terms of well-being).

Results

All data were checked for the assumptions of normal distribution and homogeneity of variance. There was no evidence that any of these assumptions were violated.

Descriptive Statistics

The first stage of analysis confirmed that there were no significant differences between the experimental and the control group prior to the intervention in terms of baseline scores of gratitude $F(1, 69) = .948$, $p = .33$, $\eta_p^2 = .014$, subjective well-being, $F(1, 69) = 1.39$, $p = .24$, $\eta_p^2 = .02$ (see table 3). There was a non-significant difference in the frequency of gender between the two conditions ($t = -.726$, $df = 68$, $p = .470$) therefore it can be concluded that randomisation to conditions was successful.

Manipulation Check

The content of 200 status updates was coded and analysed. Cohen's κ was run to determine if there was agreement between two independent raters' judgements on whether 200 status updates were generally 'grateful' or generally 'neutral' in nature (in comparison to what the intended status update content was. There was substantial agreement (Landis & Koch, 1977) between the two raters' judgements, $\kappa = 0.762$, $p < 0.0005$, ANOVA revealed that this was significant, $F(1, 199) = 291.38$, $p < 0.05$, indicating that the status updates were written in the way intended (i.e. grateful status updates did appear to have grateful content whilst neutral status updates did appear to have neutral content).. The mean number of words in grateful status updates was 16.5 words. The mean number of words in neutral status updates was 15.4.

Table 6: *Raw means and standard deviations of outcome measures as a function of time and condition*

Time	Measure	Condition	
		Control	Experimental

		Mean (SD)	Mean (SD)
Baseline	Subjective well-being	-0.62 (3.23)	0.39 (3.66)
	Gratitude	31.74 (5.01)	32.95 (5.11)
Post-intervention	Subjective well-being	-0.33 (3.40)	0.21 (3.36)
	Gratitude	32.19 (3.43)	31.40 (4.19)
Follow-up	Subjective well-being	-0.43 (4.12)	0.17 (3.42)
	Gratitude	32.73 (6.23)	32.92 (4.82)

Descriptive Analysis of Additional T1 and T2 Data

At T1, participants responded to a question where they were asked to report their personal motivations for using Facebook. They could choose up to twelve different motivations for using Facebook: no participants selected more than seven options with the majority choosing 4 or 5 options. "Contacting old friends" was the most frequently chosen motivation for using Facebook ($N = 59$), followed by "sharing photos with friends" ($N = 42$) and "keeping in contact with current friends" ($N = 36$). The least frequently chosen motivations were "connecting with businesses" and "buying/selling items" (both $N = 2$). Participants who selected "other" were given a text box in which they could write what they used Facebook for, but none chose to complete this. Out of a total of 242 responses to this question, only 21 participants (8.8%) indicated that they used Facebook to share their personal experiences online. This could indicate that simply sharing information about their day is not something most of the participants would typically do.

Analysis of the data obtained from participants at T2 showed a non-significant difference between the number of 'likes' reported by participants in the experimental and control conditions (F [1, 69] = 0.51, $p = .82$). Participants in both groups most frequently reported perceiving between 21 and 50 'likes'.

At T2 participants were also asked how many comments they thought they had received and whether these comments felt generally positive, negative or neutral in nature. There was a statistically significant difference in the number of positive comments reported between the groups (F [1, 69] = 4.9, $p = .03$). Most participants in the experimental group reported perceiving between 21 and 50 positive comments on their grateful status updates. Most participants in the control group reported receiving between 51 and 100 positive comments. Both groups reported similar average perceived negative (1 to 10 most frequently reported) and neutral comments (21 to 50 most frequently reported)

at a non-significant level (negative comments: F [1, 69] =.011, p = .92, neutral comments: F [1, 69] = .44, p = .51.)

It is possible that the absolute number of positive comments received is not as relevant as the proportion of positive comments to negative/neutral comments. Analysis revealed a significant difference in proportion of positive to negative comments (F [1, 69] = 0.6, p = .016) and proportion of positive to neutral comments (F [1, 69] = 6.05, p = .016). However, this is unlikely to fully explain the impact of comments received because 88% of participants in the control group had a higher proportion of positive comments to negative and neutral comments compared to the experimental group where 85% of participants had a higher proportion of positive comments to negative comments and 75% of participants had a higher proportion of positive comments to neutral comments.

At T2, participants were also asked about the online comments they had received from their 'friends' on Facebook and how their perception of them as either 'positive', 'negative' or 'neutral' made them feel (see table 7). There was a non-significant difference between groups in terms of how the reported positive comments (F [1, 69] = 0.6, p = .44), negative comments (F [1, 69] = 0.2, p = .66) and neutral (F [1, 69] = 0.83, p = .37) peer comments made them feel. The majority of participants in both groups indicated that all three perceived comment types made them feel 'neither bad nor good'

A Pearson correlation coefficient was computed to assess the relationship between perceived quantity of positive/negative/neutral peer comments and perceived emotional impact of peer comments. There was a strong positive correlation between quantity of positive peer comments and perceived emotional impact of comments, r = .701, N = 70, p = 0.01. All other correlations were non-significant.

Table 7: *Percentage of participants rating the extent each type of comment made them feel, split by condition (Control Group = C, Experimental Group = E)*

	Bad		**Neither bad nor good**		**Good**	
	C	**E**	**C**	**E**	**C**	**E**
Positive comments	0	4.3	93	78	7.5	18.6
Negative comments	18.5	18.6	81.4	78	0	4.7
Neutral comments	0	2.3	25.9	41.9	70.4	58.1

Intervention Analysis

In order to find out whether the intervention had a significant effect on subjective well-being, a 2 x 3 mixed ANOVA was carried out. This analysis determined that there was no significant effect of group, indicating that ratings from experimental and control groups were similar, $F(1, 50) = .51$, $p = .48$, $\eta_p^2 = .01$. There was also no significant effect of subjective well-being, $F(2, 50) = .29$, $p = .75$, $\eta_p^2 = .006$. The ANOVA also determined that there was no significant interaction effect between subjective well-being and group, $F(1, 50) = .53$, $p = .47$, $\eta_p^2 = .011$ (see table 8 for ANOVA means). This suggests that expressing gratitude on Facebook did not impact significantly on participants subjective well-being neither immediately post-intervention nor at follow-up when compared to the control group.

Table 8*: 2 x 3 ANOVA - means and standard error*

	Control Group Mean (SE)	Experimental Group Mean (SE)
Sub_well-being T1	-.998 (.948)	.023 (.604)
Sub_well-being T2	-.651 (.875)	-.071 (.557)
Sub_well-being T3	-.425 (.936)	.172 (.596)

Analysis of Moderation

Moderation analysis was carried out to explore whether emotional impact of peer responses moderate subjective well-being at time 2 and time 3. Variables were centred and moderation analysis was carried out using the PROCESS macro for SPSS (Hayes, 2012).

The moderation analysis exploring whether the emotional impact of peer responses to college-related grateful experiences shared via Facebook influenced the reported well-being of the participants at time 3 revealed a significant interaction effect *ẟ =1.97, 95% CI [0.34, 3.9], p = .046*. When perceived impact of positive comments at time 3 was low (-1 *CI*), there was a negative trend between time 3 subjective well-being and condition, *ẟ = -1.8595, 95% CI [-4.91, 1.19], t = -1.23, p = .23*. When perceived impact of positive comments at time 3 was high (+1 *CI*) there was a positive trend between subject well-being and condition *ẟ = 2.74, 95% CI [-.76, 6.24], t = 1.57, p = .12* (see figure 4). These results suggest that posting grateful status updates tend to have a positive impact on student well-being, but only for those participants who perceived comments on their updates to be relatively impactful, not for participants who perceived comments to be less impactful.

Simply expressing gratefulness is not enough to boost well-being. It needs to be positively acknowledged by others.
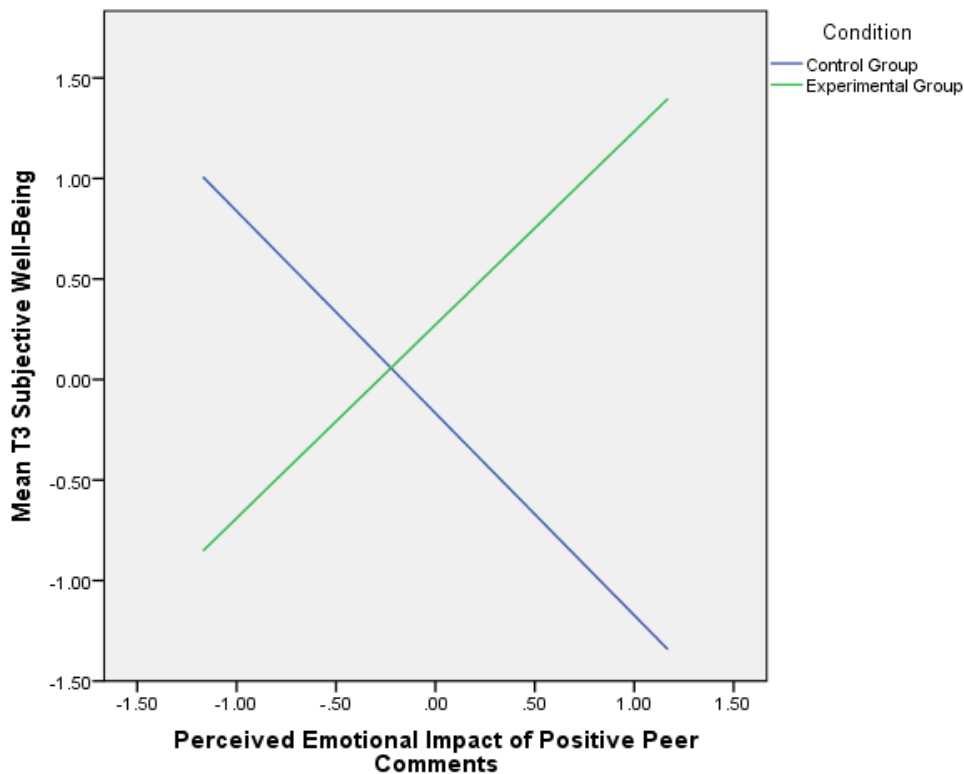

Figure 5: *Moderation - interaction effect (Positive peer responses x group on subjective well-being and group)*

Discussion

Conclusions

The present study evaluated the impact of sharing gratitude via Facebook on the subjective well-being of young people aged 16-18 years old in Sixth Form or Further Education Colleges. No significant difference in well-being was found between groups at either time 2 or time 3. These results are inconsistent with the results of previous shared gratitude research. For example, Lambert (et al., 2012) found that adult participants who kept a gratitude journal and shared it twice a week with a partner experienced a boost in positive affect, happiness and life satisfaction over the course of four weeks. The participants in that study shared their diaries with one significant other and, it could be said, had an element of control over which entries they chose to show. The current gratitude intervention, however, required participants to think of something daily that they were grateful for and to share it with *all* of their Facebook 'friends'. It is possible as a

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result that participants experienced feeling a lack of control in what they shared and with whom they shared it. This feeling of being 'out of control' could have undermined the benefits of expressing gratitude regularly and explain the lack of a significant difference in well-being measures. This difficulty with sharing gratitude online could also be explained through consideration of similar issues found between traditional gratitude journaling and gratitude letters. Kashdan, Mishra, Breen and Froh (2009) suggest that being thankful towards other people via an interpersonal intervention (such as letters) could result in a person being dependent on others for their well-being and that this can increase vulnerability and feelings of discomfort. As participants in the current study frequently shared gratitude for experiences had with the peers and teachers, it could also be considered an interpersonal gratitude intervention. In research exploring this further, Kaczmarek, Kashdan, Drazkowski, Enko, Kosakowski, Szaefer and Bujacz (2015) found that the psychological difficulties of writing a gratitude letter outweighed the benefits of expressing gratitude.

An alternative explanation of why these results are inconsistent with gratitude research might be found in recent studies which suggest the Facebook use involves risk, stress and social comparison to a degree that outweighs the benefits normally associated with sharing gratitude. For example, Brook's (2015) study found a negative correlation between social media use and levels of happiness. In another study, participants who used Facebook more had lower levels of life-satisfaction levels over time (Kross et al., 2013). A negative link between Facebook use and well-being could be explained by social comparison theory: Facebook provides an opportunity for those low in self-esteem to spend more time comparing themselves to others and thus continue to feel bad about themselves (Vogel, Rose, Okdie, Eckles & Franz 2015). This theory is supported by active and passive Facebook use research: passive Facebook use (e.g. looking at posts and observing without interacting oneself) is suggested to undermine a person's well-being because it increases the amount of envy they feel towards others (Verduyn, et al., 2015).

An interesting, if tentative, significant interaction effect was apparent in the results. Participants in the current study who shared gratitude on Facebook and reported a perceived positive effect on their well-being as a result of receiving positive feedback from their peers also reported higher subjective well-being scores over time compared to participants in the control condition. This outcome is consistent with the findings of Lambert et al. (2012) finding that participants who received "active-constructive" response to good news expressed more positive affect that participants in other conditions. It also

provides support to Tobin, Vanman, Verreynne, & Saeri's (2015) research exploring threats to belonging on Facebook. Participants in this study who received no feedback on their status updates had lower levels of belonging, self-esteem and control. The current study offers tentative support, therefore, to the suggestion that positive feedback from peers is required if sharing gratitude entries on Facebook is to go beyond being a risky activity and become the wellbeing-promoting exercise suggested by research into traditional paper diaries.

Due to the lack of control over a person's peer feedback, the risks associated with sharing personal information online and the likelihood of social comparison, it is unlikely that a Facebook gratitude intervention could ever be controlled enough (e.g. the ensuring of positive feedback) and participants protected from risks and social comparison enough to make it a viable intervention to improve well-being. This calls into question the potential usefulness of Facebook as a medium for gratitude sharing, although more research should clarify this further and consider whether the same is true for other forms of social media (for example, Twitter and Instagram).

Limitations

A limitation of previous research is that it did not specifically explore the impact of gratitude shared on young people aged 16-18. Additionally, previous research has not explored techniques of communication that young people are increasingly using (e.g. Facebook, Instagram and other social media). A strength of the present study is that it recruited young people from a large number of colleges and that it explored the impact of sharing gratitude using a social media platform. Some young people, however, reported via email after reading the study information (provided online) that their Facebook use had evolved and it was no longer a platform they used for sharing normal daily activities. Instagram was named as an alternative social media platform that is being used by a larger number of young people to share more typical daily experiences through photographs and images. Considering this, it is possible that, within the culture of 16-18 year olds, there is another social media platform or format for posting that would be better suited to sharing gratitude online. This raises an interesting direction for future research that explores the impact of shared gratitude on the well-being of young people. Taking photographs that symbolise felt gratitude and sharing them on a platform such as Instagram, for example, might pose less risk to young people so that the benefits of sharing gratitude may outweigh the risks associated with sharing personal experiences online.

As participants were randomly assigned to either gratitude or control conditions, this could have resulted in participants being in contact with another participant in a different condition to their own (e.g. reading different style status updates to their own on Facebook). They could also have been in the same class at college as participants in the other condition. Additionally, if teachers recommended participation as being beneficial to students' study of A-Level Psychology/Sociology, it is possible that they could have talked about what participation was like for the students. It is also possible that some participants were aware or worked out that there were two different conditions. This could have influence in some way the content of their status updates or their responses to the questionnaire.

Recruiting participants to this study proved to be a difficulty. Only 70 of the desired 100 participants were recruited, and there was significant drop out prior to time 3 measures being taken. An obstacle that contributed to recruitment success was that the intervention had to be completed during 10 consecutive college days (i.e. two weeks); college holidays, mock exams and exam dates, therefore, made it difficult to recruit at certain times of the year. Additionally, some students who did express an interest in participating were then not able to be recruited as they did not have active Facebook accounts. The majority of participants were recruited via Sixth Form and Further Education Colleges where the A-Level Psychology or Sociology teachers felt that the experience of participation was important for their students. These colleges advertised the study and in some instances invited the researcher in to give talks about Psychology at university. It is likely that the presence of the researcher at some colleges may have swayed students into expressing an interest in participation due to having 'met' her. Additionally, participants from colleges with more authoritative methods of student management might possibly felt pressured into taking part. Some participants may have taken part simply because their teacher had told them to. Despite these sampling issues, it is possible that more young people could have been recruited during the next academic year as some colleges expressed an extended interest in advertising the opportunity to the new students arriving in September 2016.

Proportionally, there were many more females than males. It has been suggested that gratitude sharing might have a more significant effect on boys compared to girls (Diebel, Woodcock, Cooper, & Brignell, 2016). On the other hand, research with adult participants suggests that women are more likely to participate in gratitude interventions and to view the intervention as useful (Kaczmarek, et al., 2015; Kaczmarek, et al., 2013). In these studies, the researchers link the gender divide to motivation to take part. Since most

participants reported studying either psychology or sociology or both subjects, this could also be a reflection of the gender imbalance within the social sciences and psychology fields. Another concern with the sample group is that academic background did not vary considerably between participants. Colleges offer a range of programmes from Level 1 up to Level 3, and Level 4 in some instances. It is possible that the intervention could have had an entirely different impact on young people on a Level 1 programme (e.g. basic skills, no previous qualifications) compared to a Level 3 (e.g. A-level, 5x GCSEs at A-C grade including English, Maths and often Science). Some students will have been experiencing more stress and negative affect than other students, and it's possible that this could be related to the level of study that they are enrolled on. This is an important factor to consider when thinking about possible ceiling/floor effects; if students were already emotionally within what might be described as the 'normal' range, some outcome measures might find it difficult to detect improvements that are much smaller than improvements made in participants who scored below the 'normal' range.

Directions for Further Research

Despite these limitations, the present research has a number of strengths. The findings have advanced the field of research around targeted social, emotional and mental health intervention programmes for 16 to18 year olds, by examining the way in which online social media can be used to improve students' subjective well-being. The results from the study also offer evidence for the effectiveness of gratitude interventions and the associated impact of peer responses to shared gratitude.

There are other social factors associated with gratitude that were not able to be explored in this study. Areas such as sense of belonging, pro-social behaviour, collective strength, compassion and forgiveness may help to unpick the impact of gratitude sharing further. Furthermore, considering Lyubomirsky, Dickerhoof, Boehm, & Sheldon's (2011) finding that 'happiness' interventions appear to be most effective when participants "know about, endorse and commit" to the intervention and Kaczmarek et al's., (2015) exploration of motivation to self initiate gratitude interventions, it may also be useful to think more about individual self-motivation for participation and the associated implications in terms of likely intervention impact. For example, there were two participants in the current study that reported that taking part was useful because it helped them to understand how psychological experiments work. It is unlikely that the intervention would have the same

impact on those participants compared to participants who may have chosen to take part because they expected a possible change in their well-being as a result.

It has been suggested that sharing gratitude diary entries with a partner is more effective than a stand-alone gratitude diary (Lambert, et al., 2012). The design of the current study required participants to share their gratitude online via Facebook with all of their 'friends', who could then 'like' or comment on the grateful status update. This provides an interesting addition to the evidence base in the fields of both gratitude diaries and Facebook use. Research suggests that the content of peoples' Facebook feeds can have an "emotional contagion" effect on the people reading the status updates (Kramer, Guillory, & Hancock, 2014). If an online gratitude-sharing intervention can be shown to improve positive outcomes for the individual with a more diverse group of participants, it has the potential to be an intervention that has a 'knock-on' effect for the 'friends' reading and responding to the grateful status updates.

The intervention was completed over ten college days. The interventions in previous gratitude studies were generally completed across 2 to 4 weeks (e.g. (Emmons & McCullough, 2003; Lambert, Fincham, & Stillman, 2012; Lambert, et al., 2012). It is possible that the 10 college day time period was not a long enough for the intervention to take effect. Additionally, further research is needed to explore whether peers and teachers noticed a change in the behaviour of participants within the context of the college classroom and wider college environment. It would be interesting to see if there are optimum contexts in which reported positive impact on well-being translates into behaviour change in the college environment. For example, one participant reported that personal attendance had improved during the course of participation:

"I didn't want to get out bed as I felt a bit sick, I got up anyway and felt grateful for college in general, as I have started to see it as a reason to get up and get on with things so that I can work towards good future."

Participant 33

It is important to note that although adequate reliability was demonstrated by all the measures used in this study, it would be worthwhile ensuring that they are used with a more diverse sample group to include young people studying on a much wider variety of post-16 programmes (e.g. Level 1 and Level 2, in addition to Level 3) as well as a wider variety of ethnic backgrounds and a more balanced divide between genders. They would

also benefit from comparison against other similar measures to ensure construct validity is at an adequate level.

In summary, the current study highlights potential developments for future research in the field of online gratitude sharing (e.g. exploring the impact on young people studying on Level 1 and Level 2, NVQ and BTEC programmes, exploring sharing gratitude via alternative social media platforms such as Instagram and Twitter) and identifies practical issues that should be considered (e.g. self-motivation for participation, risk associated with online).

Practical Implications

As per the Mental Health Action Plan (World Health Organisation, 2013) the UK has a duty to prioritise mental health and well-being. Given that young peoples' reported mental well-being worsened between 2009-2010 and 2012-2013 (Office for National Statistics, 2015) and suicide was reported by the WHO (2014) as the second most common cause of death in young people (aged 15-29), it appears logical to explore interventions that may address the difficulties with well-being that young people are reporting experience of. The impetus behind the literature review and current empirical study was to increase the evidence-base within the field of positive psychology, explore methods of improving well-being through the increase of experienced (and perceived) positive emotion in young people and to think about the ways in which Sixth Form and Further Education Colleges can actively support the mental health and well-being of their students. Therefore, the findings have several important implications for the practice of Educational Psychologists (EPs) and other professionals working with young people. Clear research evidence is required in order to inform professional decision making about the most effective interventions to implement with this age range and in college settings. The current study provides tentative evidence that can be shared with professionals working with young people, with an emphasis on the importance of positive feedback in increasing well-being. It could form part of the evidence-informed practice provided by EPs during their work with schools and colleges to improve outcomes for young people getting ready for adulthood. Additionally, colleges frequently have a 'Facebook Policy" that instructs students on when and how they can use Facebook during college time. The results of this study could be shared with the senior leadership team of colleges to inform their decision making around the information they provide young people about Facebook use, particularly considering the impact of peer responses online.

The current study has also emphasised areas for future research. Additional research is required in order to explore the impact of sharing gratitude on Facebook on students with more significant well-being issues, with students who study on a wider range of programmes and with a sample group that addresses the imbalanced gender divide present in the current study. This would help to establish whether sharing gratitude online via Facebook has a more substantial impact on students if their social and emotional needs at baseline are more prominent. Additionally, given the culture of the population studied, it may be useful to consider other social media (e.g. Instagram) as more appropriate platforms for sharing gratitude. Given that the work of EPs has, since 2015, extended to young people aged up to 25 years they are well-placed to discuss implications with colleges, broaden the evidence base further and increase the depth of the results of the current study by carrying out additional applied research exploring strategies for improving well-being and outcomes with this age-group and in collaboration with post-16 educational establishments.

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Appendices

Appendix A: Gratitude and Social Media Search Protocols

Literature search	Search terms	Search parameters	Electronic databases	Documents retrieved
Gratitude	"gratitude" "grateful" (+ synonyms) and "college" or "school" or "Further Education" or "FE" or "academic" or "University" or "6th Form" or "undergraduate" or "student" or "pupil" and "well-being" or "narcissism" or "happiness" or "empathy" or "positive affect" or "negative affect" or "vitality" or "sense of belonging" or "belonging" or "school connectedness" or "satisfaction with life" or "satisfaction" or "life satisfaction" or "well-being" or "wellbeing" or "well-being"	Peer reviewed journals Written in English Published between 1996-2016 English text	PsycInfo Web of Science EBSCO	60,299
Facebook	"social media" or "social networks" or "Facebook" and "college" or "school" or "Further Education" or "FE" or "academic" or "University" or "6th Form" or "undergraduate" or "student" or "pupil" and "well-being" or "narcissism" or "happiness" or "empathy" or "positive affect" or "negative affect" or "vitality" or "sense of belonging" or "belonging" or "school connectedness" or	Peer reviewed journals Full-text Written in English Published between 1996-2016 English text	Psychinfo Web of Science EBSCO	12

Literature search	Search terms	Search parameters	Electronic databases	Documents retrieved
	"satisfaction with life" or "satisfaction" or "life satisfaction" or "wellbeing" or "well-being"			
	"social media" or "social networks" or "Facebook" and "well-being" or "narcissism" or "happiness" or "empathy" or "positive affect" or "negative affect" or "vitality" or "sense of belonging" or "belonging" or "school connectedness" or "satisfaction with life" or "satisfaction" or "life satisfaction" or "wellbeing" or "well-being"	Peer reviewed journals Full-text Written in English Published between 1996-2016 English text	PsycInfo Web of Science EBSCO	311

Appendix B: Gratitude studies excluded after full text assessment

Reference	Rationale for exclusion
1. Boehm, Lyubomirsky & Sheldon (2011)	Non-student sample
2. Digdon & Koble (2011)	Irrelevant comparison condition (sleep)
3. Gander, Proyer, Ruch, & Wyss (2013)	Swiss speaking sample
4. Geraghty, Wood & Hyland (2010)	Non-student sample
5. Kaplan, Bradley-Geist, Ahmed, Anderson, Hargrove and Lindsey (2014)	No control condition to compare the two active conditions against
6. Kerr, Donovan & Pepping (2014)	Non-student sample
7. Koo, Algoe, Wilson & Gilbert (2008)	Non-active control group to compare the two active conditions against
8. Lambert, Clark, Durtschi, Fincham and Graham (2010)	Irrelevant measures (relationships, communal strength)
9. Lambert, Fincham, Braithwaite, Graham & Beach (2009)	Irrelevant topic - relationship between prayer & gratitude, irrelevant measures (materialism)
10. Long & Davis (2011)	Non-random allocation to conditions.
11. Martinez-Marti, Avia and Hernandez-Lloreda (2010)	Spanish speaking sample

Reference	Rationale for exclusion
12. Ouweneel, Le Blanc & Schaufeli, (2014)	Dutch speaking sample
13. Owens & Patterson (2013)	Intervention activity irrelevant (drawing not writing)
14. Peters, Meevissen, Hanssen (2013)	Non-student sample
15. Rash, Matsuba & Prkachin (2011)	Non-student sample
16. Seligman, Steen, Park & Peterson (2005)	Non-student sample
17. Sergeant & Mongrain (2011)	Non-student sample
18. Toepfer & Walker (2009)	Non-active control condition
19. Toepfer, Cichy and Peters (2012)	Non-active control condition
20. Woods, Lambert, Brown, Fincham & May (2015)	Irrelevant content – gratitude to improve relationship well-being

Appendix C: Gratitude study synthesis

NB: Studies are experimental design unless otherwise described.

Author(s)	Participants N (%Male)	Intervention	Design	Outcome Measures	Significant results/interactions
1. Emmons & McCullough (2003) Study 1	US psych undergrad students N: 201 (27) Age/Mean Age: NR Attrition (%): 9 **Underlying Theory** State gratitude & positive psychology	Gratitude Intervention: Gratitude diary (5 things) (G) Comparison Interventions: Hassles diary (C_1) Event Diary (C_2)	Random allocation to condition. Time points: Pre, post and during intervention collection of data.	Gratitude adjective checklist (GAC) PANAS, grateful emotions in response to aid, time exercising, global appraisal, global appraisal of expectations for upcoming week Physical Symptoms	G rated life more favourably than C_1 and C_2. G experienced fewer symptoms of physical illness than C_1 and C_2. G spent more time exercising than those in C_1. Grateful emotions in response to aid were sig. associated with ratings of joy & happiness. G were more optimistic about upcoming week than C_1 and C_2. G did not affect global PANA. Effect Sizes (Cohen's d): Mean diff. between G & C_1 = 0.56. Mean diff. between G & C_2 = 0.28. Mean diff. between C_2 & C_1 = 0.24.

					** limited – pps only completed 1x report per week. 2nd study designed (see below)
2. Emmons & McCullough (2003) Study 2	US psychology undergrad students N: 166 (25) Age/Mean age: NR Attrition (%): 9 **Underlying Theory** Gratitude as a state Positive psychology	Gratitude Intervention: Gratitude diary (5 things) (G) Comparison interventions: Hassles diary (C_1) Social comparison (C_2)	Designed as a result of previous study (above). Random allocation to condition. Pre, post and during intervention measures Daily x two weeks. No follow-up	GAC, PANAS, time spent exercising, physical symptoms, health behaviours, pro-social behaviours	G elicited more gratitude and PA than C_1. Gratitude and PA were correlated (r=.80, p<.001). No differences in measured health behaviours. G were more likely to have offered emotional support to others and to have helped someone with a problem compared to C_1 and C_2. Effect Sizes (Cohen's d): Mean diff. between G & C_1 = 0.88. Mean diff. between G & C_2 = 0.40. Mean diff between C_2 & C_1 = 0.39. **Standard diff between G and C_1 was larger in Study 2 (d = .88) than Study 1 (d = .56). Daily basis versus weekly basis.

| 3. | Flinchbaugh, Moore, Chang & May (2011) | US undergrad business students N: 117 (59) Age: 21-30 Mean Age: NR Attrition (%): NR **Underlying Theory** Positive & organisational psych | Gratitude diary (G): five things. Comparison intervention: Stress management (I1) Stress management & gratitude (I2) Passive control (C) | Quasi-exp. design Allocations based on timetables & style of teaching. Pre & post intervention measures. | Classroom specific stress, meaningfulness, engagement and life satisfaction (subjective scales) | Average classroom stress increased and life-satisfaction was not affected. G and I_2 resulted in higher classroom meaningfulness than I_1 & C. G and I_2 resulted in somewhat higher levels of classroom engagement than I_1 & C. Effect Size: NR |
| 4. | Froh, Bono, Fan, Emmons, Wood, Henderson, Harris, Leggio & Wood (2014) Study 2 | US elementary school pupils N: 82 (54.9) Age: 8-11 Mean Age(SD): 9.5 (0.63) Attrition: NR **Underlying Theory** Positive psychology Trait gratitude | Gratitude (G): instruction on the social-cognitive perceptions that elicit gratitude. Comparison Intervention (C): instruction on emotionally neutral topics (i.e. daily student activities) | Quasi- exp. Random allocation to condition by class School based administration 5-week delivery, 30 minutes once a week. Measures taken and pre, post, 7-week, 12-week and 20-week follow-up | Benefit appraisal vignettes GAC PANAS -C (for Children) Brief multi-dimensional students' life-satisfaction scale (BMSLSS) | Only G showed linear increased in benefit-appraisals (grateful thinking) across the 20 weeks. C remained relatively static in levels of gratitude across the 20 weeks. Positive affect increased linearly for G whereas positive affect for C stayed stable. Negative affect decreased and life satisfaction increased for both G and C. Effect Sizes (Cohen's d): Mean diff between G & C at 12 weeks = 0.53 and |

				at 20 weeks = 0.74. Mean diff in levels of gratitude between G & C at 12 weeks = 0.41 and at 20 weeks 0.48. Mean diff in levels of positive effect between G & C at 12 weeks = 0.40.
5. Froh, Sefick & Emmons (2008)	US middle pupils across 11 classes. N:221 (49) Age: 11-13 Mean Age(SD): 12.17 (0.67) Attrition: 3 **Underlying Theory** Developmental psychology	Gratitude (G): Diary 5 things Comparison Interventions: Hassles diary (C_1) Events diary (C_2) Daily for two weeks + 3-week follow-up	Quasi-exp. Random allocation to condition by class. 4 classes = gratitude, 4 classes = hassles, 3 classes = no treatment control Pre, post & follow-up data collection.	Pre-intervention: Demographics, well-being, life-satisfaction, physical symptoms, reactions to aid and pro-social behaviour. Between pre & post intervention: well-being, pro-social behaviour.	G reported greater gratitude compared to C_1 at post-intervention & follow-up. G and C_2 reported sig. less negative affect compared C_1 at post intervention and follow-up C_2 reported sig. more satisfaction compared to C_1. G indicated greater satisfaction with school experience when compare to C_1 and C_2. G and C_2 indicated greater satisfaction compared to C_1. No sig. differences between conditions in physical health symptoms. Effect Sizes: NR

6.	Froh, Kashdan, Ozimkowski & Miller (2009)	US Christian parish school students N: 89 (49) Age: 8-19 Mean Age (SD): 12.74 (3.48) Attrition (%): 0 (0) **Underlying Theory** Positive psychology Developmental psychology	Gratitude (G): Gratitude letter, in person delivery. Comparison Intervention (C): Daily events diary 10-15 minutes daily for five days across two weeks to either write letter or think about daily events	Quasi-experiment. Matched groups (by year group) then random allocation to G or C. Data collected in classrooms Pre, post, 1-month and 2-month follow-up.	GAC PANAS-C G reflections and shared experiences of giving letter to benefactor.	Positive affect increased for G post intervention. Positive affect reduced for C post-intervention. (ns). Positive affect increased for G at 2-month follow-up. Positive affect reduced for C post-intervention at 2-month follow-up. (ns) Increases in positive affect were more pronounced for those participants who were lower in positive affect at pre-intervention. Effect Size: NR
7.	Harbaugh & Vasey (2014)	US undergrad students N: 164 (30.4) Age: 18-54 Mean Age (SD): 19.53 Attrition: 3 **Underlying Theory** Trait gratitude	Gratitude + Rationale (G$_1$): Gratitude list of 5 things following reading of rationale for writing it. Gratitude (G$_2$): Gratitude list of 5 things	Matched for depression level and the randomly allocated to condition Pre and post intervention measure taken in lab plus daily measures taken during the two weeks of intervention.	Centre for epidemiologic studies depression scale (CESD) Subjective happiness scale (SHS) Gratitude: GQ-6	No condition significantly predicted change in any measure. G appeared to protect low-trait gratitude participants from persistence of high depressive symptoms and low mood. G trend towards decline in negative symptoms over time.

	Abnormal psych (focus on depression)	Comparison Intervention (C): Daily event list	Two weeks of measures and gratitude or daily events lists.	Adapted Differential emotions scale (ADES) Single item mood rating	G not associated with improvements in negative emotions or gratitude regardless of baseline measures. Effect Size (Pearson's R^2): reported in tables.
8. Lambert, Fincham & Stillman (2012) Study 7	US undergrad students N: 89 (18) Age: 17-29 Median: 20 Attrition: NR **Underlying Theory** Positive psychology & abnormal psychology (focus on depression) Broaden and Build	Gratitude condition (G): gratitude journal Comparison Intervention (C): daily journal of insights learnt on college courses, shared with a relationship partner	Random allocation to condition. Journaling daily for four weeks, with entering journal contents online twice a week. Measures taken pre and post intervention.	State depression symptoms Sleep: self-rating Positive affect (Positive dimension of PANAS)	G reported less depressive symptoms at time 2 compared to C. G reported slightly higher positive affect at Time 2 compared to C. Results indicate that increasing frequency of grateful thoughts over time increased (or prevented decrease) of positive emotion and prevented an increase in depressive symptoms. Positive emotion mediated relationship between gratitude and depressive symptoms. Effect Size (ηp^2): G & C no diff in depressive symptoms T1 = 0.01. G & C differed in depressive symptoms T2 = 0.03. G & C equal in positive emotion T1 = 0.00. G & C diff at T2 = 0.03.

9. Lambert, et al., (2012) Study 4	US undergrad students N: 158 (15) Age: 17-31 Median: 20 Attrition: 24 **Underlying Theory** Capitalisation theory	Gratitude: Shared diary (G_1) Diary (G_2) Comparison Intervention (C) Daily journal of learning (shared)	Random allocation to condition. Pre, post and during intervention measurements. Daily completion of diaries over 4 weeks, sharing twice per week for G_1.	Happiness (SHS) Satisfaction with life scale Positive dimension of the PANAS Vitality scale.	G_1 reported higher positive affect than those in G_2 and C. Higher levels of happiness reported by G_1 compared to G_2 and C. Higher levels of life satisfaction in G_1 compared to G_2 and C. Higher levels of vitality amongst those in G_1 compared to G_2 and C. Effect Sizes (Cohen's d): Higher levels of positive affect in G_1 compared to G_2 = 0.38 and C =.38. Higher levels of happiness in G_1 compared to G_2 = 0.30 and C = 0.35. Higher levels of life satisfaction in G_1 compared to G_2 = 0.38 and C = 0.48. Higher levels of vitality G_1 compared to G_2 = 0.44 and C = 0.67.
10. Lyubomirsky, Dickerhoof, Boehm & Sheldon (2011)	US undergrad students N: 335 (30) Age: NR Mean Age(SD): 23.2 (6.11) Attrition:153	Gratitude intervention (G):	Random allocation to condition.	PANAS LWLS SHS	Self-selected students reported greater increased in well-being compared to non-self-selected students at 8-week measure. Self-selected G reported

	Underlying Theory Lyubomirsky, Sheldon & Schkade (2005) model of well-being. Positive psychology	Thinking about & writing letters (not sent) Comparison Interventions: Expressing optimism (C_1) Past events (C_2) + self-selecting or not	Initial introduction & then web-based. Pre and post intervention measures. Dependent variable = change measures.	Effort: Objective coders rated "how much effort did the participant put into exercise".	greater increased in well-being compared to non-self-selected and those in C_2. G showed trend towards increases in well-being relative to C_2 (ns) 6 months' post intervention. Effect of effort was sig. for G and C_1, but not for C_2. Effect Sizes (Pearson's r): increases in well-being for SS compared to NSS = 0.14. SS in G or C_1 increased well-being compared to NSS & compared to C_2 = 0.12.
11. Sheldon & Lyubomirsky (2006)	US undergrad students. N: 67 (25) Age/Mean Age: NR Attrition: 3 **Underlying Theory** Positive psychology "sustainable happiness" model	Gratitude diary (G) Comparison Interventions: Best possible selves (C_1) Life details (C_2)	Random allocation to condition Lab & web-based	PANAS Self-Concordant Motivation Exercise Performance	G & C_1 increased positive affect compared to C_2, which trended downward. C_1 had a larger effect on affect than G relative to C_2. Although G & C_1 did not sig. differ in their effects on positive mood. All three conditions were beneficial in reducing negative mood.

					Effect Sizes (Cohen's d): Mean diff in PA between G and C_1 compared to C_2 =0.34.
12. Watkins, Uhder & Pichinebskiy (2014)	US undergrad psych students. N: 129 (NR) Age/Mean Age: NR Attrition: NR **Underlying Theory** Grateful recounting - vs- grateful processing	Gratitude (G): 3 blessings list Control (C): Memory placebo Pride (P): 3 blessings	Randomised control trial Completed from home. Emailed by researcher Measures taken pre & post intervention & 5 weeks post treatment	GRAT-S, PANAS, SWS, CES-D, interest in improving happiness, novel memory accessibility test, enjoyment of exercise, continuation of exercise	Well-being increased across all conditions. Well-being of G continued to improve after treatment (ns trend). G sig. lower depression scores than C & P. G showed sig. greater recall of positive events than C and P. Males gained more from G than females (lower in trait gratitude as a group). G was more effective in enhancing well-being for those low in trait gratitude. Effect Size (ηp^2): Sig. effect for G on well-being = 0.054. Gender sig. impacted on G condition = 0.12.
13. Watkins, Cruz, Holben & Kolts (2008)	US undergrad psych students. N: 128	Gratitude (G): Positive consequences diary	Random allocation to condition.	Memory closure scale, emotional impact scale,	Across conditions improvement was shown in participant's open memories. The memories of G at follow-up had a

	Age/Mean Age: NR Attrition: NR **Underlying Theory** Trait gratitude & memory mechanisms	Emotional Control (C_1): Emotion linked to memory Control (C_2): Plans for tomorrow	Measures administered in a group setting. Writing 20 mins for 3 days. 1-week follow-up	memory intrusiveness, IES-R, WBSI, GRAT-R, PANAS, MCQ	more pleasant impact than C_2, but was ns between G and C_1. Decline in intrusiveness of open memory for G, differing significantly from C_1 but ns with C_2. Support for theory that one-way gratitude enhances happiness through promoting positive memory bias. Effect Size (ηp^2): Sig. diff in writing conditions at follow-up 0.78 (openness of memories) and 0.77 (emotional impact).
14.Watkins, Woodward & Stone (2003) Study 4	US undergrad psychology students. N: 157 (NR) Age: NR Mean Age(SD): NR Attrition: 1 **Underlying Theory** Trait gratitude	Gratitude: Thinking (G_1) Essay (G_2) Letter (G_3) Comparison Intervention (C): write about living room	Random allocation to condition Lab-based Timed writing for 5 minutes Measures taken pre and post intervention.	PANAS Past Accounts of Sadness (distraction task) 8 bi-polar affect scales GRAT	Gratitude conditions increased positive affect. Comparison Intervention did not. G_1 showed the strongest effect. Negative affect decreased between pre and post intervention. Effect Size (ηp^2): Sig. diff. in PA between conditions at T1 & T2 = 0.115. Modified by sig. time x condition interaction = 0.119. Sig. diff.

in NA between conditions at T1 & T2 = 0.100. NA NS time x condition interaction =0.022.

Appendix D: Facebook studies excluded after full text assessment

Reference	Rationale for exclusion
Best (2014)	Full text unavailable (Unpublished)
Best, Manktelow & Taylor (2014)	Systematic narrative review, no intervention.
Bollen, Goncalves, Ruan & Mao (2011)	Twitter based research
Bowler, Knobel & Mattern (2015)	No intervention
Ma and Chan (2014)	Questionnaire design, theory modelling, no intervention
Chen (2015)	No access to full article (unpublished)
Drell (2014)	Magazine article
Ferguson, Munoz, Garza & Galindo (2014)	Questionnaire study, no intervention.
Foster (2015)	Twitter focus, about benefits of collective action
Goodall, Ban, Birks, Clifton (2014)	Full-text unavailable.
Greitemeyer, Mugge, Bollerman (2014)	Non-English speaking sample, no intervention.
Guadagno, Muscanell,& Pollio (2013)	No intervention, compare use between students and homeless
Kalpidou, Costin & Morris (2011)	Questionnaire design, no intervention

Reference	Rationale for exclusion
Kim, Yoo-Lee, & Sin (2011)	Poster, questionnaire design, no intervention
Kim, Park & Jo (2014)	Twitter based research
Kwan & Skoric (2013)	Non-western sample
Kwon, D'Angelo & McLeod (2013)	Non-experimental design – no intervention
Lee, Lee, Choi, Kim & Han (2014)	No intervention, questionnaire comparison to non-English speaking sample.
Leung & Lee (2005)	Non-English sample, non-experimental design, no intervention
Leung, Schuckert and Yeung (2013)	Irrelevant topic – using social media for engagement
Lin & Utz (2015)	Non-English speaking sample.
Liu & Yu (2013)	Non English speaking sample
Lonnqvist & grobe Deters (2016)	Questionnaire design, no intervention
Lonnqvist & Itkonen (2014)	Questionnaire study, no intervention.
Manago, Taylor and Greenfield (2012)	Non-experimental design – no intervention
McKinney, Kelly & Duran (2012)	No intervention, correlational
Mitchell, Frank, Harris, Dodds, Danforth (2013)	Non-experimental design – no intervention, irrelevant topic
Mustafa, Hema R.; Short, Megan; Fan, Si (2015)	Non-experimental design – no intervention

Reference	Rationale for exclusion
Nabi, Prestin & So (2013)	Questionnaire design, no intervention.
Ollier-Malaterre & Rothbard (2015)	Article not primary research
Partala & Saari (2015)	Non-experimental design – no intervention
Rae & Lonborg (2015)	Questionnaire study, no control group, no intervention.
Rauniar, Rawski, Johnson & Yang (2013)	Questionnaire, theory design, no intervention
Reinecke, Vorderer & Knop (2014)	Questionnaires no intervention
Rodríguez Hidalgo, Tan & Verlegh, (2015)	Case study design, thematic analysis, non-experimental, no intervention
Seder & Oishi (2009)	Irrelevant focus
Roffeei, Abdullah, & Basar (2015)	Non-experimental design – no intervention
Settanni & Marengo (2015)	Questionnaire study, no intervention.
Seydi Ahmet & Recep (2015)	No intervention
Skues, Williams & Wise (2012)	No intervention
Strayhorn (2012)	Questionnaire design, no intervention.
Summerskill (2009)	Full-text unavailable (unpublished)
Tichon (2015)	Content analysis, non-experimental, no intervention

Reference	Rationale for exclusion
Tobin, Vanman, Verreynne & Saeri (2015)	Non student sample
Tower, Blacklock, Watson, Heffernan,Tronoff, (2015)	Case-study of one Facebook forum, no pre-post measures
Park, Kee & Valenzuela (2009)	No intervention
Walters & Horton (2015)	No well-being measures
Wang, Burke & Kraut (2013)	Content analysis, no intervention
Wang, Kosinski, Stillwell & Rust (2014)	No intervention
Whitman & Gottdiener (2015)	Correlational design, no intervention.

Appendix E: Facebook study synthesis

Author(s)	Participants N (%Male)	Intervention	Design	Outcome Measures	Significant results/interactions
15. Brooks (2015)	US undergrad students on an information systems course. N: 209 (67) Age: NR Mean Age(SD): 21 (NR) Attrition: NR	Naturally occurring level of social media usage by participants' during experimental activity.	Conducted in a computer lab. Short survey, 15-minute video, a quiz on the video and a second survey.	Performance (P), social media usage (SMU), attentional control (AC), multi-tasking computer self-efficacy scale (MTCSE), Technostress (TS) and happiness (H).	SMU negatively affected P. Neither AC nor MTCSE had a sig. effect on this relationship. SMU positively correlated with TS. High levels of TS associated with lower levels of (H). SMU was associated with lower H. Effect Size: NR
16. Knowles, Haycock & Shaikh (2015) Study 1	Undergrad students N: 45 (33.33) Age: NR Mean Age(SD): 18.44 (NR) Attrition: NR	Inclusion Condition (IC): others would like to work with the pp in a task. Exclusion Condition (EC): others did not want to work with the pp in a task.	Random allocation to condition. Lab based. Short self-descriptive statement written, given some free time, questionnaires to complete.	Gender, age, what was done during 'down' time earlier, level of feeling accepted or rejected.	EC engaged in twice as many social behaviours via computer-mediated communication compared to IC. However, EC also engaged in more texting & emailing than IC.

Author(s)	Participants N (%Male)	Intervention	Design	Outcome Measures	Significant results/interactions
					Effect Sizes (Cohen's d): Sig. effect of condition = 1.80.
17. Kramer, Guillory & Hancock (2014)	N: 689,003 (NR) Age: NR Mean Age(SD): NR (NR) Attrition: NR	Positive emotional content in FB newsfeed reduced (P1)/increased (P2) Negative emotional content in FB newsfeed reduced (N1)/increased(N2) Control condition – content omitted at random (C)	One-week experimental period. Random allocation to condition.	Emotional contagion measure: % of all words produced by a given user that were either positive or negative during the experimental period.	When P occurred in a pps newsfeed, the % of positive words in their status updates decreased compared to C whereas the % of negative words used increased. When N occurred in a pps newsfeed % of words that were negative decreased compared to C and the % of words that were positive increased. Emotional contagion hyp supported. Effect Sizes (Cohen's d): Sig. effect of condition compared to control: P1 condition =

Author(s)	Participants N (%Male)	Intervention	Design	Outcome Measures	Significant results/interactions
					0.02. N2 condition = 0.001. N1 =0.02. P2 = 0.008.
18. Kross, Verduyn, Demiralp, Park, Seungjae Lee, Lin, Shablack, Jonides & Ybarra (2013)	US undergrad students N: 82 (39.5) Age: NR Mean Age(SD): 19.52 (2.17) Attrition: 3	PPs text messaged a link to an online survey 5x a day between 10am-12pm over 14 days. Measurement of amount of naturally occurring Facebook (FB) use. How do you feel right now? 2. How worried are you right now? How lonely to feel right now? How much have you used FB since the last time we asked?	Naturally occurring independent variable (FB use) Lab session, 14 days at home/work receiving text messages followed by lab session for last questionnaires.	(pre) Beck depression inventory, Rosenberg self-esteem scale, social provision scale inc. FB support. Motivation for using FB questions. (post) SWS, revised UCLA loneliness Scale & number of FB friends.	Affective well-being (AWB): pps did not use FB more or less dependent on how they were feeling. Cognitive well-being (CWB): The more pps used FB the more their life satisfaction levels declined over time (including when controlling for affect). Direct social interaction did not predict changes in CWB. The lonelier pps felt, the more they used Facebook over time. Neither worry nor loneliness interacted sig. with FB use to

Author(s)	Participants N (%Male)	Intervention	Design	Outcome Measures	Significant results/interactions
		How much have you interacted with other people directly?			predict changes in AWB or CWB. Effect size: NR
19. Verduyn, Lee, Park, Shablack, Orvell, Bayer, Ybarra, Jonides & Kross (2015) Study 1	US undergrad students N: 84 (38) Age: NR Mean Age(SD): 19.93 (4.2) Attrition: 25	Active FB condition (A) Passive FB condition (P)	Random allocation to active or passive FB use conditions. Lab based. 9pm follow-up at end of day when pps were at home.	(Pre) Affect, loneliness and life satisfaction ratings, motivation for using FB. (post) affect, loneliness, connection to others, and comparison of quality of life to others. (follow-up) same q's as post questionnaire plus satisfaction with life scale, quantity of active FB usage and quantity of non FB active and	Neither A nor P effected affect immediately following intervention. P sig. reduced affective well-being at end of day relative to both baseline and post-intervention measures. A did not. Effect Size (ηp^2): Sig. effect of condition on well-being = 0.06.

Author(s)	Participants N (%Male)	Intervention	Design	Outcome Measures	Significant results/interactions
				passive usage since leaving the lab.	
20. Verduyn, Lee, Park, Shablack, Orvell, Bayer, Ybarra, Jonides & Kross (2015) Study 2	US undergrad students N: 89 (31.5) Age: NR Mean Age(SD): 20.23 (2.1) Attrition: 17	PPs text messaged a link to an online survey 5x a day between 10am-12pm over 6 days. Survey asked questions about; affective well-being, loneliness at the moment of completing the online survey, degree of envy, active FB usage, passive FB usage, direct interactions, and non-FB social network usage since the previous survey.	Lab based for initial questionnaire, home based for 6 days and then lab based for final questionnaire. Naturally occurring active or passive FB usage used as independent variable.	(pre) satisfaction with life scale, Beck depression inventory, revised UCLA loneliness scale, Rosenberg self-esteem scale, the social provision scale inc. FB support and motivation for using FB. (Post) satisfaction with life scale, number of FB friends, screenshot of FB posts.	Passive FB usage predicted declines in how good pps felt over time. Pps felt worse when they engaged in passive FB usage compare to when they did not use FB passively at all. Passive FB use predicted envy, and envy predicted declines in affective well-being. FB usage predicted decreases in cognitive well-being. Effect size: NR

Author(s)	Participants N (%Male)	Intervention	Design	Outcome Measures	Significant results/interactions
21. Vogel, Rose, Okdie, Eckles, & Franz (2015) Study 2	US undergrad students N: 120 (23) Age: NR Mean Age(SD): 18.93 (3.94) Attrition: NR	Facebook Experimental Condition (F) Facebook Control Condition (FC) Non-Facebook Control Condition (NFC)	Random allocation to condition. Evaluation of similar acquaintances Facebook profile/own profile or an unrelated internet task for 5 mins, evaluation of profile and then completed measures.	Trait self-perception State self-esteem scale Iowa-Netherlands Comparison Orientation Measure (INCOM) Similarity Question Frequency of viewing profile question Comparison question	Results across all measures indicate a consistent influence of Social Comparison Orientation (SCO) on the effects of social media use. F participants high in SCO had lower trait self-perceptions, self-esteem and more negative affect balance compared to those low in SCO. Effect Size: NR for main effects

Appendix F: Study Poster

Appendix G: Participant Information and Instruction Sheet - Experimental Group

Southampton UNIVERSITY OF

Facebook and Gratitude: Exploring the impact of sharing gratitude via Facebook

(Presented online via i-survey)

Researcher: Rebecca Horner

ERGO Study ID number: *16859*

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 research about?

Whilst young people like you are in further or higher education, colleges and universities hope to ensure your well-being. This research explores how Facebook could be used as a tool to improve the well-being of young people.

Why have I been chosen?

Young people like you, who are in college or university, often use Facebook, sometimes even checking it several times a day! This is why you might be a great participant for this study. We are looking for young people in college or university who use Facebook regularly.

What will happen to me if I take part?

If you choose to take part, you will be asked to complete an online questionnaire that will take you approximately 15 minutes. You will then be asked to post a daily status update to Facebook for 10 days over two weeks, on a Monday, Tuesday, Wednesday, Thursday and Friday each week. This update should be describing something you feel grateful about, or expressing your gratefulness for something that happened at college/university.

 For example, a grateful post might look like any of these:
- "Forgot my textbook today, Miss leant me one #grateful"
- "Cognitive Psychology is tough – but the handouts we got were really helpful"
- "Could have been a boring day at Uni, but lunchtime was awesome – good people & good food"

Twice a week (on a Wednesday and a Friday) you will be required to email screenshots of your previous status updates to the researcher rb2g13@soton.ac.uk . On each Wednesday, you will email three status updates (Mon, Tues & Weds) and on each Friday you will need to email two status updates (Thurs & Fri) so that your participation can be verified.

You may need to use a search engine to find out how to take a screen shot on your device (i.e. search for "How to take a screen shot using a……. and whatever your device is – HTC M8, i-phone, PC etc.).

At the end of the two weeks there will be another online questionnaire for you to complete. This may take up to 20 minutes. A final questionnaire (approximately 15 minutes) will be emailed to you for completion approximately 6 weeks after you completed the second one.

PLEASE NOTE: It is recommended that you begin your two weeks participating in the research study by posting a general update that explains what you are doing. For example, you might post:

- "Today I will be starting my participation in a two-week gratitude study for the University of Southampton."

Are there any benefits in my taking part?

Your participation will benefit Educational Psychologists, Colleges and University by providing important information that adds to current knowledge about how young peoples' well-being can be supported using social media such as Facebook. In addition, if you complete the study in full, you will receive a £5 Amazon Gift Voucher as a token of our gratitude for you taking part.

Are there any risks involved?

It is possible that your Facebook friends may find your grateful posts strange or unusual. It may be less strange for them if you post a general statement describing what you are doing before you start. For example: "Today I will be starting my participation in a two-week gratitude study for the University of Southampton.

If you feel that you are experiencing cyber-bullying please ensure that you speak to your tutor at college or call The Samaritans (on 08457 90 90 90) *who will help you talk through the issue. *

Will my participation be confidential?

This research will comply with the Data Protection Act and with University Policy. Your information will remain stored on a password protected computer, in a password protected file. Although your email address will be required, it will only be viewed by the researcher in order to link your screen-shots to your questionnaires, and your questionnaires to each other. Your data will be presented anonymously in the research report.

What happens if I change my mind?

Don't worry if you change your mind, at any point, and decide that you don't want to take part any more. You have the right to withdraw your participation and any data you may have already submitted without your legal rights being affected. You can withdraw by contacting the researcher directly via email (rb2g13@soton.ac.uk) or by letting your tutor know.

What happens if something goes wrong?

In the unlikely case of concern or complaint, you may contact the Chair of the Ethics Committee, Psychology, University of Southampton, SO17 1BJ, UK. Phone: +44 (0)23 8059 3856, email fshs-rso@soton.ac.uk.

Where can I get more information?

You can get more information by emailing Rebecca Horner at RB2g13@soton.ac.uk

Appendix H: Participant Information and Instruction sheet - Control Group

Facebook and Gratitude: Exploring the impact of sharing gratitude via Facebook

(Presented online via i-survey)

Researcher: Rebecca Horner

ERGO Study ID number: *16859*

UNIVERSITY OF
Southampton

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 research about?

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Why have I been chosen?

Young people like you, who are in college or university, often use Facebook, sometimes even checking it several times a day! This is why you might be a great participant for this study. We are looking for young people in college or university who use Facebook regularly.

What will happen to me if I take part?

If you choose to take part, you will be asked to complete an online questionnaire that will take you approximately 15 minutes. You will then be asked to post a daily status update to Facebook for 10 days over two weeks, on a Monday, Tuesday, Wednesday, Thursday and Friday each week. This update should be describing something you have learnt in college or university on that day.

For example, a post might look like any of these:

- "Learnt about cognition in psychology today"
- "Quadratic equations #maths"
- "Got to blow up a cola bottle in chemistry"

Twice a week (on a Wednesday and a Friday) you will be required to email screenshots of your previous status updates to the researcher rb2g13@soton.ac.uk . On each Wednesday, you will email three status updates (Mon, Tues & Weds) and on each Friday you will need to email two status updates (Thurs & Fri) so that your participation can be verified.

You may need to use a search engine to find out how to take a screen shot on your device (i.e. search for "How to take a screen shot using a……. and whatever your device is – HTC M8, i-phone, PC etc.).

At the end of the two weeks there will be another online questionnaire for you to complete. This may take up to 20 minutes. A final questionnaire (approximately 15 minutes) will be emailed to you for completion approximately 6 weeks after you completed the second one.

PLEASE NOTE: It is recommended that you begin your two weeks participating in the research study by posting a general update that explains what you are doing. For example, you might post:
- "Today I will be starting my participation in a two-week gratitude study for the University of Southampton."

Are there any benefits in my taking part?

Your participation will benefit Educational Psychologists, Colleges and University by providing important information that adds to current knowledge about how young peoples' well-being can be supported using social media such as Facebook. In addition, if you complete the study in full, you will receive a £5 Amazon Gift Voucher as a token of our gratitude for you taking part.

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Will my participation be confidential?

This research will comply with the Data Protection Act and with University Policy. Your information will remain stored on a password protected computer, in a password protected file. Although your email address will be required, it will only be viewed by the researcher in order to link your screen-shots to your questionnaires, and your questionnaires to each other. Your data will be presented anonymously in the research report.

What happens if I change my mind?

Don't worry if you change your mind, at any point, and decide that you don't want to take part any more. You have the right to withdraw your participation and any data you may have already submitted without your legal rights being affected. You can withdraw by contacting the researcher directly via email (rb2g13@soton.ac.uk) or by letting your tutor know.

What happens if something goes wrong?

In the unlikely case of concern or complaint, you may contact the Chair of the Ethics Committee, Psychology, University of Southampton, SO17 1BJ, UK. Phone: +44 (0)23 8059 3856, email fshs-rso@soton.ac.uk.

Where can I get more information?

You can get more information by emailing Rebecca Horner at RB2g13@soton.ac.uk

Appendix I: Ethical Approval

Appendix J – Online Consent Pages (Screen-shots)

Browser screenshot (rotated): URL bar shows `https://www.isurvey.soton.ac.uk/start.php?id=16629&preview=yes&saveData=yes`

iSurvey

Facebook & Well-Being Study 1A

Facebook and Well-being Study

Researcher: Rebecca Homer
ERGO Study ID number: 16609

Please read this information carefully before deciding to take part in this research. You will be asked to tick a check box at the end to indicate that you have read all the information below and are happy to participate.

What is the research about?

Whilst young people like you are in further or higher education, colleges and universities hope to ensure your well-being. This research explores how Facebook could be used as a tool to improve the well-being of young people.

Why have I been chosen?

Young people like you, who are in college or university, often use Facebook, sometimes even checking it several times a day! This is why you might be a great participant for this study. We are looking for young people in college or university who use Facebook regularly.

What will happen to me if I take part?

If you choose to take part, you will be asked to complete an online questionnaire that will take you approximately 15 minutes. You will then be asked to post a daily status update to Facebook for 10 days over two weeks, on a Monday, Tuesday, Wednesday, Thursday and Friday each week. This update should be describing something you feel grateful about, or expressing your gratefulness for something that happened at college / university.

For example a grateful post might look like any of these:

- "Forgot my textbook today, Miss leant me one #grateful"
- "Cognitive Psychology is tough - but the handouts we got were really helpful"
- "Could have been a boring day at Uni, but lunchtime was awesome - good people & good food"

Twice a week (on a Wednesday and a Friday) you will be required to email screenshots of your previous status updates to the researcher rb2g13@soton.ac.uk. On each Wednesday, you will need to email three status updates (Mon, Tue & Weds) and on each Friday you will need to email two status updates (Thurs & Fri) so that your participation can be verified.

You may need to use a search engine to find out how to take a screen shot on your device (i.e search for "how to take a screen shot using a....... and whatever your device is - HTC M8, i-phone, PC etc.

At the end of the two weeks there will be another online questionnaire for you to complete. This may take up to 20 minutes. A final questionnaire (about 15 minutes) will be emailed to you for completion approximately 6 weeks after you completed the second one.

PLEASE NOTE: It is recommended that you begin your two weeks participating in the research study by posting a general update that explains what you are doing. For example you might post:

- "Today I will be starting my participation in a two week gratitude study for the University of Southampton."

Are there any benefits in my taking part?

Your participation will benefit Educational Psychologists, Colleges and Universities by providing important information that aids to current knowledge about how young peoples' well-being can be supported using social media such as Facebook. In addition, if you complete the study in full, you will receive a £5 Amazon Gift Voucher as a token of our gratitude for you taking part.

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This research will comply with the Data Protection Act and with University Policy. Your information will remain stored on a password protected computer, in a password protected file. Although your email address will be required, it will only be viewed by the researcher in order to link your screen-shots to your questionnaires, and your questionnaires to each other. Your data will be presented anonymously in the research report.

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Don't worry! If you change your mind, at any point, and decide that you don't want to take part any more. You have the right to withdraw your participation and any data you may have already submitted without your legal rights being affected. You can withdraw by contacting the researcher directly via email (rb2g13@soton.ac.uk) or by letting your tutor know.

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Where can I get more information?

You can get more information by emailing Rebecca Homer at RB2g13@soton.ac.uk

☐ Please tick (check) this box to indicate that you consent to taking part in this research study.

Click here to start this research study

https://www.isurvey.soton.ac.uk/questions.php

University of Southampton

Accessibility toolbar

Facebook & Well-Being Study 1A

1. Consent

Please ensure that you complete all the questions in this section.

Question 1.

I confirm that I am aged 18 years or over

Question 2.

I have read and understood the information provided on the previous page and have had the opportunity to ask questions

Question 3.

I agree to take part in this research project and agree for my data to be used for the purposes of this study

Question 4.

I understand that my data will be kept confidential

Question 5.

I understand my participation is voluntary and that I may withdraw at any time without my legal rights being affected

Question 6.

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 finally 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 3856, email fshs-rso@soton.ac.uk

Save and Continue

Survey Progress
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