

Facebook and depression in late adolescence: Intensity of use, quality of interactions,
and the role of self-definition and identity

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Abstract

In contemporary society, online Social Networking Sites (SNS) such as Facebook provide increasingly popular contexts within which late adolescent peer interactions and accompanying identity experiments can occur. Consequently, of increasing interest is exploring the impact of SNS use on psychological functioning in this age group. There is some evidence suggestive of a relationship between greater SNS use and increased depressive symptoms. However, findings are inconsistent, with a large body of literature also indicative of possible beneficial effects of SNS use on adolescent social and emotional adjustment. Therefore, as a means to address this divergence, the present study aims to investigate whether it is the *quantity* of use, including use of the site to connect with existing or new contacts, or the *quality* of Facebook interactions that might relate to depressive symptoms. Moreover, the present research attempts to identify for which late adolescents these associations are more likely to be a risk, drawing on constructs implicated in offline self-definition and identity development. One hundred and sixty-nine late adolescents (mean age 18.6 years) participated in this quantitative, cross-sectional study. Participants completed an online survey comprising self-report questionnaires validated by previous research assessing depressive symptoms, the intensity of Facebook use, strategy used to connect with peers on Facebook, self-reported quality of interactions on Facebook, and self-definition and identity variables; self-concept clarity (SCC), separation-individuation, and ego-identity commitment. Consistent with previous research, no relationship was found between the intensity of Facebook use, including number of Facebook friends, time spent on the site each day, perceived integration of the platform into daily life, and connection strategy and depressive symptoms. There was, however, evidence suggestive of a relationship between reports of feeling down

following interactions on Facebook and increased depressive symptoms. Self-definition and identity variables were not found to moderate this relationship.

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Introduction

Adolescence is a developmental period of significant importance to later psychological functioning (Birchwood & Singh, 2013; Kroger, 2007). Psychological dysfunction, and particularly depression, in this age group can predict future mental illness in many cases (Thapar, Collishaw, Pine, & Thapar, 2012). Consequently, much research to date attempts to determine in what circumstances and for which adolescents these symptoms might arise. A key concern of adolescents', particularly in late adolescence, is self-definition; exploring who they are in relation to the other, including peers, parents, and society as a whole (Kroger, 2007).

Unsuccessful attempts of late adolescents to develop a clear self-concept, renegotiate relationships with their parents (separation-individuation), and commit to a general set of personal and social standards they wish to adopt (ego-identity), are associated with adverse psychological symptoms, including depression (Kroger, 2007). Not only do contemporary adolescents undergo these self and identity developments in offline contexts, interactions with peers and wider social networks increasingly occur online (Subrahmanyam & Greenfield, 2008). Consequently, the role of the Internet and online social networking site (SNS) use on adolescent psychological well-being is of interest.

Researchers suggest that SNS interactions are associated with depression in adolescents. However, this evidence is inconsistent, with a large body of research also suggesting positive effects of SNS use on various aspects of adolescent social and emotional development (Shapiro & Margolin, 2013). In an attempt to understand these disparities, authors such as Davila, Hershenberg, Feinstein, Gorman, and Bhatia (2012) have investigated the relationship between SNS use and mood with greater specificity. They suggest that it is not the type or quantity of SNS use but the quality

of SNS interactions that relate to depressive symptoms. This is, however, a finding in need of further replication.

In addition, similar to offline investigations of potential individual risk factors moderating the onset of depression in adolescents (Thapar et al., 2012), further research is required to explore for which adolescents SNS activity is more likely to be associated with depressive symptoms. Self and identity constructs implicated in adolescent development and associated with depression offline may similarly influence relationships between online activity and depressive symptoms. Attempting to make sense of the possible interrelationships between SNS use and adolescent psychology appears pertinent as a means to inform future clinical practice with this age group.

Adolescent Psychological Development

‘Adolescence’ is the stage in one’s physical and psychological development beginning at the onset of puberty until adulthood (Kroger, 2007). In United Kingdom law, adulthood (or ‘majority’) commences at age 18 (United Nations General Assembly, 1989). In terms of psychosocial development, however, authors argue that most individuals in contemporary Western society might only complete this transition well into their twenties (Gluckman & Hanson, 2006). Developmental theorists commonly further organise the period of adolescence into three sub-stages: early adolescence from 12 – 15 years; middle adolescence from 15 – 18 years; and late adolescence from 18 – 22 years old (Kroger, 2007).

Hall (1904) initially described adolescence as developmentally important. Specifically, he argued it is a time of life accompanied by significant turmoil (‘storm and stress’), distinct from prior development. Following this, a vast literature on this phase emerged, including a multitude of competing theories regarding its nature and

process (Steinberg & Morris, 2001). There remains substantial debate among theorists and researchers as to whether adolescence represents a point of development discontinuous from other stages, as Hall (1904) suggested, or a period of continuous development across the lifespan (Petersen, 1988). Nonetheless, there appears general consensus that adolescence is a developmental transition; a time of life accompanied by significant change within the individual as well as within one's social environment (Petersen, 1988, Steinberg & Morris, 2001).

This is substantiated by a large body of empirical evidence suggesting that adolescence is a period of marked emotional, behavioural, social, moral and cognitive transformation (see e.g. Nolan-Hoeksema & Hilt, 2012; Petersen, 1988; Steinberg & Morris, 2001 for reviews). Moreover, it is during adolescence that one's adult personality, identity, and future emotional and relational styles, although already in development from infancy (Freud, 1923; Klein, 1946; Schore, 1994), are thought to become fully established (Galambos & Costigan, 2003). As such, adolescence is considered particularly important in understanding and predicting later difficulty in psychological functioning. Epidemiological studies indicate that over three quarters of serious adult mental health disorders initially emerge before the age of 25 and that adolescent emotional distress is significantly related to adult psychopathology (Birchwood & Singh, 2013; Kessler et al., 2005).

Adolescent depression. Depression is one of the most common psychological difficulties occurring in adolescence (Abela & Hankin, 2008; Costello, Egger, & Angold, 2005; Thapar et al., 2012; Williamson, Forbes, Dahl, & Ryan, 2005). In the United Kingdom, yearly incidence rates are estimated at approximately 3% for post-pubertal adolescents (British Psychological Society; BPS, 2005). Epidemiological investigations of international populations report point prevalence rates of around 5%

for unipolar depressive disorder during adolescence (Lewinsohn, Rohde, Klein, & Seeley, 1999). The incidence of depression in younger children is reportedly low, with both UK and global estimates at 1% or less (BPS, 2005; Thapar et al., 2012). Rates of this disorder are, however, known to proliferate significantly between early and mid- to late adolescence (Hankin et al., 1998), with recent estimates suggesting a worldwide incidence of over 4% by the end of adolescence and the cumulative probability rising from approximately 5% in early adolescence to 20% by the onset of adulthood (Thapar et al., 2012). This increase is most notable in girls (BPS, 2005; Thapar et al., 2012). In adolescent boys, although there is a similar increase in prevalence across adolescence, this appears to occur at a slower rate than in girls (BPS, 2005).

Studies suggest that adolescent-onset depression is accompanied by a high risk of recurrence (Dunn & Goodyer, 2006; Maughan, Collishaw, & Stringaris, 2013). Moreover, follow up investigations of the impact of adolescent depression on functioning in adulthood suggest poor outcomes (Maughan et al., 2013). Specifically, in the UK, morbidity of the disorder into adulthood is said to occur in approximately 30% of cases. It is also associated with long-term social difficulties in 37.5% of cases, including the risk of increased criminality and suicidality in adulthood (BPS, 2005).

Given the prevalence of depression in adolescence and its potential impact on adult social and emotional functioning, the clinical literature includes numerous investigations aiming to determine possible individual and social risk factors for its development (see Grant et al., 2006; Maughan et al., 2013; Thapar et al., 2012 for reviews). Psychosocial risk factors include exposure to either acute stressors or chronic adverse environmental or relational experiences. These are reported to include, for example, bereavement and injury, family conflict, maltreatment or

neglect, poverty, physical illness and peer victimisation (Thapar et al., 2012). The British Psychological Society (BPS, 2005) National Institute for Clinical Excellence (NICE) guidance on the identification and management of depression in children and young people report individual risks for depression to include: genetics, in combination with environmental influences in adolescent-onset depression (Rice, Harold, & Thapar, 2002); a highly emotional temperament (i.e. increased reactivity to events); neuroticism (Kendler et al., 2004); a tendency to self-critical thinking including global self-devaluations (Teasdale & Cox, 2001); and rumination (Spasojević, & Alloy, 2001). In addition, there is evidence in the literature on adolescent psychological development suggestive of a relationship between self and identity processes in late adolescence and depressive symptoms (Butzer & Kaper, 2006; Kins, Soenens, & Beyers, 2012; Schwartz et al., 2010; Schwartz, Donnellan, Ravert, Luyckx, & Zamboanga, 2012).

Self-definition in adolescence. “Self” and “identity” are widely employed terms in the psychological and sociological literature (Brubaker & Cooper, 2000; Leary, 2004; Schwartz et al., 2012). However, it is often unclear how these constructs are defined (Schwartz, 2008; Schwartz et al., 2012). The nature of the self and its development has been explored from a number of different theoretical perspectives (see Muuss, 2006 for a comprehensive review). James (1890) and subsequent psychoanalytic (Freud, 1923; Blos, 1974), self-psychology (Kohut, 1985), ego psychology (Erikson, 1968) and cognitive (Piaget, 1976) theorists, amongst numerous others (e.g. Kohlberg, 1981; Loevninger, 1976) have devoted attention to understanding the structure of the self, how individuals view themselves, who they think they are in relation to others, and how these conceptualisations might develop

over time (see Kroger, 2004 for a review). However, these theoretical paradigms have remained largely distinct from one another (Vignoles, Schwartz & Luyckx, 2011).

Similarly, in the empirical literature, several separate lines of research on these constructs exist (Schwartz, 2008). Kroger (2004) argues that although self-related terms including “ego”, “I”, and “me” might possess different meanings according to different theorists and researchers in the field, common to all developmental theories on these processes is that “identity invariably gets defined... as a balance between that which is taken to be self and that considered to be other” (Kroger, 2004, p. 10). Schwartz et al. (2012) suggest that self and identity are both aspects of developing a sense of who one is. They suggest that ‘identity’ represents the process of exploring and then committing to certain personal and social standards and descriptions; and ‘self’ is the view of oneself that both influences and is influenced by these identity resolutions (Schwartz et al., 2012).

Relationships with others including with peers, parents, and wider society, are important mediators of self-definition and identity development (Kroger, 2004; 2007). This is, as Giddens (1991) suggests, because self-reflectivity in relation to others in one’s social sphere is how identity is explored and then assimilated. In childhood and adolescence social networks proliferate, becoming increasingly complex as individuals go through school and begin to develop an increasing number of relationships outside of the immediate family (Goffman, 1956, 1959). Although the nature of these relationships differ across cultures, the process of interpersonal development in adolescence is suggested to be largely similar and is frequently regarded as an important correlate of successful emotional well-being (Kroger, 2007).

It is widely accepted that in adolescence individuals most noticeably grapple with questions of self-definition and identity (Kroger, 2004; 2007). Such questions

include ‘who am I?’, ‘who am I in relation to you?’, and ‘where do I fit in society?’ Moreover, it is in late adolescence, between the ages of approximately 18 and 22 years old, that one’s adult self is suggested to become largely defined (Kroger, 2007). During the period of late adolescence, individuals are faced with the impending challenge of entering adulthood, with its accompanying changes in role and responsibility. By this stage, the marked physical maturation of earlier adolescence has stabilised. Furthermore, mostly, individuals’ sense of physical identity, as adults capable of sexual relationships, with physical strengths and limitations, some of which can be changed and others which need to be taken as given, has begun to be worked through (Kroger, 2007).

Therefore, major tasks of this developmental phase for many adolescents are: to develop a more coherent sense of self; to attain increased autonomy in the relationship between themselves and their parents so to become able to develop secure and intimate relationships with others; and to determine their role and identity in society (Dusek, Flaherty, & Hill, 1981; Kroger, 2007; Muuss, 2006). However, although this is the case for many adolescents in contemporary Western societies (Marcia, Waterman, Matteson, Archer, & Orlofsky, 1993; Kroger, 2007), there are cross-cultural variations (Phinney, 1990; 2000; Taylor & Oskay, 1995). Nonetheless, research has shown considerable consistency of the negotiation of these processes in adolescents across the modern developed world (see Kroger, 2007 for a review).

Social psychologists suggest that individuals attempt to “achieve self-definition and... identity in three fundamental ways: (a) in terms of their unique traits, (b) in terms of dyadic relationships, and (c) in terms of group membership” (Sedikides & Brewer, 2001). Similarly, it is suggested that in late adolescence an individual’s sense of self can be said to be explored on a number of different but overlapping

levels: intrapsychically (within the mind or individually); interpersonally (relationally); and ideologically or socially (Johnson & Nozick, 2011; Kroger, 2007).

As described above, the literature on self-definition and identity development in adolescence spans diverse theoretical traditions. Consequently, there are many different ways in which to conceptualise self-definition and identity according to the three levels outlined above. The present review and subsequent empirical research will, however, draw specifically on theories of self-definition and identity development from work within the fields of social cognition and psychoanalysis. Specifically, self-concept clarity (SCC; Campbell et al., 1996) is derived from a tradition of social cognition. Whereas, adolescent separation-individuation (Blos, 1974; Josselson, 1988; Kroger, 2007; Mahler, 1963) and ego-identity (Erikson, 1968; Kroger, 2007; Marcia, 1966) are psychoanalytic constructs.

Although grounded on different theoretical bases, all three of these concepts pertain particularly to developmental processes occurring in late adolescence (Koepke & Denissen, 2012; Kroger, 2007; Schwartz, Luyckx, & Vignoles, 2011). Moreover, each understands self-definition and identity development in this age group in terms of dynamic process. Specifically, that self-definition and identity development involves negotiation of a dialectical process of oscillation between clarity/ambiguity, separateness/connectedness, and commitment/confusion in order to ultimately establish a largely stable and integrated sense of one's self in relation to others (Koepke & Denissen, 2012; Schwartz et al., 2012). These constructs all, therefore, advocate for the development of a unitary self and contrast theories of self pluralism that argue instead for the benefits of a multiplicity of context dependant identities (Rowan & Cooper, 1999). These process are also each associated with psychological functioning in late adolescence, including evidence suggestive of relationships to

depressive symptoms (e.g., Berman, Weems, & Stickle, 2006; Campbell, Assanand, & Di Paula, 2003; Kruse & Walper, 2008).

For these reasons, authors such as Koepke and Denissen (2012) and Schwartz et al. (2011) argue for the conceptual integration of such intrapsychic and relational approaches to identity development in adolescence. This is suggested in order to capture and describe the complexity of this dynamic process fully. Therefore, it appears important that contemporary research on self-definition and identity development in the late adolescent age group that also considers possible relationships between identity variables and depression, attempts to include those constructs most salient to this age group. Therefore, although from different theoretical traditions, it is of interest in the current research to explore the possible individual and combined effects of self-concept clarity, adolescent separation-individuation, and ego-identity on aspects of late adolescent psychology, including experiences of possible depressive symptoms and use of online social media to facilitate peer interactions.

Self-concept clarity (SCC). Similar to many constructs within the field of self- and identity-definition, as described above, self-concept is an inherently challenging notion to describe. Moreover, there does not yet exist a universally accepted definition of the term (Byrne, 1996; May, 2007). However, contemporary authors largely agree that one's self concept is multidimensional and dynamic and not, in contrast, a monolithic construct equivalent to self-esteem (Campbell et al., 1996; Markus & Wurf, 1987; May, 2007). Self-esteem describes an individual's affective evaluation of one's worth or importance (Gregg, Sedikides, & Hart, 2008; Robinson, Shaver, & Wrightsman, 1991) and therefore represents an evaluative component of the self (Campbell, 1990). Authors distinguish between the structure and the content of the self-concept. The content of the self-concept is said to include one's beliefs about

oneself including, for example, about appearance, attributes, and abilities, and, therefore, one's self-esteem. Contrastingly, the structure of the self-concept refers to the way in which this self-knowledge and belief is organised, including how integrated and stable these representations of oneself are (Campbell et al., 1996; Campbell et al., 2003).

Although some authors argue that differentiation between dimensions of the self is related to positive psychological outcomes (Linville, 1985, 1987) there is a great deal of theory and evidence suggestive of the contrary. Specifically, that the development of an integrated and unified self-concept is associated with personality growth and emotional well-being (Campbell et al., 2003; Rafaeli-Mor & Steinberg, 2002). For example, in psychoanalytic object relations theory, the role of conflicting parts of the self that one is unable to incorporate into an integrated self-representation is associated with emotional difficulties (Klein, 1946; Bhar, 2004; May, 2007). McAdams (1997) argues that all traditional psychological theories "emphasise the consistency and coherence of normal personality" (McAdams, 1997, p. 12).

Development of a unified self-concept has been emphasised as an important task in maintaining emotional health and well-being (Harter, 1990; May, 2007). This notion has also been extended to attempts at understanding specific psychopathologies. For example, Kernberg (1977) suggests that personality disorders are characterised by a diffuse sense of self-concept, resulting in multiple, confusing, and conflicting self-representations. Similarly, some authors argue that psychotic experiences represent a fragmented and incoherent self-concept (Kohut, 1971).

The relationship between self-concept and psychological functioning has been widely examined in the literature (e.g. Campbell et al., 2003; Montague, Enders, Dietz, Dixon, & Cavendish, 2008). Although a difficult construct to operationalize,

Campbell et al. (1996) provide a well-validated measure of ‘self-concept clarity’ for use in empirical research, that has since been widely employed (e.g., Campbell et al., 2003; Lee, Aiken, & Hung, 2012; May, 2007; Valkenburg & Peter, 2008). The Self Concept Clarity Scale (SCCS; Campbell et al., 1996) is a self-report tool used to determine “the extent to which the contents of an individual’s self-concept are clearly and confidently defined, internally consistent, and temporally stable” (Campbell et al., 1996, p. 141).

SCC and depressive symptoms. Investigations employing this measure report significant relationships between lower self-concept clarity and increased symptoms of psychological difficulty. For example, May (2007) found that individuals experiencing symptoms of Obsessive-Compulsive Disorder (OCD) showed significantly less SCC than non-clinical controls. Moreover, Campbell et al. (1996) found that increased SCC was significantly positively correlated with self-esteem. In contrast, SCC was significantly negatively correlated with neuroticism, negative affect, anxiety, and depression, when controlling for self-esteem.

These findings were replicated by Campbell et al. (2003), whereby correlations between increased SCC and psychological well-being were consistently positive. Matto and Realo (2001) report similar findings in an Estonian sample and suggest that SCC is a construct generalizable across Western cultures. In addition, Smith, Wethington, and Zhan (1996), in their investigation using a student sample, found that late adolescents with higher SCC demonstrated fewer depressive symptoms, anxiety, and perceived stress. Similarly, Bigler, Neimeyer, and Brown (2001) reported low SCC to explain a significant amount (33%) of the variance in scores on measures of variables, including depression, suggestive of psychological maladjustment in a large-scale study of late adolescent university students. In a

sample of individuals diagnosed with schizophrenia, Bigler et al. (2001) similarly determined that low SCC was significantly correlated with comorbid symptoms of depression and anxiety. Wilson and Rapee (2006) report similar results in a sample of individuals diagnosed with social phobia when compared to non-clinical controls.

In a sample of late adolescents from a student population, Butzer and Kuiper (2006) also report on the mediating effects of SCC coupled with an intolerance of uncertainty on the relationship between depression, anxiety, and social comparison. In their analysis, SCC was significantly negatively correlated to depressive symptoms in this sample ($r = -.50$). Moreover, they suggest that decreased SCC and an increased intolerance of uncertainty fully mediate the relationship between symptoms of depression and anxiety and the tendency to compare oneself to others and, moreover, to others who are believed to be better in some way.

SCC in adolescence. The developmental period of adolescence is commonly associated with the development of SCC (Dusek et al., 1981). Authors suggest that the onset of the process typically occurs in early adolescence (Schwartz, 2008). However, there is some disagreement in the literature as to whether this is a continuous, gradual progression or, in accordance with the ‘storm and stress’ view of adolescence, is instead, a discontinuous process marked by sudden shifts and instability (Dusek et al., 1981). Nonetheless, in terms of the development of SCC in *late* adolescence, it is suggested that individuals’ tend to synthesise their self-concept into a more coherent representation during the transition into young adulthood (Elbogen, Carlo, & Spaulding, 2001).

Separation-individuation in adolescence. Mahler (1963), working from within the field of psychoanalysis, initially described a process occurring in the first three years of life whereby an individual develops an initial sense of self as separate

and autonomous from one's primary caregiver. She conceptualised this process as that of separation-individuation. Extending this understanding to considerations of personality and identity development in adolescence, Blos (1974) conjectured that a similar process occurs at the stage of late adolescence; the second phase of separation-individuation. According to this object relational conceptualisation, adolescents go through a process of intrapsychic regression and subsequent reorganisation in order to reformulate their sense of self in relation to their parents. This is said to be triggered by the late adolescent's wish for greater independence and autonomy and as preparation for them to take on more adult roles and relationships (Blos, 1974; Kroger, 2007; Kruse & Walper, 2008). The successful negotiation of this process results in the consolidation of one's sense of self as an individual separate from and unique to one's parents. This also contributes to an individual's ego strength and, therefore, ability to regulate emotions, reason, and delay the gratification of primary impulses (Blos, 1974; Levy-Warren, 1999).

Authors have also suggested that separation-individuation be understood as an interpersonal process (Grotevant & Cooper, 1985, 2009; Josselson, 1988). Thereby, it is suggested that the intrapsychic processes described by Blos (1974) are also situated in and impact on the degree of separateness or connectedness between adolescent and his/her family. Josselson (1988) clarified that separateness and connectedness are not juxtaposed. Rather, that healthy independence can only occur in the context of secure parent and peer relationships, and includes the maintenance of relational ties to significant caregivers. This notion parallels that reported in the attachment literature on early childhood (Bowlby, 1969; Kroger, 2007).

Negotiation of the second separation-individuation phase is widely cited as an important aspect of intrapsychic reorganisation (Blos, 1974) and interpersonal

(Josselson, 1988; Kroger, 2004) development in adolescence, the unsuccessful negotiation of which is related to psychological difficulties (Holmbeck & Leake, 1999; Barth, 2003). Since its original conceptualisation, a large body of research has been devoted to operationalizing and empirically investigating separation-individuation in adolescence (Koepke & Denissen, 2012). Levine, Green, and Millon (1986) initially developed the Separation-Individuation Test of Adolescence (SITA) as a means to measure “resolutions of Mahler’s separation-individuation phases as they might express themselves during later developmental periods” (Levine et al., 1986, p. 184). The SITA has since been well validated in research (Levine et al., 1986; Levine & Saintonge, 1993; McClanahan & Holmbeck, 1992). In addition, several other measures of separation-individuation have been developed to similarly observe and measure this process in adolescence (Koepke & Denissen, 2012; Lopez & Gover, 1993). The Munich Individuation Test of Adolescence (MITA; Walper, 1998) provides a brief measure of this construct in late adolescence. The MITA was specifically developed as a revised version of the SITA, providing separation individuation scores for different caregivers (e.g. mother and father) separately (Walper, 1998; Kruse & Walper, 2008).

Individual items from the MITA have since also been employed by the German Research Foundation in their large-scale longitudinal panel analysis of family dynamics, the Pairfam study, as a means to assess parental separation-individuation across generations (Huinink et al., 2011). This and associated investigations in Italy, Sweden, and Spain (Guglhör-Rudan, Thönnissen, Walper, & Scabini, 2008) suggest that separation-individuation is linked to the likelihood of late adolescents’ leaving home but maintaining continued contact with parents. Small but significant cross-cultural variations in the nature of these relationships were discovered, suggesting the

need to consider culture and living arrangements in further investigations of separation-individuation in this age group (Guglhör-Rudan et al., 2008).

Separation-individuation and depression. Unsuccessful negotiation of adolescent separation-individuation has been widely associated with adverse psychological outcomes (Holmbeck & Leake, 1999; Barth, 2003). For example, investigations have found that late adolescents who display an inconsistent pattern of dependence and avoidance in relation to their parents display poorer psychological adjustment. Specifically, these adolescents show both a desire for dependence on their parents as well as avoidance of such closeness for fear of receiving criticism or a withdrawal of affection from them. Late adolescents falling into this category have been found to experience lower self-esteem, lower self-confidence, and a decreased sense of competence in their role in their family; as well as increased depressive symptoms and dependency on others' judgments, compared to more successfully individuated individuals. Additionally, adolescents exhibiting an overdependence on their parents (for example, scoring highly on the separation anxiety, enmeshment-seeking, and ambivalence subscales of the SITA or MITA) have been shown to be more likely to experience anxiety and to be socially inhibited and self-critical (Kruse & Walper, 2008). Those adolescents scoring highly on 'engulfment anxiety', and therefore suggesting an avoidant pattern of relating to their parents and feelings of being overpowered by significant others, present as socially outgoing but tend to develop superficial relationships and struggle to maintain intimacy (Koepke & Denissen, 2012; Kruger & Walper, 2008; Levine et al., 1986). Across ethnicities, although specific patterns in these relationships have been shown to differ, less successful separation-individuation overall remains similarly correlated to aspects of poorer psychological functioning (Gnaulati & Heine, 2001).

Longitudinal studies investigating developmental trends in the negotiation of this process across adolescence suggest that by late adolescence successfully individuated young people are able to maintain a relationship with their parents characterised by mutual understanding and an equal distribution of authority. In addition, successfully individuated late adolescents have been shown capable of identifying with their parents realistically as individuals with their own strengths and limitations (De Goede, Branje, & Meeus, 2009; Koepke & Denissen, 2012). On measures of separation-individuation such as the MITA, successfully individuated late adolescents score highly on relatedness to their parents as well as on autonomy (Kruse & Walper, 2008). Successful individuation at this stage of development has also been associated with an increased capacity to adopt adult roles and responsibilities. For example, research has suggested that successful separation-individuation in late adolescence is related to feeling able to live separately from one's parents (Arnett, 2004), to enter and adjust to university (Lefkowitz, 2005; Rice, 1990), and to find employment (Buhl, 2007).

In terms of psychological adjustment, successful individuation in late adolescence has been found to positively correlate with self-confidence, self-esteem, and a sense of competence. It is negatively associated with symptoms of depression and somatic complaints (Kruse & Walper, 2008). This finding was replicated in a recent study directly investigating the relationship between separation-individuation and depression in emerging adults (21 – 26 years). The authors, Kins et al. (2012) reported a strong significant correlation between the experience of depressive symptoms and unsuccessful separation-individuation. This was found to be the case for young people experiencing either dysfunctional dependence or dysfunctional independence in relation to their parents (Kins et al., 2012). In terms of peer

relationships, successful separation-individuation has also been associated with an increased capacity to form and maintain intimate relationships with peers (Årseth, Kroger, & Martinussen, 2009).

Therefore, adolescent separation-individuation appears an important intrapsychic and interpersonal process, the successful negation of which is related to improved psychological functioning (Kroger, 2007). Moreover, Kroger (1985) argues that late adolescent separation-individuation is reciprocally related to the development of ego identity. Specifically, she proposes that adolescents can begin to define their ideological interests and commitments once they are able to move away from a more child-like propensity to follow their parents' belief systems without further exploration of their own (Kroger, 1985; Kroger & Haslett, 1987).

Ego-identity in adolescence. Marcia (1993), combining Erikson's (1968) and his own subsequent conceptualisation, defines ego identity as the "synthesis of childhood skills, beliefs, and identifications into a more or less coherent, unique whole that provides the young adult with both a sense of continuity with the past and a direction for the future" (Marcia, 1993, p. 3). Therefore, achievement of a coherent identity, as conceptualised in psychoanalytic ego psychology, is an important task in an individual's psychosocial development that is most notable in late adolescence (Erikson, 1968; Marcia, 1966). There is a large body of clinical literature suggesting that an undefined and confused sense of one's roles at an interpersonal and wider social level (Kroger, 2007), or ego identity diffusion, is a predictor of psychological disturbance (Kroger, 2007), including depression (Meeus, 1996; Crocetti, Rubini, Luyckx, & Meeus, 2008; Schwartz, 2007).

Originally conceptualised by Erikson (1968) and operationalised for empirical investigation by Marcia (1966), there is a large body of research devoted to exploring

this process in late adolescence (see Kroger, 2007; Kroger & Marcia, 2011 for reviews). The central psychosocial dilemma of late adolescence, as described by Erikson (1968), is that of identity commitment versus identity diffusion. At this stage, the individual, facing the adoption of more adult roles and responsibilities, undergoes a self-reconstructive process. This process is one of integration whereby previous representations of ones' self are synthesised into a coherent sense of who one is to become in society; demonstrating ego strength or coherence (Kroger & Marcia, 2011).

The two core variables underpinning this process are that of exploration and commitment (Erikson, 1968). Exploration entails actively questioning and considering different possible identities, including social, occupational, relational, and political values, beliefs, and goals, before deciding which one to pursue. Commitment occurs when an individual chooses to adopt a social identity and seeks out the means to actualise this decision (Crocetti et al., 2008). Marcia (1966) further described four ego identity statuses based on the extent to which an individual is able to negotiate these processes: achievement, foreclosure, moratorium, and diffusion. Table 1 below illustrates the characteristics of these domains in relation to exploration and commitment.

Table 1

Core identity dimensions in relation to Marcia's identity statuses

Identity Statuses	Achievement	Foreclosure	Moratorium	Diffusion
Core Dimensions				
Exploration	High	Low	High	Low to moderate
Commitment	High	High	Low to moderate	Low

Individuals said to have reached identity achievement are described in the literature as having arrived at an understanding of the social and interpersonal beliefs, goals, and attitudes they wish to adopt and have done so through a process of considered exploration of different possible options. Individuals in the foreclosure status tend to demonstrate strong and fixed socio-political views. However, having arrived at these decisions without appropriate exploration, they tend to remain inflexible to any new or disconfirming information. Individuals in the moratorium stage, in contrast, are in a phase of continued, and anxiety-provoking, identity exploration from which they are not yet able to determine a commitment. Similarly, those individuals experiencing identity diffusion are not able to define coherently their beliefs and social aspirations. However, individuals at this stage are described as unable to explore possible self-representations and may either experience feelings of emptiness or compensate by recurrently adopting the views of their immediate social influences (Kroger & Marcia, 2011).

These ego identity statuses and their relationship to adolescent psychological well-being have been widely investigated using several well-validated measures. These include self-report questionnaires such as the Ego Identity Process Questionnaire (EIPQ; Balistreri, Busch-Rossnagel, & Geisinger, 1995), amongst others. The EIPQ was developed to assess Erikson's (1968) core dimensions of ego identity development, providing separate exploration and commitment subscales. In addition, scores on these dimensions can be used to derive classifications according to Marcia's (1966) ego identity statuses by using median splits (Balistreri et al., 1995).

Both cross-sectional and longitudinal research employing such methods document developmental trends in ego identity formation (Kroger, Martinussen, & Marcia, 2010). Waterman's (1993; 1999) developmental hypothesis on identity development across adolescence suggests that identity commitments increase with age. Moreover, according to this theory, the impact of identity commitment on psychological adjustment similarly increases over time, with ego-identity commitment seen as a particularly important determinant of late adolescent emotional well-being.

In their meta-analysis, Kroger et al. (2010) examined the findings of 124 such developmental studies. Largely in support of their initial hypothesis which aimed to explore the efficacy of Waterman's (1999) model of adolescent identity development, Kroger et al. (2010) report that adolescents generally move from ego identity diffusion to achievement over time. Accordingly, younger adolescents tend to move between foreclosure and diffusion (i.e. statuses within the exploration dimension) while the number of older adolescents in these statuses decrease while the number experiencing moratorium and achievement (i.e. ego identity commitment) increase. Interesting, however, they found that relatively large mean proportions of individuals

described by the cross-sectional studies examined had not reached identity achievement by late adolescence, as was expected (Kroger et al., 2010). The authors suggest this may be because relevant individual and situational factors were not considered as potential confounding variables. Indeed, this is consistent with evidence supportive of a reciprocal relationship between greater identity diffusion and emotional difficulty in late adolescence (Kroger, 2007).

Ego-identity and depression. In late adolescence, ego-identity commitment is more commonly associated with depressive symptoms than ego-identity exploration (Berman et al., 2006; Luyckx, Goossens, Soenens, & Beyers, 2006). This is because, as mentioned above, in this age group some identity exploration is expected in conjunction with identity commitments. In contrast, ego-identity exploration is thought to have greater associations with anxiety (Kroger, 2007; Kroger & Marcia, 2011). Studies report a significant relationship between identity diffusion and a lack of emotional stability, low conscientiousness, and a relative lack of openness to new experiences (Clancy & Dollinger, 1993; Luyckx et al., 2006; Marcia et al., 1993). Similarly, inverse relationships have been found between identity achievement and substance use (Jones & Hartmann, 1988; Jones, Hartmann, Grochowski, & Glider, 1989) and unsafe sex (Hernandez & DiClemente, 1992) in late adolescents. In addition, ego identity has been associated with level of peer functioning (Marsh, Allen, Ho, Porter, & McFarland, 2006). Differences between the four identity statuses in levels of psychological adjustment are also reported by a number of studies. Specifically, adolescents experiencing achievement or foreclosure were shown more likely to be emotionally well adjusted than adolescents at moratorium. However, some evidence suggests that individuals in the diffusion status display moderate

adjustment compared to adolescents at other statuses (Marcia et al., 1993; Meeus et al., 1996).

In contrast, evidence from studies of clinical populations support the assertion that identity diffusion is associated with poorer psychological outcomes. For example, Sollberger et al. (2012) found that individuals diagnosed with borderline personality disorder (BPD) who also displayed high identity diffusion had significantly higher levels of comorbid psychiatric symptoms including anxiety, depression, as well as greater anger and concurrent personality disorders, than those individuals with BPD but lower identity diffusion. A large-scale European study employing a student sample and using the EIPQ (Balistreri et al., 1995) similarly reported significantly higher rates of depressive symptoms and substance use and lower self-esteem in individuals within the exploration dimension than those scoring more highly within the ego-identity commitment dimension (Luyckx et al., 2006). Similarly, Berman et al. (2006) report significant correlations between lower ego identity commitment according to the EIPQ and increased depressive symptoms in an American high-school student sample. Consequently, ego identity appears to play a role in adolescent social and emotional well-being and is associated with depression in this age group. Similarly, as described above, related self-definition and identity constructs including SCC and separation-individuation are also linked to adverse psychological symptoms, including depression, in late adolescence.

Adolescents and the Internet

Adolescence in offline contexts is, therefore, a transition accompanied by important achievements in self-definition and identity, which have significant implications for psychological functioning. Moreover, in contemporary society there is an additional context to consider; that of the Internet. The prevalence of the Internet

in the lives of adolescents is well established (e.g., Lenhart et al., 2011; Lenhart, Rainie, & Lewis, 2001; Lenhart, Simon, & Graziano, 2001; Livingstone, Haddon, Gorzig, & Olafsson, 2011). Ofcom's (2011) survey of 460 adolescents between the ages of 18 and 24 found that 81% reported using the Internet at home. However, these are figures that authors argue might in fact largely underestimate the true extent of usage currently (Shapiro & Margolin, 2013). Indeed, adolescent Internet users are reported to spend an average of between 46 and 53 hours a month, equating to between one and a half to two hours a day, online. However, this figure relates to time spent on a fixed-line Internet connection and is therefore likely to be higher when mobile Internet use is considered. Mobile phones represent a popular medium for adolescent online activity, with 57% of adolescents aged 15 to 24 surveyed, using their phone to access the Internet (Ofcom, 2011).

In what is deemed 'the social media age' using such technology for communication with peers is particularly popular (Subrahmanyam & Greenfield, 2008). Social networking sites (SNS) such as Facebook are increasingly the means employed to facilitate these online interactions (Lenhart & Madden, 2007). SNS are defined in the literature as "web-based services that allow individuals to, 1) construct a public or semi-public profile within a bounded system, 2) articulate a list of other users with whom they share a connection, and 3) view and traverse their list of connections and those made by others within the system" (Boyd & Ellison, 2007). Facebook was an SNS initially developed for Harvard-based students, comprising approximately 2000 users in 2004. As of January 2014, the number of monthly active Facebook users was reportedly 1.31 billion, with 48% of adult users reporting they check their account when they wake up in the morning and 28% doing so before they get out of bed (Facebook, 2014).

Facebook allows users to create personal profiles including background educational, work, and relationship information as well as descriptions and images of social and recreational interests and pursuits. Profiles can be customised by uploading profile and cover photographs and photograph albums. Users can add other users, ‘friends’, to their profile and post status updates and other communications, including text, Internet links, and photographs, amongst others, on their and their friends’ profile pages, on which other friends can also comment or ‘Like’. All profile content is displayed on Facebook’s Timeline, introduced in 2011, which orders posts on users’ profile page chronologically. Users’ can also use Facebook to send private messages to other users’ by means of the instant online messaging and message box functions.

In the UK, Ofcom (2011) report that across age groups “social networking accounts for more than a fifth of all time spent on the Internet” (Ofcom, 2011, p. 219). Moreover, they have found that “people spend more than five times as much time on Facebook than on any other site” (Ofcom, 2011, p. 222), with UK Internet users spending a total of 169 million hours on the site in April 2011 alone. Recent data suggests that approximately 75% of all adolescents use SNS (Lenhart, 2009; 2012; Lenhart et al., 2010). The amount of time adolescents and young adults spend using Facebook specifically has been said to average approximately 30 minutes a day, with many young people reporting that they typically check their Facebook posts at least twice a day (Pempek, Yermolayeva, & Calvert, 2009; Shapiro & Margolin, 2013).

Online interactions. Sixty-seven percent of the adolescents surveyed by Ofcom (2011) reported using the Internet for contact with others. Lenhart and Madden (2007) found that the majority of adolescents recruited to their research used SNS to communicate with friends. Similarly, Ellison, Steinfield, and Lampe (2007)

reported that late adolescent students used Facebook predominantly to extend their existing relationships with offline contacts rather than to meet new people. The evidence suggests that for many adolescents SNS such as Facebook are fully integrated into their social lives. Therefore, they act as another means to socialise with peers in a space equivalent to offline contexts such as the school playground or university halls (Boyd, 2007).

There is, however, debate in the literature regarding possible personal motivations for and potential gains of using online communication tools. The social enhancement or 'rich-get-richer' hypothesis suggests that individuals who are already socially adept offline are more likely to use SNS to develop and maintain relationships (Kraut et al., 2002). In contrast, the social compensation hypothesis suggests that introverted individuals who struggle with peer interactions offline feel able to use SNS to enhance their social capital (McKenna & Bargh, 2000; McKenna, Green, & Gleason, 2002; Valkenburg, Shouten, & Peter, 2005). In other words, individuals might use SNS to increase the resources available to them via their social interactions (Lin, 2001; Helliwell & Putnam, 2004). In turn, this increased social capital has been related to improved emotional wellbeing and quality of life by means of increasing engagement in collective activities and access to social opportunities and information (Kavanaugh, Carroll, Rosson, Zin, & Reese, 2005; Valenzuela, Park, & Kee, 2009). Social capital has also been linked to increased health, self-esteem and life satisfaction (Bargh & McKenna, 2004; Ellison et al., 2007; Helliwell & Putnam, 2004), and lower crime (Adler & Kwon, 2002). There is evidence for both the social enhancement and the social compensation hypothesis (see Zywica & Danowski, 2008 for a review). In fact, Zywica and Danowski (2008) in their review and empirical investigation of these two competing theories discovered support for both social

compensation and social enhancement, depending on the existing personality characteristics, specifically, levels of introversion or extroversion and self-esteem, of Facebook users.

In terms of the impact of SNS use on the quality of relationships, there exists in the literature the similarly competing hypotheses of ‘displacement’ versus ‘stimulation’ (Valkenburg & Peter, 2011). Proponents of the displacement hypothesis assert that superficial online interactions are taking the place of important face-to-face peer relationships, compromising their quality (Kraut et al., 1998). Conversely, the stimulation hypothesis, for which Valkenburg and Peter (2011) in their review suggest there is greater evidence, argues that online interactions lead to increased intimacy and closeness among friends.

In their recent review of the evidence on the relationship between friendship quality and SNS use, Shapiro and Margolin (2013), suggested that, overall, SNS use appears to enhance adolescents’ sense of connectedness to their peers. This was, however, impacted upon by an individual’s offline social ability. Furthermore, in this review the authors suggest that the research to date fails to clarify whether SNS use to communicate with peers improves the quality of their relationships or merely mirrors the existing quality of offline friendships. In addition, they report that it remains uncertain to what extent SNS use to develop relationships with peers is simply less beneficial or whether it is, in fact, detrimental to the development of secure relationships for some adolescents (Shapiro & Margolin, 2013).

Self-definition and identity development online. Given the pervasiveness of SNS use in the lives of adolescents and its increasing role in adolescent communication and peer interactions, contemporary researchers are investigating the potential impact of SNS use on adolescent emotional well-being and identity

development (Amichai-Hamburger, Kingsbury, & Schnieder, 2013; Huang, 2010; Shapiro & Margolin, 2013). Poster (1995) suggests that the Internet is not merely a contemporary tool used to facilitate social initiatives that is analogous to other communication media, such as print or television. Instead, he argues, the Internet is a transformative space in which “the subject of communication is transformed within the process of communicating” (Slater, 2002, pp. 533-534). Hine (2000) similarly suggests that the Internet is not only a feature within contemporary culture but is also a social space in and of itself. However, rather than this alternate, virtual reality remaining distinct from offline life, the offline assimilates the online reality such that computerised representations of the world become accommodated within the social world (Turkle, 1995). Therefore, as Turkle (1995) suggests, computers have become “objects to think with” (p. 47) and online reality is an extension of offline reality for many individuals, and particularly adolescents (Boyd, 2007; Jordán-Conde, Mennecke, & Townsend, 2014).

In offline social contexts, individuals rely on themselves and their appearance to communicate who they are to others and to manage the impressions others have of them. In this way, one’s self and identity is represented to others and elicits feedback in the form of verbal and non-verbal cues which may be used to adapt further responses (Goffman, 1959). Moreover, these identity explorations, precipitated by expressions of one’s existing sense of self, may over time lead to commitments that are assimilated back into one’s sense of self, in a process of spiral, rather than linear, development (Stephen, Fraser, & Marcia, 1992). SNS are said to offer increased control over self-representation and, therefore, of impression management, than face-to-face interactions (Boyd, 2007; Ellison, Heino, & Gibbs, 2006; Krämer & Winter, 2008). The literature on presence in computer-mediated communication suggests that

SNS offer individuals a reduced sense of presence, in other words, increased perceived distance, from interactions than those occurring offline, and particularly face-to-face (Jordán-Conde et al., 2014; Zhao, 2003). This affords SNS users the opportunity to create a virtual “me” (Boyd, 2007), that incorporates only those aspects of the self that they want to disclose. Therefore, an ‘ideal self’ is projected, manipulating how they are perceived by others (Turkle, 1995; Ellison et al., 2006; Nguyen, Sun Bin, & Campbell, 2011).

Moreover, authors such as Turkle (1995) suggest that online environments can also allow individuals to take on and experiment with multiple identities (Wilson & Leighton, 2002). This is because in online anonymous environments, individuals no longer have to conform to the constraints of their physical bodies and appearance, including age, race, or gender (Slater, 2002). Therefore, online identities are arguably interminably changeable (Turkle, 1997; Wilson & Leighton, 2002). In a qualitative study investigating adolescents’ experiences of exploring identity online, Maczewski (2002) described how the young people interviewed felt that using the Internet to communicate with others offered a means to experience “multiple ways of being” (Maczewski, 2002, p. 124). For example, one participant said: “I feel that I can explore my ideas and thoughts to a fuller extent, I can write what I want and if I want to leave someone or just not want to talk to someone, I can ignore them, a nifty function that life does not have to offer” (as quoted in Maczewski, 2002, p. 124).

Similarly, other participants recruited to Maczewski’s (2002) study felt that they were able to express themselves online without feeling as if aspects of their identity had been predetermined by cultural stereotypes, allowing them at times to experiment at being someone from a different social background. Consequently, the Internet and SNS offer new opportunities for self and identity developments. For

adolescents, this allows self and identity explorations to take place in an environment free of the physical and temporal constraints of the offline world (Boyd, 2007; Jordán-Conde et al., 2014).

Authors such as Walther (2007) and Reicher, Spears, and Postmes (1995) suggest that in online environments this can mean that the perceived differences between individuals are less distinct than in offline environments. Walther (2007) suggests in his theory of computer-mediated communication that reduced individuating cues in online contexts can lead to ‘hyperpersonal’ relationships. In other words, he posits that SNS allow the “potential exaggeration of impressions and relationships” (p. 2539). In this way, not only are opportunities afforded for the identity constructed online to represent a manufactured ideal but individuals might also create idealised perceptions of others (Walther, 2007). This may lead to an exaggerated sense of intimacy in online relationships wherein there is the perceived freedom to disclose information about oneself one might not so easily impart in offline contexts (Nguyen et al., 2011). This is supported by evidence suggestive of increased self-disclosure online (Buhrmester & Prager, 1995; Joinson, 2003; Suler, 2004), particularly in online forums where self-disclosure is expected and undertaken by other members (Barak & Gluck-Ofri, 2007).

Although SNS might offer adolescents opportunities for identity experimentation, multiplicity, and imagining (Zhao, Grasmuck, & Martin, 2008) a recent qualitative exploration of young people’s views on the risks of online expression suggests some young people might feel obligated at individual, interpersonal, and social levels to maintain consistency between their on- and offline identities (Davis, 2012). Similarly, certain SNS, such as Facebook, are argued to in fact increase perceived social presence as connections with other people are salient to

all functions of the platform (Cheung, Chiu, & Lee, 2011; Gefen & Straub, 2004). However, as van Dijck (2013) argues, SNS platform interfaces themselves are likely to shape the nature of users' identity expression by promoting increased connectivity and determining the structure of personal online narratives (e.g. Facebook's Timeline).

Shapiro and Margolin (2013) review the literature on SNS use and adolescent psychosocial development. Therein, they describe the evidence relating to aspects of adolescent self and identity development including self-expression, self-disclosure, self-presentation, social comparison, peer affiliations, ethnic identity and opportunities to learn about the self, in relation to SNS use. Studies in these areas, reported by Shapiro and Margolin (2013), largely suggest that SNS are employed by adolescents to facilitate the expression of identity as well as to elicit feedback from peers that they might be able to incorporate into their developing self-perceptions (Back et al., 2010; Christofides, Muise, & Desmarais 2009; Valkenburg & Peter 2007; Walther, 2007). In addition, contemporary evidence shows that SNS use affords adolescents increased opportunity to interact with peers who are different from themselves, potentially impacting positively on their capacity to develop empathy (Yu, Taverner, & Madden, 2011). Moreover, it is suggested that the ease of access to broader social and political groups provided by SNS might facilitate adolescents' developing interest in that area and connect them to other individuals sharing similar views or support their exploration of available socio-political and vocational pursuits (Grasmuck, Martin, & Zhao, 2009; Markstrom, 2010; Tynes, Giang, & Thompson, 2008).

Online interactions and depression. Therefore, the Internet and SNS offer additional contexts within which individuals' might undertake self and identity

experiments in interaction with peers. Moreover, there is some evidence suggestive of a helpful relationship between use of these media and self-definition and identity development (Shapiro & Margolin, 2013). There is also at present, however, evidence suggestive of the possible detrimental effects of SNS use. For example, relationships have been found between excessive online chatting, texting, viewing videos, Internet gaming, and emailing and adverse psychological symptoms, predominantly depression (Rosen, Whaling, Rab, Carrier, & Cheever, 2013). In fact, such evidence has led some authors to advocate for the establishment of a new category of psychological disturbance, “iDisorder”, to describe emotional difficulties related to technology usage (Rosen et al., 2013). In addition, the American Academy of Paediatrics (2011) warns that excessive online interaction via SNS may trigger depression in some adolescents, employing the phrase “Facebook depression” to describe this phenomenon (O’Keeffe & Clarke-Pearson, 2011). However, although this relationship is corroborated by some contemporary research (Davila et al., 2012; Selfhout, Branje, Delsing, ter Bogt, & Meeus, 2009), the evidence is inconsistent (Valkenburg & Peter, 2009; 2011).

Broadly, the evidence falls into one of two categories: that providing support for the hypothesis that SNS use is related to adverse psychological outcomes; and evidence suggestive of the converse, namely, potential positive effects of SNS use on social and emotional development (Huang, 2010). Attempts to account for this inconsistency have focussed on specifying the nature of possible relationships between online interaction and mood in terms of the following: 1) the type and frequency of online interaction; 2) the quality of these interactions, and 3) individual personality and relational variables that might moderate this relationship.

Type and frequency of online interactions. Much of the research to date focusses on determining whether the frequency of online activities are associated with greater or lesser depressive symptoms and, if so, which particular types (Davila et al., 2012; Huang, 2010). Early studies of the relationship between Internet use among young people suggested that greater usage predicted increased depressive symptoms (Kraut et al., 1998). However, this relationship decreased significantly on follow-up, suggesting a potentially immediate but not sustained impact on mood (Kraut et al., 2002; Selfhout et al., 2009; van den Eijnden, Meerkerk, Vermulst, Spijkerman, & Engels, 2008).

However, further replications of this finding similarly report a significant relationship between specific aspects of Internet and SNS use and depressive symptoms, for example, increased instant messaging with peers online (van den Eijnden et al., 2008) and using chat rooms to communicate with strangers (Valkenburg & Peter, 2009). Selfhout et al. (2009) reported a significant positive relationship between time spent surfing the web and depressive symptoms. There is also evidence to suggest a high rate of negative sentiment being communicated on SNS (Okamoto et al., 2011). In addition, studies have shown that low mood can be conveyed to others via technological interaction (Hancock, Gee, Ciaccio, & Lin, 2008). Moreover, there is evidence to suggest that increased use of Facebook for comparing oneself to one's peers (social comparison) may negatively impact on mood (Chou & Edge, 2012; Haferkamp & Kramer, 2011).

Morgan and Cotten (2003) found that increased use of the Internet for shopping, research, and playing games was associated with increased depressive symptoms. In contrast, however, these authors discovered the inverse relationship between increased use of other aspects of the Internet, specifically emailing and time

spent in chat rooms or employing instant messaging, and depression. This is a finding inconsistent with those reported by other authors such as van den Eijnden et al. (2008) described above.

Therefore, although there is evidence in support of a relationship between increased use of the Internet for certain activities and depression, there is also evidence to the contrary. In Huang's (2010) meta-analysis on empirical studies investigating the relationship between Internet use and well-being (including depression, loneliness, self-esteem, life satisfaction and general well-being), the majority of the 40 studies recorded 'Internet use' in terms of time spent online. The results of this meta-analysis revealed a mean correlation across studies of -0.05. This suggests a small and non-significant negative correlation between increased frequency of Internet use and reduced well-being. Huang (2010) additionally reported significant heterogeneity across the correlations from studies employed in their analysis, indicative of the general diversity of findings across the literature in this area thus far.

In addition, several studies report on the positive effects of Internet use, particularly, increased SNS use. Specifically, SNS use for peer communication has been shown to encourage adolescents to retain and develop existing friendships (Gross & Acquisti, 2004; Valkenburg & Peter, 2007). Furthermore, there is evidence of positive effects of SNS use on adolescent social capital, in other words, the accumulation of resources via the development of social networks (Ellison et al., 2007; 2011); feelings of belonging in boys, but not girls (Quinn & Oldmeadow, 2013); and closer friendships (Reich, Subrahmanyam, & Espinoza, 2012). In addition, specifically in terms of the impact of increased SNS use and mood, authors such as Grieve, Indian, Witteveen, Tolan, and Marrington (2013) suggest that increased Facebook use to connect with peers is related to reduced depression and anxiety and

increased life satisfaction. Additionally, Dolev-Cohen and Barak (2013) report that Instant Messaging (IM) online significantly improves the emotional well-being of distressed adolescents.

Ellison et al. (2007) devised the Facebook Intensity Scale (FIS) in order to examine relationships between the intensity of Facebook use and social capital as well as potential moderating effects of existing life satisfaction and self-esteem. These authors developed this instrument as a means to measure not only the frequency or duration of Facebook use. Specifically, they wished to also include questions relating to the number of Facebook friends individuals report to have. Studies investigating relationships between the number of reported Facebook friends and personality characteristics and emotional well-being suggest, for example, that socially anxious individuals report having fewer Facebook friends although they spend more time online (Sheldon, 2008). Similarly, Orr et al. (2009) suggest that increased shyness is related to reports of having fewer Facebook friends.

Ellison et al. (2007) also included in the FIS questions relating to Facebook users' perceptions of the extent to which the SNS is integrated into their lives and how emotionally invested they felt towards its use. Using the FIS, Ellison et al. (2007) discovered that for late adolescent students who reported low life satisfaction and low self-esteem, using Facebook more intensely was related to significant increases in social capital. Similarly, Kalpidou, Costin, & Morris (2011) used the FIS (Ellison et al., 2007) to investigate how Facebook use and attitudes might relate to self-esteem and college adjustment in undergraduate students. Kalpidou et al. (2011) suggested based on the findings of their research that increased numbers of Facebook friends was related to poorer academic adjustment whereas increased time spent on the SNS was related to lower self-esteem. However, this relationship was significantly

impacted upon by the level of university study participants were completing, with poorer outcomes related to increased Facebook use and friends in first year students compared to third year or fourth year students. For third or fourth year students, increased intensity of Facebook use was associated with increased social adjustment and sense of attachment to their university. For both these groups, when investigating the nature of this relationship in greater detail, it was found that number of Facebook friends and not amount of time spent on the site predicted college adjustment.

Also using the FIS, Labrague (2014) found no significant correlations between the intensity of Facebook use and depression, anxiety, or perceived stress in a sample of mid- to late adolescent nursing students in the Philippines. Correlation coefficients reported in this study ranged between 0.07 and 0.11, indicating almost no correlation between Facebook intensity and symptoms of emotional distress. Labrague (2014) did, however, find that time spent on Facebook was significantly related to depression ($r = .23, p = .041$) and anxiety ($r = .26, p = .023$) when measured separately from other variables, namely, number of Facebook friends and integration of the platform into daily life. In contrast, however, Feliciano, Sales, and Rio (2014) report finding no significant relationship between Facebook usage, length of time spent on Facebook, or number of Facebook friends, using the FIS, and depressive symptoms in their late adolescent student sample.

Davila et al. (2012), did not employ the FIS in their investigation of the relationship between the quantity of Facebook use and depressive symptoms. Instead, they used the number of times participants reported checking their Facebook account per day and reported number of minutes spent on the SNS per day as quantity of use variables. Davila et al. (2012) found no evidence to suggest a significant relationship between these variables and depressive symptoms in their late adolescent sample.

This was the case when reported depressive symptoms in relation to Facebook use were assessed at a single time point and also over a three week time period.

Ellison et al. (2007) also developed a series of questions aimed to assess Facebook usage to connect with peers. Specifically, of interest was whether late adolescents' use the site to maintain or enhance existing offline contacts or to meet new people they might then pursue a relationship with offline. Using these On-to-Offline and Off-to-Online Connection Strategy questions, Ellison et al. (2007) discovered that their late adolescent sample reported using Facebook to maintain existing offline friendships than to meet new people. Kalpidou et al. (2011) employed these connection strategy questions to investigate possible relationships between the nature of Facebook use to connect with peers and self-esteem and adaptation to university. They found no significant relationship between these variables. However, Pettijohn II, LaPiene, Pettijohn, and Horting (2012) found that late adolescents with greater narcissistic personality traits were more likely to use Facebook to meet new people. Feliciano et al. (2014) used Ellison et al.'s (2007) connection strategy questions to investigate this in relation to depressive symptoms in late adolescents. Similar to Kalpidou et al.'s (2011) findings in relation to self-esteem, Feliciano et al. (2014) found no significant relationship between these variables.

Therefore, the evidence on the nature of the relationship between SNS use and psychological outcomes, including depression, is mixed. Attempts have been made to account for this inconsistency by more clearly specifying the type of online activity and the amount of time spent using different social media. In addition, authors such as Ellison et al. (2007) have developed measures with which to investigate the ways in which adolescents might use Facebook to connect with their peers and how intensely they report to use and feel socially and emotionally invested in Facebook. The few

studies that have investigated these variables in relation to aspects of psychological distress, although not explicitly depression, have not determined a significant relationship as expected (Kalpidou et al., 2011).

Quality of online interactions. Consequently, it has been argued that it is the *quality* of online interactions and not frequency or type of usage alone that might significantly relate to increased depressive symptoms (Davila et al., 2012; Valkenburg, Peter, & Shouten, 2006; Ybarra, 2004). In their study investigating this hypothesis in young adults, Davila et al. (2012) devised the Social Networking Survey (SN Survey) as a self-report measure of the quality of SNS interactions. Specifically, they asked late adolescent participants to describe, using a Likert scale, how much they agreed or disagreed with statements relating to their interactions online, overall, and specifically with friends and romantic interests. Participants were asked to rate how positive and how negative they perceived these interactions to be. They were also asked to describe how often they felt down or depressed following these kinds of interactions on different forms of social media, including Facebook.

In this study, Davila et al. (2012) found no significant correlation between increased time spent using SNS, specifically, Facebook, instant messaging, and texting, and increased depressive symptoms. They did, however, determine a significant correlation between participants' subjective rating of the quality of their experiences using SNS, specifically, descriptions of their mood following online interactions in general, with peers, and with romantic interests, as operationalised by scores on the SN Survey, and depressive symptoms. The direction of this association suggested that greater perceived negative and depressing interactions online was related to greater depressive symptoms (Davila et al., 2012).

Similarly, Valkenburg et al. (2006) found that low self-esteem in adolescents was not associated with the frequency of SNS use or number of online friends. Instead, they discovered a relationship between lower self-esteem and receiving more negative feedback from peers online, suggesting that it is the quality rather than quantity of online interactions that might relate to lower self-esteem. In addition, Smith, Hames, and Joiner (2013) recently discovered an association between using Facebook to seek negative social evaluations or engage in social comparisons with peers and increased bulimic symptoms in late adolescent females. Therefore, there is some evidence to support the hypothesis that the quality and not quantity of online interactions alone might be associated with adverse psychological outcomes. However, few studies to date have explicitly tested this assertion, particularly in relation to depression specifically. This is, therefore, an area of investigation in need of further exploration (Davila et al., 2012; Huang, 2010).

Moderating variables. Similarly, as a means to investigate the divergence of findings in this area of research, authors are attempting to understand what, if any, potential aspects of the individual might moderate the relationship between SNS use and depression (Davila et al., 2012; Shapiro & Margolin, 2013). “Questions involving moderators address “when” and “for whom” a variable most strongly predicts or causes an outcome variable” (Frazier, Tix, & Barron, 2004, p. 116). Consistent with the wider literature investigating when individual and environmental circumstances might be associated with depressive symptoms in adolescents (Thapar et al., 2012) it also appears salient to attempt to determine for which late adolescents SNS use and interactions are likely to be most associated with depressive symptoms (Davila et al., 2012).

A limitation of the existing literature examining relationships between online interactions and mood is that studies in this area are largely cross-sectional, thereby limiting causal inference (see Shapiro & Margolin for a review). Therefore, further experimental research is necessary to accurately establish the causal nature of this relationship, specifically, whether Facebook interactions cause depressive symptoms. However, establishing causality in psychological research is challenging as adequately controlling for confounding effects in complex and frequently intercorrelated variables can be difficult to achieve and true experimental conditions limit ecological validity (Goodwin, 2009).

Invariably, studies investigating moderating effects cannot be employed as a means to establish causality. However, as Frazier et al. (2004) argue, the inherent complexity of psychological processes frequently necessitates consideration of possible moderators of relationships between predictor and outcome variables. Furthermore, they, in line with Cohen, Cohen, West, and Aiken (2003), suggest that investigations of potential interaction (i.e. moderating) effects can contribute to an increased understanding of the nuances of relationships between widely-known predictors and outcomes and, therefore, contribute to the development of existing theory in the social sciences (Frazier et al., 2004). Given the rapidly increasing ubiquity of SNS use, particularly by adolescents, existing understandings of offline adolescent mood and identity processes require further examination in relation to online contexts.

As such, authors are increasingly attempting to determine possible moderating influences on relationships between Internet use and psychological variables. For example, Huang's (2010) meta-analysis described above also investigated potential individual moderators of the relationship between Internet use and well-being in an

attempt to understand the heterogeneity of correlations across the studies employed in the analysis. Interestingly, it was determined that the moderating effects of age, gender, internet activity and indicator of well-being on this relationship were insignificant, suggesting future research consider possible alternatives (Huang, 2010).

Similarly, Davila et al. (2012) explored the possible role of rumination, an intrapsychic variable, and co-rumination, an interpersonal factor, on the relationship between the quality of SNS use and depressive symptoms. They found no evidence to support a moderating influence of co-rumination on SNS use and quality and depression in older adolescents. Davila et al. (2012) did report a significant moderating effect of the interaction between rumination and the reported quality of SNS interactions with adolescents scoring higher on rumination showing the greatest association between negative SNS interactions and depressive symptoms. However, this finding was not replicated in a further longitudinal analysis of this association by the same authors (Davila et al., 2012).

Similarly, in another study, individual perceptions of feedback received from peers was not found to moderate the relationship between increased negative feedback from peers and self-esteem, as was expected (Valkenburg et al., 2006). A recent investigation did, however, determine that shy participants were more likely than non-shy controls to express negative emotions online and to express experiencing negative online exchanges with peers (Laghi et al., 2013). In addition, Pettijohn II et al. (2012) discovered a significant relationship between increased Facebook intensity, using Ellison et al.'s (2007) FIS, and increased self-esteem that is contingent on friendships. In other words, those late adolescents who reported their friends and friendships as important to their sense of self-esteem reported increased Facebook intensity. Pettijohn II et al. (2012), citing Cambron, Acitelli, and Steinberg (2010), suggest that

friendship contingent self-esteem is an interpersonal risk factor for depressive symptoms as it is related to increased rumination and reassurance-seeking.

Therefore, there remains a need to continue to determine the individual and relational variables that might moderate the relationship between the quality of SNS use and depressive symptoms in adolescents and young adults (Davila et al., 2012; Huang, 2010). The literature suggests that offline adolescent experiences influence an adolescent's interactions online and vice versa (Subrahmanyam & Greenfield, 2008). Consequently, it seems pertinent to explore whether individual and relational variables already widely recognised as important facilitators/inhibitors of peer interactions offline, and associated with effects on mood in this age group, might similarly influence the relationship between the quality of online interactions and mood (Shapiro & Margolin, 2013).

In the existing literature on adolescent self-definition and identity development in offline contexts there are, as described above, intrapsychic, interpersonal, and psychosocial self-definition and identity variables that are associated with late adolescent emotional well-being. Specifically, low SCC, unsuccessful separation-individuation, and less ego-identity commitment are reportedly associated with adverse psychological outcomes, including depression, in late adolescents (Campbell et al., 2003; Kroger, 2007; Kruse & Walper, 2008).

SNS sites offer adolescents an additional context in which to explore who they are individually and within society and initiate new or maintain existing relationships with peers, and thereby also renegotiate their relationship with their caregivers (Shapiro & Margolin, 2013). As these are areas of development linked to SCC, separation-individuation, and ego identity offline, and it is suggested online adolescent experiences are emulated online and vice versa (Boyd, 2007; Hine, 2000;

Subrahmanyam & Greenfield, 2008), it appears appropriate to investigate the potential role of these variables in the relationship between quality of online interactions and depressive symptoms.

Self-Concept Clarity (SCC) and Social Networking Sites (SNS). Due to its association with psychological functioning and relevance to either healthy or maladaptive adolescent personality development, authors hypothesise about the risks online communication might pose to SCC. In their review of the relevant literature, Valkenburg and Peter (2011) report two divergent hypotheses in this area. Proponents of the SCC fragmentation hypothesis assert that increased Internet use might disintegrate adolescents' SCC as it affords the opportunity to easily and instantly experiment with multiple identities and new relationships. This is reportedly a particular risk for adolescents as their personality structures are in a stage reorganisation and development (Gergen, 1991; Reid, 1998). An alternate hypothesis is that of self-concept unity. This conjecture suggests that adolescents can use the Internet to interact with individuals from diverse social backgrounds, giving them the opportunity to validate and consolidate their self-concept in relation to feedback from others (Calvert, 2002).

Valkenburg and Peter (2011), in their review, report discovering only three investigations into the effect of the Internet on SCC. Subsequently, authors have continued to explore this relationship empirically (Davis, 2013; Israelashvili, Kim, & Bukobza, 2012; Lee et al., 2012). The results of this research remain, however, somewhat inconsistent. Some findings report increased Internet use accompanied by online identity experiments, for example, pretending to be someone else, is associated with reduced SCC (Matsuba, 2006; Mazalin & Moore, 2004). In contrast, however, Valkenburg and Peter (2008) were unable to replicate this result once other individual

variables including loneliness and social anxiety were controlled. Yet, Isrealashvili et al. (2012), in their more recent study with young adolescents, found that low SCC correlated significantly with the over-use of the Internet. Correspondingly, older adolescents experiencing low SCC have been shown to spend significantly more time playing video games than those adolescents with a greater sense of SCC (Lee et al., 2012).

Similarly, Davis (2013) reported a significant positive correlation between online peer communication and SCC, mediated by friendship quality. Specifically, these findings suggested that adolescents who were motivated to use online media to interact with existing friends, and who reported high friendship quality in general, also tended to display increased SCC. This suggests the potential positive use of online communication with peers, for those adolescents' with already strong friendship groups in an offline context and a coherent sense of self. Although the causal nature of these relationships is unclear, such findings suggest that individual personality and relationship variables may play an integral part in understanding the impact of online peer communication on adolescent well-being.

Therefore, the evidence is mostly consistent with regard to the potential influence of SCC on emotional well-being, with low SCC regularly associated with psychological distress, including symptoms of depression (Campbell et al., 2003). In addition, SCC is an important construct to consider in relation to late adolescent self-definition and identity development (Elbogen et al., 2001). The role of the Internet and SNS use to communicate and evolve ones' self-representation and identity with peers is hypothesised as influential in the development of an adolescent's self-concept (Valkenburg & Peter, 2011). However, current evidence does not yet clearly describe the nature of this relationship. Moreover, as Valkenburg and Peter (2011) suggest,

further research into how correlated aspects of the individual might influence any relationship between Internet use and SCC is required.

Researchers are also beginning to investigate the possible interrelationships between this construct and other variables related to adolescent development and relationships. For example, studies exploring friendship quality (Davis, 2013) and ego development (Israelashvili et al., 2012) in relation to SCC and Internet use suggest the significant contribution of such variables to these associations. In accordance with this, one could argue that further concurrent processes known as important to adolescent self-definition and identity development are also considered and their role in conjunction with SCC as potential moderators of a relationship between the quality of SNS use and depressive symptoms explored.

Separation-individuation and SNS. The influence of adolescent separation-individuation on late adolescent emotional well-being and relationships is well established in the clinical literature (see Kroger, 2007 and Koepke & Denissen, 2012 for reviews). In addition, the unsuccessful negotiation of this process has been widely associated with adverse psychological outcomes, including depression (Barth, 2003; Holmbeck & Leake, 1999; Kruse & Walper, 2008). Furthermore, this is a process reciprocally related to the development of secure peer relationships (Kroger, 2007). As such, it appears appropriate to consider whether this might moderate the relationship between SNS use and quality and depressive symptoms in late adolescents, to further elucidate the inconsistency across the literature investigating this association described above.

Thus far, however, remarkably few studies have directly investigated the impact of separation-individuation on adolescent Internet experiences. One such enquiry examined the potential relationship between Chinese adolescents' separation-

individuation status, their drive to use the Internet as a means of obtaining imaginary audience ideation, and pathological Internet use (Li & Fei, 2008). Li and Fei (2008) found that difficulties of successful individuation, specifically, separation anxiety, predicted pathological internet usage. The authors suggested that these findings corroborate the argument that individual factors might moderate the adverse effects of Internet usage (Lanthier & Windham, 2004). They also proposed that separation-individuation, as an important development task of adolescence, may be applicable in this role.

Ego-identity and SNS. Adolescents employ SNS as a means to communicate with their peers and to develop these relationships. They are also arenas for identity exploration and the affirmation of socio-political beliefs (Boyd, 2007; Subrahmanyam & Greenfield, 2008). Consequently, the role the Internet and SNS may play in the identity development of contemporary adolescents is of particular interest in the literature at present (Shapiro & Margolin, 2013). However, only a few studies to date specifically examine ‘ego identity’ in relation to Internet use. This is surprising given the number of studies investigating this construct in adolescence generally (Kroger, 2007). Indeed, although indicating the importance of SNS use in various aspects related to adolescent identity development, in their review of this literature, Shapiro and Margolin (2013), do not report any studies directly investigating the potential relationship between SNS use and ego identity as operationalised according to Erikson’s (1968) core identity dimensions or Marcia’s (1966) identity statuses.

However, an Australian study directly examining ego identity in these terms in relation to Internet use and social anxiety in late adolescents reported that, for males, greater social anxiety and less ego identity commitment was associated with increased Internet use, specifically using chat rooms, browsing, and playing games. In contrast,

the authors describe that in females of this age, social anxiety and identity status were not significantly correlated with the frequency of Internet use. However, the young women in this sample were less socially anxious and showed generally greater identity achievement than did the male participants, potentially influencing the results (Mazalin & Moore, 2004). Another study exploring the relationship between adolescent Internet dependency and ego identity in a Taiwanese sample reported a significant correlation between unsuccessful resolutions, and therefore, commitment, of identity crises and internet dependence (Huang, 2006).

Jordán-Conde et al. (2014) investigated the relationship between disclosures of intimate information online and ego identity status by employing mixed methods, including a content analysis of identity related fields on Facebook profiles. The majority of late adolescents recruited were found to be in the moratorium stage of identity development. These young people used Facebook as a means to generate and experiment with multiple expressions of identity. In addition, participants displayed ‘pseudo-intimacy’ (Erikson, 1968) associated with this identity status by disclosing intimate and identity defining information indiscriminately to close friends as well as individuals with whom they had limited ties or had recently met. Thus providing further evidence suggesting support of Walther’s (2007) hyperpersonal theory of computer-mediated communication described above. Jordán-Conde et al. (2014) suggest that SNS, including Facebook, might both mirror and contribute to the prolonging of identity development in contemporary society into adulthood. This is because online contexts facilitate the exploration of diverse identities without the need for commitment or distinct boundaries around intimacy in relationships occurring in offline environments.

The Present Study

As described above, there is inconsistency in the literature exploring the association between adolescents' SNS use and depressive symptoms (Valkenberg & Peter, 2011). Much of the evidence to date aims to explore these discrepancies by specifying the nature and extent of SNS usage. Specifically, authors are increasingly investigating whether particular aspects of Facebook use, as a popular SNS used by many late adolescents worldwide, might be associated with adverse psychological symptoms, including depression. However, this is an area of research in need of further investigation as results are varied. In addition, recent studies suggest that aspects of usage such as the number of Facebook friends and integration of Facebook into daily life are salient to explore in relation to psychological well-being. Consequently, an aim of the current research is to investigate the relationship between the quantity of late adolescents' Facebook use in terms of frequency, number of Facebook friends, and perceived integration of the site into daily life, as measured by the FIS (Ellison et al., 2007) and depressive symptoms.

In addition, there also appears a need to examine further the possible relationship between Facebook usage to connect with peers and depressive symptoms. This is because adolescents employ Facebook to facilitate social interactions and there is evidence to suggest that those adolescents with extensive offline social networks may use the site to enhance these relationships. There is also evidence to suggest that those individuals who do not feel socially adept offline might use sites such as Facebook to develop new connections. Studies employing Ellison et al.'s (2007) measure of Facebook On-to-Offline and Off-to-Online Connection Strategies to assess, specifically, possible relationships between these variables and aspects of emotional well-being suggest that there may be some correlation to negative

personality traits such as narcissism. However, such studies largely report no relationship between these variables and self-esteem, college adjustment, or depressive symptoms. However, there are as yet few studies directly examining this in relation to depressive symptoms specifically. Therefore, a further aim of the current research is to explore the relationship between late adolescents' use of Facebook to connect with peers, as measured by Ellison et al.'s (2007) Facebook On-to-Offline and Off-to-Online Connection questions, and depressive symptoms.

Recent research also suggests that it might be the *quality* and not frequency or intensity of SNS interactions that might inversely relate to depressive symptoms in this age group (Davila et al., 2012). However, this finding requires further replication. Consequently, the present study also aims to investigate the relationship between the *quality* of late adolescents' interactions on SNS site Facebook and depressive symptoms. In addition, a further hypothesis conjectured by authors in this field is that individual and relational variables might moderate this relationship. However, thus far, few studies have determined a significant impact of such factors (Davila et al., 2012; Huang, 2010).

Consequently, a final aim of the current study is to add to the existing literature aiming to determine potential moderators of the relationship between the quality of Facebook interactions and depressive symptoms. Late adolescents frequently employ SNS such as Facebook to interact with peers and to explore who they are in relation to others, and in so doing, define their sense of self and identity. In offline contexts there is evidence to suggest that processes of self-definition and identity development occur at differing levels, namely, within the individual, in other words, intrapsychically, interpersonally, and more broadly, in wider social groups. It is argued, therefore, that perhaps variables frequently cited in the self-definition and

identity literature in relation to late adolescent identity development *offline* might also influence *online* interactions.

As such, the current study aims to explore whether the nature of this relationship between the quality of Facebook use and depressive symptoms in late adolescents is moderated by the following self-definition and identity variables: self-concept clarity, separation-individuation, and ego-identity. Specifically, it is hypothesised that the relationship between negative or depressing interactions on Facebook and depressive symptoms will be stronger when self-concept clarity according to the SCCS (Campbell et al., 1996) is low, there is less successful separation-individuation from parents reported on the MITA (Walper, 1998), or there is less reported ego-identity commitment on the EIPQ (Balistreri et al., 1995). Investigating these questions is hoped to contribute to the literature aiming to understand the possible interrelationships between SNS use and adolescent psychology. In addition, similar to offline investigations of potential individual risk factors moderating the onset of adolescent depression, it appears pertinent to attempt to determine for which late adolescents online interactions might be associated with depressive symptoms.

A particularly significant dilemma in the study of depression is whether symptoms are dimensional or categorical (Solomon, Haaga, & Arnow, 2001). The current Diagnostic and Statistical Manual of Mental Disorders (DSM-V; American Psychiatric Association, 2013) classifies depression as a disorder distinct from typical psychological functioning. This is, however, a notion that is in contention (Hankin, Fraley, Lahey, & Waldman, 2005). There is evidence to suggest that depressive symptoms are common in community populations and that experiencing depressive symptoms is not equivalent to meeting criteria for a depressive disorder (Andrews et

al., 2007). Moreover, studies employing taxometric procedures to investigate this in child and adolescent populations suggest that depression is continuously distributed (Hankin et al., 2005). This replicates similar findings reported in adult (Ruscio & Ruscio, 2000) and late adolescent (Beach & Amir, 2003) populations. Moreover, MacCallum, Zhang, Preacher, and Rucker (2002) suggest that examining depression as a continuous variable improves statistical power. Similarly, Hankin et al. (2005) argue that “researchers and clinicians must use a measurement model that allows for the full representation of the individual variation in depression” (p. 108). For the purposes of the current study, depression is similarly conceptualised as falling on a continuum of symptoms.

Much of the literature investigating associations between late adolescents’ SNS use and mood recruit participants from non-clinical populations (Huang, 2010; Shapiro & Margolin, 2013). This is possibly due to ethical considerations or potential challenges facing the recruitment of sufficient sample sizes in quantitative research. However, this can limit the diversity of the sample and applicability of results to wider populations (Patel, Doku, & Tennakoon, 2003). The target population of the present research is late adolescents experiencing a range of depressive symptoms and struggling to a greater or lesser degree with achieving successful self-definition and identity commitments. Therefore, an additional intention of this research is to recruit participants from both clinical and non-clinical settings in order to allow for the possibility of including late adolescents potentially experiencing differing levels of depressive symptoms and self-definition and identity achievements.

Research questions. Therefore, this study aims to address the following research questions:

- 1) Does the quantity of late adolescents' Facebook use, in terms of frequency and perceived integration into daily life, as measured by the Facebook Intensity Scale, relate to increased depressive symptoms?
- 2) What is the relationship between late adolescents' use of Facebook to connect with peers, as measured by Ellison et al.'s (2007) Facebook On-to-Offline and Off-to-Online Connections questions, and depressive symptoms?
- 3)
 - a) Do reports of negative interactions and feeling down or depressed after interactions on Facebook, as determined by the Social Networking Survey, significantly predict increased depressive symptoms in late adolescents?
 - b) Is the strength of this relationship moderated by the following self-definition and identity variables: low self-concept clarity according to the SCCS, less successful separation-individuation from parents reported on the MITA, or less reported ego-identity commitment on the EIPQ?

Methods

Ethics

This study was conducted in accordance with the British Psychological Society's (2010) code of human research ethics. In addition, it followed the ethical guidelines for research with participants recruited from National Health Service (NHS) settings outlined by the NHS Health Research Authority. Accordingly, this study was granted favourable opinion to proceed by a National Research Ethics Service Research Ethics Committee (Appendix A). In addition, local management, research and design (R&D) approval was granted by NHS organisations operating clinics approached to support the recruitment of participants (Appendix B). Ethical approval for the study was also obtained from the Departmental Research Ethics Committee of the Royal Holloway Psychology Department (Appendix C).

Participants

Participants were recruited from a university in the South East of England (using an Undergraduate research participation scheme) and two North London adolescent mental health clinics, one of which also incorporated a sexual health clinic. The major inclusion criteria were that participants a) could read and understand English; b) were between the ages of 18 and 22 years (inclusive); and c) granted their informed consent to participate. One hundred and seventy-three late adolescents within the required age range completed the survey. However, some participants' ($n = 4$) responses were excluded from further analyses as their responses included a high number of unanswered questions. Consequently, the final sample included responses from 169 late adolescent (Mean age 18.56 years) participants. Participants were predominantly female ($n = 152$; 90%) and White British ($n = 91$; 54%). Only a small number of these participants ($n = 4$) were recruited from the two mental health clinic

recruitment sites compared to 165 recruited from the undergraduate student population. However, nine participants recruited from the university site indicated they were also accessing a mental health clinic for support at the time of their completion of the survey. Undergraduates completed the survey for research participation scheme credit.

Design

This study was designed as a cross-sectional online survey aiming to explore within-group relationships between variables. By convention, an effect size of 0.15 represents a moderate effect for F tests such as multiple regression, corresponding to an account of 15% of the variance in scores explained by the independent variable. Under these conditions, sufficient power to reject the null hypothesis is 0.80 (Cohen, 1988). Using these conventions, an a-priori power analysis was conducted using G*Power Version 3.2.1 (Buchner, Faul, & Erdfelder, 1997) to determine the necessary sample size for the study. The sample size required to obtain adequate power (0.80) to detect a moderate effect ($f^2 = 0.15$; Cohen, 1988) at $\alpha = .05$ between depressive symptoms as the dependent variable and up to nine predictors was $n = 114$. Consequently, this study's power to detect a significant moderate effect, with a final sample size of $n = 169$, was greater than 0.80 at 0.95 (Buchner et al., 1997). In addition, Aiken and West (1991) suggest that for regression models including both main effects and an interaction term, as in moderated regression, a sample size of over $n = 127$ should provide sufficient power (0.80) to detect a main effect of $R^2 = .15$ and main effects plus interaction effect of $R^2 = .20$.

Measures

All the measures reported below are self-report scales, originally published as paper-and-pencil questionnaires. For the purposes of this study, these measures were

recreated in online format using survey creation software, SelectSurveyASP Advanced (ClassApps, Kansas, USA), licenced to the Psychology Department of Royal Holloway, University of London. Appendix D includes screen shots of the full survey. The final survey comprised seven questions to ascertain informed consent and eligibility followed by 106 scale items. Table 2 (on page 68) provides a summary of the scales employed.

Demographic characteristics. Participants' were asked to provide background information about their age, sex, and ethnicity. This information was gathered in order to describe the sample. In addition, participants were asked to describe their current living arrangements. The literature on self and identity, and in particular, separation-individuation in late adolescence, suggests that moving out of the parental home is related to separation-individuation (O'Connor, Allen, Bell, & Hauser, 1996; Seiffge-Krenke, 2010). Participants were also asked to indicate whether they were accessing a mental health service for support at the time of their completion of the survey and, if so, how long and for what difficulty they were accessing this support. This information was necessary to support risk management procedures agreed with each of the clinics recruitment sites such that the appropriate staff could be contacted should a participants' scores on certain items of the survey suggest the risk of potential harm to self.

Depressive symptoms. The Patient Health Questionnaire - nine (PHQ-9; Kroenke, Spitzer, & Williams, 2001) is a nine-item depression screen widely used in clinical settings in the UK to monitor problem severity and intervention outcomes. Scores on this continuous scale provide estimates of the severity of depressive symptoms from none/minimal to severe. There are numerous reviews substantiating the reliability and validity of this measure as a depression screen in clinical and

community settings (see Kroenke et al., 2001; Kroenke, Spitzer, Williams, & Lowe, 2010; Wittkampff, Naeije, Schene, Huyser, & van Weer, 2007). Its authors report excellent test-retest ($r = .84$) and internal reliability (Cronbach's $\alpha = .89$) estimates. They similarly report good construct validity of the PHQ-9 compared to another widely used measure of depression ($r = .73$) and predictive validity to diagnose depression (0.95; Kroenke et al., 2001).

The PHQ-9 is scored according to a four-point Likert scale with individual item responses ranging from 'Not at all', equating to a zero score, to 'Nearly every day', equating to a score of three points. Item scores are summed to provide a total score. Possible total scores on the PHQ-9 can range from between zero and 27, with lower scores indicating fewer or less severe depressive symptoms. Scores of five, 10, 15, and 20 represent cut-offs for mild, moderate, moderately severe, and severe depression, respectively (Kroenke & Spitzer, 2002). A score of 10 or more on this measure is frequently cited and widely used to indicate the threshold for depressive symptoms reaching clinical significance in individuals over 18 years of age (see Manea, Gilbody, & McMillan, 2012 for a review).

Facebook usage.

Facebook intensity. The Facebook Intensity Scale (FIS), devised by Ellison et al. (2007), is a self-report measure of Facebook usage. It includes questions about the number of Facebook friends participants have and the amount of time spent on Facebook each day. These items are scored on scales ranging from 0 = 'Less than 10' to 9 = '400 or more' Facebook friends and 0 = 'Less than 10' to 5 = 'More than 3 hours' spent on Facebook a day. The FIS also includes a series of attitudinal questions designed to describe the extent to which Facebook is integrated into participants' daily activities. These are scored on a scale ranging from 1 = 'Strongly disagree' to 5

= 'Strongly agree'. A total Facebook Intensity score is calculated by standardising the individual scale items and then computing the mean across all items.

Ellison et al. (2007) report good internal consistency for this scale (Cronbach's $\alpha = .70 - .83$). Since its development, the FIS has been employed in several empirical investigations of Facebook use with late adolescent populations (Kalpidou et al., 2011; Mehdizadeh, 2010; Pettijohn II et al., 2012), with Pettijohn II et al. (2012) reporting similarly good internal consistency in their undergraduate student sample (Cronbach's $\alpha = .83$).

Facebook connection strategies. Ellison et al. (2007) devised a series of questions aimed to investigate whether Facebook usage in late adolescents was motivated by wanting to connect with prior offline contacts in an online context or whether it is used as a means to meet new people. This brief four-item Off-to-Online Connections scale (Ellison et al., 2007) was used to measure agreement (ranging from 1 = 'Strongly Disagree' to 5 = 'Strongly Agree') on questions about whether participants use Facebook to look up someone they have met offline, for example, in their classes or living nearby. Its authors report good internal consistency across these items (Cronbach's $\alpha = .70$). In order to investigate agreement about whether or not Facebook is used to meet new people not already known to participants in offline contexts, a single-item measure of On-to-Offline Connections (Ellison et al., 2007) was employed. This included the statement "I use Facebook to meet new people", rated according to the same five-point Likert scale described above.

Both these measures of Facebook connection strategy have been employed in published research with late adolescent participants in the USA (Ellison et al., 2011; Pettijohn et al., 2012) and internationally (Johnston, Chen, & Hauman, 2013). In

addition their existing good reliability estimates have been recently replicated (Cronbach's $\alpha = .90$; Labrague, 2014).

Quality of Facebook interactions. Davila et al. (2012) devised and employed a self-report measure of the quality of SNS interactions, the Social Networking Survey (SN Survey). This measure asks young people to rate on a Likert scale how positive and negative they find interactions online in general, with friends, and with romantic interests. It also includes a rating of whether young people felt low or depressed following any of these interactions. Davila et al. (2012) report good internal consistency for the positivity, Cronbach's alpha .70, negativity, .64, and depressive affect, .65, subscales.

Moderating Self and Identity Variables.

Self-concept clarity (SCC). The Self-Concept Clarity Scale (SCCS; Campbell et al., 1996) is a 12-item measure of perceived internal stability of self-belief and self-certainty, providing an index of SCC. Its authors report good internal consistency, with Cronbach's alpha reliability coefficients of between .85 and .87, and temporal stability, with test-retest correlations of between .70 and .79. The scale is also reported to possess good external and construct validity (Campbell et al., 1996; Campbell et al., 2003). It has also been widely used in research investigating hypotheses in adolescent and late adolescent populations in the UK (Wu, 2009), Europe (Schwartz et al., 2011; Steffgen, Da Silva, & Recchia, 2007), and the USA (Lee et al., 2012).

Participants' responses on the SCCS are recorded on a Likert scale ranging from 1 = 'Strongly Agree' to 5 = 'Strongly Disagree'. An SCCS total score is computed by summing individual item scores. Two of the items on the scale are

reverse scored. SCCS total scores can range from 12 to 60 with higher scores representing greater SCC.

Separation-individuation status. The Munich Individuation Test of Adolescence (MITA; Walper, 1998) is a measure of adolescent separation-individuation from their parents. The Panel Analysis of Intimate Relationships and Family Dynamics (Pairfam; Huinink et al., 2011) study employed the abbreviated version employed in the present research with a large sample of 12000 adolescents. This version measures individuation across three domains: Successful Individuation (the integration of both a closeness with parents and personal autonomy), Ambivalence (a need for closeness without positive expectations for this being received), and Fear of Love Withdrawal (separation anxiety). It has reportedly good internal consistency with Cronbach's alpha ranging from .65 to .84 on its subscales (Kruse & Walper, 2008; Huinink et al., 2011).

The scale consists of nine questions each answered for two primary caregivers. The MITA initially asks respondents to describe whom they consider their 'mother' or 'father' figure. In the current online survey, participants were prompted to choose who, if anyone, they consider a 'mother' figure from a list including a range of possible options (see Appendix D) and then asked to answer the nine scale items with this person in mind. Following this, participants were similarly asked to identify whom, if anyone, they consider a 'father figure' from a list of possible options and asked to complete the same nine scale items with this person in mind. For both 'mother figure' and 'father figure' subscales participants had the option of choosing 'Not Applicable' to be automatically redirected to the following relevant section of the survey.

The MITA produces scores the follow subscale scores: Successful Separation-Individuation, Ambivalence, and Fear of Love Withdrawal. However, scores on the Ambivalence and Fear of Love Withdrawal subscales can be summed to create a score of 'Emotional Insecurity' score (Huinink et al., 2011; S. Walper, personal communication, October 1, 2012). The MITA also produces separate 'mother' and 'father' subscale scores to describe the level of separation-individuation from each parent individually. However, studies employing this scale report strong positive correlations between scores on the 'mother' and 'father' subscales (Kruse & Walper, 2008; Levpušček & Gril, 2010). Consequently, authors such as Levpušček and Gril (2010) pooled these scores to produce a combined parental separation-individuation.

Similarly, preliminary bivariate Pearson's correlation analyses on the current data suggested strong positive correlations between these subscales (r s between .45 and .77). Therefore, one parental separation-individuation score was calculated by combining mean scores on the 'mother' and 'father' subscales. Therefore, the final variables derived from this measure for use in subsequent analyses were: a MITA Successful Separation-Individuation from parents' score (ranging from three to 15) on which higher scores represent more successful separation-individuation and a MITA Emotionally Insecure Separation from parents' composite comprised of scores on the Ambivalence subscale plus scores on the Fear of Love Withdrawal subscale. Scores on this composite ranged from six to 30 with higher scores representing more emotionally insecure separation-individuation from parents.

Ego identity commitment. The Ego Identity Process Questionnaire (EIPQ; Balistreri et al., 1995) is a measure of Marcia's (1966) empirical operationalisation of Erikson's (1968) theoretical concept of ego identity. Specifically, the EIPQ is a 32-item self-report measure of an individual's identity exploration and commitment

across ideological (e.g. political) and interpersonal (e.g. family) domains. The EIPQ has been validated for use with late adolescents in the US (Balistreri et al., 1995; Berman et al., 2006) and in Europe (Luyckx et al., 2006; Zimmermann, Mantzouranis, & Biermann, 2010). Its authors report a Cronbach's alpha of .86 and test-retest reliability estimate of .76 for the exploration subscale and a Cronbach's alpha of .80 and test-retest reliability estimate of .90 for the commitment scale (Balistreri et al., 1995). Similarly, Luyckx et al. (2006) report good internal consistency with Cronbach's alphas of .70 and .72, for the commitment and exploration subscales respectively, in a late adolescent sample.

The EIPQ is scored as a paper-and-pencil measure according to a six-point Likert scale. However, for consistency with other measures utilised in this survey, the EIPQ was created online as a five-point Likert scale with responses ranging from 1 = 'Strongly Disagree' to 5 = 'Strongly Agree'. The scale consists of 16 items aimed to measure level of ego-identity commitment and 16 items measuring ego-identity exploration. On both these subscales, certain items are reverse scored. This scoring procedure was carried out in accordance with that described in Balistreri et al. (1995). A total ego-identity commitment score and total ego-identity exploration score both with possible ranges of between 16 and 80 was calculated. On each subscale, higher scores are indicative of greater ego-identity commitment or greater ego-identity exploration, respectively. Although it is also possible to use EIPQ scores to assign participants to one of Marcia's (1966) ego-identity statuses employing median splits, this was not performed on the data gathered in the present research. This was to safeguard against Type I error to smaller sample sizes ($n < 43$) occurring within each of these four groups.

In addition, in the literature on late adolescent identity development, ego-identity commitment is more commonly associated with depressive symptoms in adolescents than ego-identity exploration (Berman et al., 2006; Luyckx et al., 2006). This is because in this age group some identity exploration is expected in conjunction with identity commitments. Moreover, ego-identity exploration is thought to have greater associations with anxiety (Kroger, 2007; Kroger & Marcia, 2011). Therefore, as level of ego-identity commitment and not exploration was of interest in this study, only scores on the Ego-Identity Commitment subscale of the EIPQ were employed as a measure of this variable in further analyses

Table 2

Summary of Scales

Measure	Items	Variable(s)/Subscales	Meaning of Higher Scores
Patient Health Questionnaire (PHQ-9; Kroenke, et al., 2001)	9	Depression	Increased depressive symptoms
Facebook (FB) Intensity Scale (FIS; Ellison et al., 2007)	8	Intensity of FB use	Greater intensity of FB use
Off-to-online Connections Scale (Ellison et al., 2007)	4	Use of FB to connect with existing contacts	Greater use of FB to connect with existing contacts
On-to-offline Connections Measure (Ellison et al., 2007)	1	Use of FB to meet new people not already known in offline contexts	Greater use of FB to meet new people
Social Networking (SN) Survey (Davila et al., 2012)	9	Positivity of FB interactions Negativity of FB interactions Frequency of feeling down/depressed following FB interactions	Greater positivity of FB interactions Greater negativity of FB interactions Increased frequency of feeling down/depressed following FB interactions
Self-Concept Clarity Scale (Campbell et al., 1996)	12	Self-concept clarity	Greater self-concept clarity
Munich Individuation Test of Adolescence Pairfam Version (MITA; Walper, 1998; Huinink et al., 2011)	9	Successful individuation from parents Emotionally insecure individuation from parents	More successful individuation More emotionally insecure (i.e. less successful) individuation
Ego-Identity Process Questionnaire (EIPQ; Balistreri et al., 1995)	32	Ego-identity exploration Ego-identity commitment	Greater ego-identity exploration Greater ego-identity commitment

Procedure

Potential participants recruited from clinical settings were introduced to the study by recruitment material (leaflets, cards, and posters) placed in the waiting rooms of each clinic. Student participants were introduced to the study by a research participation scheme run by their university that listed studies approved by the scheme available for students to complete. This scheme allows students to obtain credits towards the fulfilment of their undergraduate psychology course requirements to participate in research. Clinic participants were offered a prize incentive of the opportunity to win an online shopping voucher worth £50.

All participants were provided brief background information about the study, its aims, what participation would require and directed to the survey via an online link. Before completing the survey all participants were required to indicate that they had read, understood, and consented to participate in this research. For the purposes of allocating the prize and course credits and providing participants with optional feedback on the findings of the study, email contact information was also requested.

Participants then continued to complete the online survey including the measures described above in an online format (see Appendix D). The survey comprised 113 questions in total, taking participants approximately 20 minutes to complete. The survey also included means to assess and manage any potential risk of harm to self raised by participants' responses on the survey, specifically, answers on the PHQ-9. Participants were provided with information about appropriate local services to contact if any of the content of the survey may have caused them any distress. Arrangements were made with the clinic recruitment sites for clinic staff to be made aware of any risk of harm to self raised by clinic participants' completion of the survey. However, it was not necessary to follow this risk management protocol as

no clinic participants' responses on the PHQ-9 indicated a substantial risk of suicidal intent.

Student participants were allocated course credits within 2 days of their completion of the survey. Data collection took place over a predetermined period of five months, following which the survey was closed. A random draw was conducted by the researcher to award one clinic participant the online shopping voucher prize. This was conducted and the prize received within one month of the closure of the survey.

Results

Data Screening and Preliminary Analyses

All analyses were performed using SPSS Version 21.0 (IBM Corp., Armonk, NY). The threshold for statistical significance was set at $\alpha = 0.05$ for all decisions. Prior to the main analyses the data were screened for potential errors and outliers. Whether the data met the assumptions for the use of parametric tests was also explored. Boxplots and subsequent investigations of possible outlying scores revealed the presence of univariate outliers representing scores falling more than three standard deviations from the mean on the following variables: FB Intensity Total ($n = 1$) and EIPQ Exploration ($n = 1$). These outlying scores were consequently removed from the data. The assumption of normality was investigated using histograms and z score calculations according to established formulae to determine the possible existence of significant skew or kurtosis in the distribution of the data if $z > 2.58$ ($p < .01$). All such explorations and subsequent variable transformations were run in accordance with established statistical convention (Field, 2005; Tabachnik & Fidell, 2007).

None of the variables showed significant kurtosis in their distribution. The following variables were, however, significantly positively skewed: PHQ-9 ($z = 6.12$, $p < .01$), On-to-Offline Connections ($z = 5.35$, $p < .01$), Negative FB Interactions Composite ($z = 4.26$, $p < .01$), and the Depressed Affect after FB Interactions Composite ($z = 5.47$, $p < .01$). Square root transformations were conducted on the following scores, which resulted in them being normally distributed: PHQ-9 ($z = 0.32$, $p > .01$), Negative FB Interactions Composite ($z = 2.32$, $p > .01$), and Depressed Affect after FB Interactions Composite ($z = 2.32$; $p > .01$). A log₁₀ transformation was performed on On-to-Offline Connection scores to produce a normal distribution of these scores ($z = 1.17$, $p > .01$). Unless otherwise stated transformed variables were

employed in all subsequent analyses. Untransformed scores are, however, reported in tables of descriptive statistics.

Scores on the MITA Successful Individuation from Parents Composite were significantly negatively skewed ($z = -5.67, p < .01$). Transformations suggested by Tabachnik and Fidell (2007) were attempted to produce a normal distribution of these scores. However, the data remained significantly negatively skewed. This distribution appeared to represent a ceiling effect of participants' scores on this subtest of the MITA. This suggests a sample largely characteristic of late adolescents who have been able to successfully separate from their parents. This is consistent with the demographic characteristics of this sample, as described in greater detail below, who were primarily late adolescents living away from their parents in student accommodation. The relevant literature suggests positive correlations between successful separation-individuation from parents and taking up residence in university halls (Rice, 1992; Seiffge-Krenke, 2010). Consequently, this variable was not entered into subsequent analyses. Instead, the MITA Emotionally Insecure Separation from Parents Composite, scores on which were normally distributed ($z = 2.50, p > .01$) was employed in subsequent analyses investigating separation-individuation in relation to other variables.

In order to assess the internal consistency of the scales employed in this study, reliability analyses were conducted for each scale and, as appropriate, subscale used. Resultant reliability estimates fell within acceptable bounds, with Cronbach's α coefficients found to be between .66 and .89 (Field, 2005). Exact Cronbach's α values for each measure or subscale are presented in subsequent tables also summarising descriptive statistics for each variable.

Sample Characteristics

Table 3 below displays the characteristics of the participants in this study. The mean age of the participants ($M = 18.59$, $SD = 0.88$) fell towards the younger age limit of the period of late adolescence (18 – 22 years old). This reflects the predominantly first year undergraduate student population recruited. Similarly, as shown in Table 4, the majority (79.2%, $n = 134$) of participants were resident in university halls with either single or shared occupancy. Nine participants reported they were accessing a mental health service for support. Table 5 outlines the reasons participants reported for seeking this support as well as the duration of their involvement with the services accessed.

Descriptive Statistics

Depressive symptoms. The mean score of participants' PHQ-9 Total scores ($M = 5.78$, $SD = 4.29$) suggested that in this sample self-reported symptoms of depression fell largely at the lower end of the possible range of responses on this measure. The observed range of scores in the current sample were between 0 and 21 (possible range is 0 – 27). The majority (83.4%) of participants in the current sample scored below the cut-off point (a score of 10) suggestive of the presence of clinically significant depressive symptoms ($n = 141$), with 16.6% ($n = 28$) scoring above it.

Table 3

Sample Background Characteristics

Variable (<i>n</i> = 169)	Mean (SD)/ Frequency	Range/ Percentage
Age (years)	18.59 (0.88)	18 – 22
Sex		
Male	16	9.5
Female	152	89.9
Undisclosed	1	0.6
Ethnicity		
White British	91	53.8
White any other background	24	14.2
Asian	21	12.5
Chinese	13	7.7
Mixed background	8	4.8
Any other ethnic group	7	4.1
Black African	4	2.4
Undisclosed	1	0.6

Table 4

Participants' Residential Status

Residence	Frequency	Percentage
University residence (single)	91	53.8
University residence (shared)	43	25.4
With parents	16	9.5
Flatmates/ house share	12	7.1
Alone	2	1.2
Partner (rented property)	2	1.2
Other family	2	1.2
Undisclosed	1	0.6

Table 5

Participants' Access to Mental Health Services

Variable (<i>n</i> = 9)	Frequency
Duration of Intervention	
Less than 1 month	4
1 month – 1 year	2
Over 1 year	2
Difficulty	
Anxiety/ worry	1
Low mood/ depression	5
Other/ undisclosed	3

Quantity of Facebook use. Table 6 summarises mean scores on the FIS (Ellison et al., 2007) as a measure of Facebook Intensity. Subscale and item means making up the scale total are also displayed. In the current sample the mean number of friends on Facebook reported by participants was between approximately 300 and 400 friends. In addition, participants reported spending between approximately 31 minutes and 2 hours on Facebook per day. Table 7 shows participants' use of Facebook to connect with either existing or unknown offline contacts. The current sample reported using Facebook most to find out more about someone they had met socially, in an offline context. Participants reported using Facebook least to meet new people not already met in offline contexts.

Table 6

Descriptive Statistics for the Intensity of Participants' Facebook Use

Quantity of Facebook Use Variable / Items (n = 168)	Mean (SD)
Facebook Intensity Scale Total Score ¹ (Cronbach's $\alpha = .80$)	0.10 (0.66)
<i>Number of Facebook friends?</i> 0 = Less than 10; 1 = 10 – 49; 2 = 50 – 99; 3 = 100 – 149; 4 = 150 – 199; 5 = 200 – 249; 6 = 350 – 299; 7 = 300 – 349; 8 = 350 – 399; 9 = 400 or more	7.19 (2.47)
<i>Minutes per day on Facebook in the last week?</i> 0 = Less than 10; 1 = 10 – 30mins; 2 = 31 – 60mins; 3 = 1 – 2 hours; 4 = 2 – 3 hours; 5 = More than 3 hours	2.29 (1.62)
Integration of Facebook into life ²	3.27 (0.80)
<i>Facebook is part of my every day activity</i>	3.55 (1.12)
<i>I am proud to tell people I'm on Facebook</i>	3.15 (0.84)
<i>Facebook has become part of my daily routine</i>	3.51 (3.06)
<i>I feel out of touch when I haven't logged onto Facebook for a while</i>	3.01 (1.04)
<i>I feel I am part of the Facebook community</i>	3.32 (1.16)
<i>I would be sorry if Facebook shut down</i>	3.62 (1.02)

Notes. ¹Individual items were first standardized before taking an average to create scale due to differing item scale ranges. ² Response scales on these items ranged from 1 = 'strongly disagree' to 5 = 'strongly agree'.

Table 7

Descriptive Statistics for Participants' Use of Facebook to Connect with Others

Quantity of Facebook Use Variable/ Items (n = 168)	Mean (SD)
Connection Strategies ¹ : (Cronbach's $\alpha = .67$)	
Off-to-online: Use Facebook to connect with offline contacts ²	3.68 (0.76)
<i>I have used Facebook to check out someone I met socially</i>	4.08 (0.96)
<i>I use Facebook to learn more about other people in my classes</i>	3.62 (1.02)
<i>I use Facebook to learn more about other people living near me</i>	3.38 (1.17)
<i>I use Facebook to keep in touch with my old friends</i>	2.86 (1.21)
On-to-offline: I use Facebook to meet new people (single item measure)	1.88 (0.91)

Notes. ¹Response categories on individual items ranged from 1 = 'strongly disagree' to 5 = 'strongly agree'. ²Overall scale scores were derived by combining item mean scores.

Quality of Facebook interactions. Table 8 describes responses on the Social Networking Scale (Davila et al., 2012), used to operationalise the quality of participants' Facebook interactions. Participants' largely described experiencing positive interactions across all their interactions on Facebook ($M = 5.34$). Romantic interactions were reported ($M = 4.01$) to be less positive than interactions with friends ($M = 5.92$). This was consistent with participants' reports of the negativity of their interactions with friends ($M = 1.93$) being less negative than their romantic interactions ($M = 2.22$) on Facebook. Similarly, participants in the current sample did not report very frequently feeling down or depressed following their interactions on Facebook (Overall $M = 2.28$).

Table 8

Descriptive Statistics of the Quality of Participants' Facebook Interactions

Quality of Facebook Interaction Variables/ items ¹	Mean (SD)
Positive FB Interactions Composite ² ($n = 168$; Cronbach's $\alpha = .66$)	5.09 (1.05)
<i>Overall, how positive are your interactions on FB?</i>	5.34 (1.03)
<i>How positive are your interactions with friends on FB?</i>	5.92 (0.91)
<i>How positive are your romantic interactions on FB?</i>	4.01 (1.93)
Negative FB Interactions Composite ($n = 169$; Cronbach's $\alpha = .74$)	2.19 (1.05)
<i>Overall, how negative are our interactions on FB?</i>	2.43 (1.21)
<i>How negative are your interactions with friends on FB?</i>	1.93 (1.07)
<i>How negative are your romantic interactions on FB?</i>	2.22 (1.56)
Depressed Affect after FB Interactions Composite ($n = 168$; Cronbach's $\alpha = .82$)	2.28 (1.21)
<i>How often do you feel down/depressed after interactions on FB?</i>	2.64 (1.55)
<i>How often do you feel down/depressed after interactions with friends on FB?</i>	2.14 (1.25)
<i>How often do you feel down/depressed after romantic interactions on FB?</i>	2.05 (1.42)

Notes. FB = 'Facebook'. ¹Scale items ranged from 1 = 'Not at all'/'Never' to 7 = 'Extremely'/'All the time'. ²Composite scores were created by combining item mean scores.

Moderating self and identity variables. Table 9 summarises participants' scores on the variables investigated as potential moderators of the relationship between depressive symptoms and the quality of Facebook interactions: SCC, separation-individuation, and ego identity commitment.

Table 9

Descriptive Statistics of Possible Moderators of the Relationship between Depressive Symptoms and the Quality of Online Interactions

Moderating Variable/Subscale (Measure)	<i>n</i>	Mean	(SD)	Observed Range	Possible Range	Meaning of Higher Scores
SCC (SCCS)	169	37.04	(9.03)	16 – 57	12 – 60	Greater SCC
Successful Individuation – Parent (MITA) ¹	168	13.27	(1.76)	6.50 – 15.00	3 – 15	More successful individuation
Emotionally Insecure Separation – Parent (MITA) ²	168	12.92	(4.27)	5.50 – 25.00	5 – 30	Less successful individuation
<i>Fear of Love Withdrawal – Parent</i>		7.54	(2.81)	2.50 – 15.00	2.50 – 15.00	Greater fear of love withdrawal
<i>Ambivalence – Parent</i>		5.38	(2.02)	2.50 – 12.00	2.50 – 15.00	Greater ambivalence
Ego Identity Commitment (EIPQ) ³	169	50.76	(7.11)	29 – 71	16 – 80	Greater identity commitment

Notes. ¹This variable was not employed in subsequent analyses due to a significantly negatively skewed distribution of scores. ²This composite score was calculated by combining subscale mean scores. ³Reliability estimates: SCCS Cronbach's $\alpha = .88$; MITA Successful Individuation - Parent Cronbach's $\alpha = .84$; MITA Emotionally Insecure Separation – Parent Cronbach's $\alpha = .89$; EIPQ Identity Commitment Cronbach's $\alpha = .71$)

Investigating the Relationships between Variables

Intercorrelations between variables. A Pearson's bivariate correlation analysis was conducted to investigate the interrelationship between all variables of primary interest in this study: depressive symptoms; Facebook intensity (*quantity* of Facebook usage), on-to-offline Facebook connections, and off-to-online Facebook connections; reported level of positive and negative interactions, and depressed affect after interactions on Facebook (*quality* of Facebook interaction variables); and SCC, emotionally insecure separation-individuation from parents, and ego identity commitment (potential moderating self and identity variables).

Table 10 displays the resultant correlation matrix. Less SCC ($r = -.46, p < .001$), increased emotionally insecure separation-individuation ($r = .24, p = .001$), and less ego identity commitment ($r = -.20, p = .009$) were all significantly related to increased depressive symptoms on the PHQ-9. Lower SCC ($r = -.21, p = .005$) and greater emotionally insecure separation-individuation from parents ($r = .26, p = .001$) were also significantly related to increased reports of feeling down or depressed following Facebook interactions. This finding did not, however, extend to the relationship between reports of feeling down or depressed after Facebook interactions and ego identity commitment.

Depressive symptoms were not significantly correlated to the *quantity* of Facebook usage. This suggests that the intensity of Facebook use, including daily frequency, number of friends, and reported integration of the platform into one's life (see Table 6 for the description of this composite) were not significantly related to depressive symptoms in the current sample. This finding addresses the first research question of interest in the current study. Interestingly, however, the results in Table 9 show that Facebook Intensity was significantly correlated to increased reported

positive interactions on Facebook ($r = .35, p < .001$) as well as to increased reports of feeling down or depressed following Facebook interactions ($r = .23, p = .002$).

The second question of interest to the present investigation was to explore the nature of the relationship between the strategies late adolescents might use to connect with peers via Facebook and depressive symptoms. As the results presented in Table 10 suggest, neither the use of Facebook to connect with existing offline contacts nor the use of Facebook to meet new people were significantly correlated to depressive symptoms. However, increased use of Facebook to meet new people (on-to-offline contacts) was significantly correlated increased negative ($r = .25, p = .001$) and less so to depressing ($r = .17, p = .027$), but not to positive, reported interactions on Facebook. This suggests that the use of Facebook to meet new people not already known in offline contexts is related to reports of increased negative and depressing interactions on Facebook.

The third question under investigation was to explore whether increased reports of negative interactions and feeling down or depressed following interactions on Facebook were significantly related to increase depressive symptoms. The findings reported in Table 10 show that in the current sample of late adolescents depressive symptoms were significantly positively correlated to reported depressed affect following Facebook interactions ($r = .35, p < .001$) but not to reports of either positive or negative interactions on Facebook.

Linear multiple regression analyses. To further investigate this question, controlling for Type I error rate, and also to investigate the possible combined contribution of quality of Facebook use variables on reports of depressive symptoms, a linear multiple regression analysis was conducted. Depression was entered as the outcome variable and the three quality of Facebook use variables, Positive FB

Interactions, Negative FB Interactions, and Depressed Affect after FB Interactions, were entered as predictors. The resultant regression model is displayed in Table 11. The three quality of Facebook use variables collectively accounted for a significant amount of the variance in PHQ-9 scores (Adjusted $R^2 = .12$; $F(3, 165) = 8.80$, $p < .001$). The partial correlation coefficients revealed that increased reported depressive affect following Facebook interactions (Depressed Affect after FB Interactions) was significantly independently associated with greater depressive symptoms. In contrast, neither reported level of positivity of interactions on Facebook nor reported level of negativity of interactions on Facebook were significantly independently associated with depressive symptoms. This suggests that in the overall regression model, the highly significant relationship of the predictors to the dependant variable, depressive symptoms, was carried by the reported frequency of feeling down or depressed following interactions on Facebook. This is consistent with the preliminary findings of the Pearson's correlation analysis reported in Table 10. Assumptions supporting the generalizability of this model beyond the current sample including homogeneity of variance, linearity, normality, independent errors (Durbin-Watson statistic = 1.82), and no multicollinearity (VIF values between 1.13 and 1.47) were met.

Table 10

Intercorrelations between Variables

Variable	1	2	3	4	5	6	7	8	9	10
1. Depression (PHQ-9)	---									
2. FB Intensity Total	.06	---								
3. Off-to-online Connections	.05	.54**	---							
4. On-to-offline Connections	.10	.11	.28**	---						
5. Positive FB Interactions Composite	-.11	.35**	.34**	.08	---					
6. Negative FB Interactions Composite	.13	.10	.11	.25**	-.32**	---				
7. Depressed Affect after FB Interactions	.35**	.23**	.22**	.17*	-.09	.49**	---			
8. SCC	-.46**	.03	-.10	-.10	.03	-.04	-.21**	---		
9. Emotionally Insecure Separation	.24**	.10	.11	.08	-.03	.13	.26**	-.41**	---	
10. Ego Identity Commitment	-.20**	-.03	-.08	-.01	.12	.02	-.14	.46**	-.14	---

*Correlation significant at $p < .05$. **Correlation significant at $p < .01$.

Table 11

Model of the Relationship between Quality of Facebook Interactions and Depression

	b^1	SE B	β	t	p
Constant	1.70	0.526		3.23	< .001
	[0.66, 2.74]				
Positive FB Interactions	-0.10	0.067	-.11	-1.44	$p = .152$
	[-0.23, 0.04]				
Negative FB Interactions	-0.25	0.232	-.09	-1.07	$p = .285$
	[-0.71, 0.21]				
Depressed Affect after FB Interactions	0.94	0.201	.39	4.68	< .001
	[0.54, 1.34]				

Notes. $R^2 = .12$. ¹Confidence intervals reported in square brackets.

A further linear multiple regression analysis was performed to further investigate the potential independent and combined effects of SCC, emotionally insecure separation-individuation from parents, and ego-identity commitment on depressive symptoms. The overall model (presented in Table 12) was statistically significant (Adjusted $R^2 = .20$; $F(3, 164) = 15.09$, $p < .001$), suggesting that these three variables collectively predicted a significant amount of the variance in depression scores. However, the partial regression coefficients revealed that this significant relationship was carried by SCC. Lower SCC was shown to be significantly independently associated with increased depressive symptoms. In

contrast, both emotionally insecure separation from parents and level of ego identity commitment were not significantly independently associated with depressive symptoms once the contribution of SCC was controlled. All assumptions supporting the generalizability of this model beyond the current sample including homogeneity of variance, linearity, normality, independent errors (Durbin-Watson statistic = 2.18), and no multicollinearity (VIF values between 1.21 and 1.47) were met.

Table 12

Model of the Relationship between Self-Definition Variables and Depression

	b^1	SE B	β	t	p
Constant	3.71	0.552		6.72	<.001
	[2.62, 4.79]				
SCCS Total	-0.04	0.008	-.43	-5.14	<.001
	[-0.06, -0.03]				
MITA Emotionally Insecure Separation (Parents)	0.01	0.016	.07	0.87	$p = .386$
	[-0.02, 0.05]				
EIPQ Commitment	-0.001	0.010	-.01	-0.09	$p = .926$
	[-0.02, 0.02]				

Notes. $R^2 = .20$. ¹Confidence intervals reported in square brackets.

Investigating Potential Moderation

As described above, investigations of the third research question in this study suggested that there is a significant relationship between increased reports of feeling down and depressed after interactions on Facebook and increased depressive

symptoms in late adolescents. Therefore, of further interest was to investigate whether the self-definition and identity variables of interest in this study, SCC, separation-individuation, and ego identity, respectively, might moderate this relationship. In order to explore this question, three moderated regression analyses were conducted according to the procedures recommended by Field (2013) using the PROCESS tool for SPSS (Version 2.10; Hayes & Preacher, 2013).

Figure 1 illustrates the conceptual moderation model investigated where the moderator (M) was inputted as SCC in the first analysis, emotionally insecure separation from parents in the second, and ego identity commitment in the third. Untransformed predictor and moderator variables were entered into these analyses as these variables were mean centred by PROCESS to protect against the problem of multicollinearity (Aiken & West, 1991).

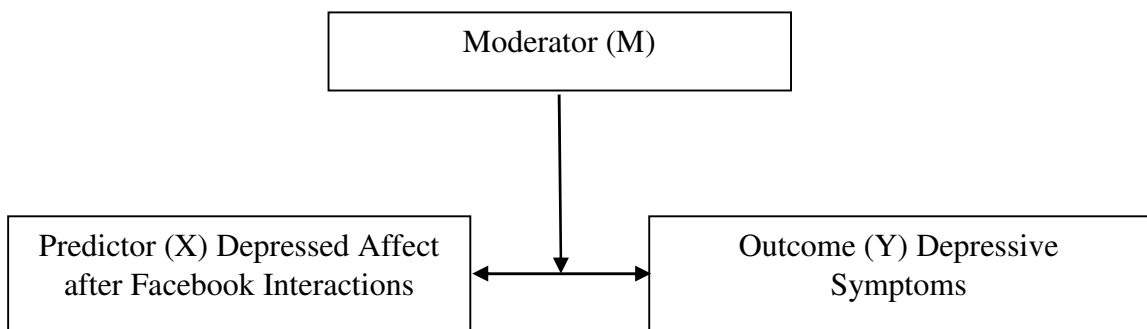


Figure 1. Conceptual model of moderated regression analyses

For the first of these analyses, the relationship between depressive symptoms as measured by the PHQ-9 as the outcome variable and depressed affect following Facebook interactions as the predictor at different levels of SCC as the moderator was investigated. Table 13 displays this moderated regression model. The overall model was statistically significant ($R^2 = .28$; $F(3, 165) = 20.21$, $p < .001$). The direction of the partial correlation coefficients in this model suggested that lower SCC and

increased reports of feeling down or depressed following Facebook interactions accounted for a significant amount, 28%, of the variance in depressive symptoms. However, the interaction between depressed affect after Facebook interactions and level of SCC was non-significant. This suggests that neither the strength nor direction of the relationship between depressed affect after Facebook interactions and depressive symptoms were significantly influenced by levels of the moderator, SCC.

Table 13

Moderated Regression Model of Predictors of Depression Self-Concept Clarity (SCC)

	<i>b</i>	SE <i>B</i>	<i>t</i>	<i>p</i>
Constant	2.22	0.064	34.84	<i>p</i> < .001
	[2.09, 2.34]			
Depressed Affect after FB Interactions (centred)	0.20	0.051	3.88	<i>p</i> < .001
	[0.10, 0.30]			
SCC (centred)	-0.04	0.008	-5.12	<i>p</i> < .001
	[-0.06, -0.02]			
Depressed Affect after FB Interactions x SCC	-0.003	0.006	-0.50	<i>p</i> = .618
	[-0.05, 0.03]			

Note. $R^2 = .28$

The second of these analyses investigated the relationship between depressive symptoms on the PHQ-9 and feeling down or depressed after Facebook interactions at different levels of emotionally insecure separation from parents as the moderator. The resultant moderated regression model is displayed in Table 14 below. The overall

model was statistically significant ($R^2 = .16$; $F(3, 164) = 8.67$, $p < .001$) The partial correlation coefficients in this model suggested that feeling down or depressed after interactions on Facebook accounted for a significant amount (16%) of the variance in depressive symptoms. Emotionally insecure separation from parents did not significantly predict depressive symptoms once depressed affect after Facebook interactions had been controlled. Similarly there was a non-significant interaction effect. Therefore, the relationship between feeling down or depressed after interactions on Facebook and depressive symptoms was not moderated by level of emotionally insecure separation.

Table 14

<i>Moderated Regression Model of Predictors of Depression Insecure Separation</i>				
	<i>b</i>	<i>SE B</i>	<i>t</i>	<i>p</i>
Constant	2.21	0.068	32.44	$p < .001$
	[2.08, 2.35]			
Depressed Affect after FB Interactions (centred)	0.22	0.057	3.91	$p < .001$
	[0.11, 0.34]			
Emotionally Insecure Separation (centred)	0.03	0.018	1.79	$p = .075$
	[-0.003, 0.07]			
Depressed Affect after FB Interactions x Emotionally Insecure Separation	0.01	0.015	0.86	$p = .393$
	[-0.02, 0.04]			

Note. $R^2 = .16$

A final moderated regression analysis was performed with depressive symptoms entered as the outcome variable and depressed affect following Facebook

interactions, ego-identity commitment, and the interaction between these two variables as predictors. Table 15 below shows this model. The overall model was statistically significant ($R^2 = .15$; $F(3, 165) = 9.51, p < .001$). Partial correlation coefficients in this model suggested that increased depressed affect following Facebook interactions and to a lesser extent less ego identity commitment independently predicted a significant amount (15%) of the variance in depressive symptoms. However, no significant interaction effect was found. This suggests that the relationship between reportedly feeling down and depressed following interactions on Facebook and depressive symptoms does not differ significantly at differing levels of ego-identity commitment as the moderator.

Table 15

<i>Moderated Regression Model of Predictors of Depression Ego Identity</i>				
	<i>b</i>	<i>SE B</i>	<i>t</i>	<i>p</i>
Constant	2.22	0.066	33.86	$p < .001$
	[2.09, 2.35]			
Depressed Affect after FB Interactions (centred)	0.25	0.10	4.55	$p < .001$
	[0.14, 0.36]			
Ego identity commitment (centred)	-0.02	0.010	-2.12	$p = .035$
	[0.04, -0.04]			
Depressed Affect after FB Interactions x Ego identity commitment	-0.01	0.007	-0.65	$p = .518$
	[-0.02, 0.01]			

Note. $R^2 = .15$

Simple slopes analyses. As no significant interaction effects were found in the above analyses, simple slopes analyses were not required to further investigate the nature of the relationship between the outcome and predictor variables at different levels of the moderators (Field, 2013). However, Robinson, Tomek, and Schumacker (2013) argue that testing for the difference between simple slopes offers increased power and therefore less chance of committing a Type II error than investigations of moderation testing the interaction term in a full regression model. Therefore, these authors suggest that the analyses employed above might be overly conservative and potentially erroneously fail to find a significant interaction effect where one may, in fact, exist. Consequently, the differences between the simple slopes for each of the above moderated regression analyses were calculated using the formulae described by Robinson et al. (2013). These calculations did, however, confirm the above non-significant interaction effects. Consequently, they will not be reported.

Discussion

The present study aimed to contribute to existing literature exploring the possible impact of online SNS use on late adolescent psychological adjustment. Specifically, the relationship between Facebook use and depressive symptoms. The evidence in this area is inconsistent (see Shapiro & Margolin, 2013 for a review). Some authors suggest that phenomena such as ‘Facebook depression’, in other words, relationships between increased use of the site and depressive symptoms, are of material concern (O’Keeffe & Clarke-Pearson, 2011). Others, however, argue against the possible detrimental effects of SNS use, some additionally suggesting possible positive associations (Valkenburg & Peter, 2011). Yet, both views are substantiated by empirical research (Huang, 2010; Shapiro & Margolin, 2013).

To investigate this variation across findings, there has been increased interest in specifying the exact nature of the possible relationship between SNS use and depression. Accordingly, authors such as Davila et al. (2012) suggest that researchers distinguish between whether it is the *quantity* or the *quality* of SNS use that might be related to depressive symptoms. In addition, corresponding to literature on offline individual and relational risk factors for depression in adolescence (Thapar et al., 2012), of increasing interest is whether, and if so, which characteristics of the individual and their offline relationships might influence associations between online experiences and mood (Davila et al., 2012; Huang, 2010).

The present study aimed to further investigate possible relationships between Facebook and depressive symptoms in a late adolescent sample by investigating whether it is the intensity of Facebook use, strategy used to connect with peers using the platform, or the quality of interactions with peers on the site that might relate to

depressive symptoms in this age group. Moreover, this study aimed to explore whether self-definition and identity variables relevant to late adolescent psychological adjustment in offline contexts (Campbell et al., 1996; Kroger, 2007), might moderate these relationships.

The Intensity of Facebook Use and Depression

Late adolescent participants in the current research largely reported similar intensity of Facebook use to that described by American studies recruiting young people of a similar age (for example, Ellison et al., 2007; Kalpidou et al., 2011; Pettijohn II et al., 2012). The late adolescents participating in this study reported having, on average, between 300 and 400 Facebook friends and spending between 31 minutes and two hours on the site per day. Moreover, they felt the platform to be more integrated into their lives than not. This suggests, consistent with indicators presented by Ofcom (2011) in the UK, the Pew Research Centre (Duggan & Brenner, 2013) in the US, and Facebook (2014) globally, that Facebook use remains prolific and appears to continue to grow. Accordingly, late adolescents report to spend more time and have more friends on Facebook now than in previous years (Ellison et al., 2007; Kalpidou et al., 2011; Pettijohn II et al., 2012). Therefore, it appears important to continue to investigate the possible psychological impact of its use.

In terms of the potential relationship between Facebook use and depression, the findings of the present research largely replicated those reported by authors such as Davila et al. (2012), Labrague (2014), and Feliciano et al. (2014) that call into question the relationship between greater Facebook usage and increased depressive symptoms in late adolescents. Specifically, in the current study, Facebook usage variables were not significantly related to depressive symptoms. This included the intensity of Facebook use, comprising time spent on the site each day, number of

Facebook friends, and perceived integration of the platform into daily life. These findings suggest that it is not the intensity of Facebook use that is associated with depressive symptoms in this age group.

This finding corresponds with and replicates much recent research investigating this relationship when specified to Facebook use. This includes studies also employing the FIS (Ellison et al., 2007) as a means to operationalise Facebook usage (Feliciano et al., 2014; Labrague, 2014) as well as others similarly investigating this relationship by alternate means of measurement. For example, Jelenchick et al. (2013), investigated the existence of an association between Facebook use and depression in a late adolescent student sample using an experience sampling method. By these means, participants completed survey questions across seven days, with questions sent directly to their mobile phones at random time points during the day, in order to capture real time experience, thereby increasing ecological validity. Using this methodology, and similarly employing the PHQ-9 as a measure of depressive symptoms, Jelenchick et al. (2013) also reported no significant relationship between the frequency of daily Facebook use and depressive symptoms.

Similarly, Simoncic (2012) failed to find a relationship between depressive symptoms and increased Facebook activity and perceived integration of the site into daily life, using Ellison et al.'s (2007) FIS questions. Simoncic (2012) measured Facebook use in terms of reported attachment to the site and frequency of use of each of the functions offered by the platform (e.g. commenting on friends' photos, posting on their Facebook Wall, or using the instant messaging function). These results also support conclusions drawn from Huang's (2010) meta-analysis finding no significant

relationship between the frequency of SNS use more broadly and markers of psychological distress across several studies that were reviewed.

Therefore, there appears an increasing body of evidence, including the findings of the present study, disputing the existence of an association between increased Facebook use and depressive symptoms in late adolescents. These results do not support suggestions of the converse, namely, an association between increased Internet and SNS use and depressive symptoms. There is, however, evidence also in support of this alternative conjecture (Kraut et al., 1998; 2002). However, previous research in support of this relationship predominantly explored other aspects of Internet usage, including use of chat rooms (Valkenburg & Peter, 2009), instant messaging (van den Eijnden et al., 2008), time spent browsing on the web (Selfhout et al., 2009), and online shopping, research, and game playing (Morgan & Cotten, 2003).

Consequently, there may exist differences in associations to depression depending on the specific form of Internet or social media use examined. Davila et al. (2012) did include in their investigation on the relationship between increased frequency of SNS use and depression, Facebook as well as MySpace use, instant messaging, and texting. Nonetheless, Davila et al. (2012) subsequently found no evidence to suggest a relationship between increased use of any of these social media and greater depressive symptoms. However, these media still represented similarly social platforms, involving some form of interaction and networking with peers.

These, as well as the current findings in relation to Facebook use, appear consistent with the literature on the distinction between anonymous and known online environments. Specifically, it is suggested that on platforms where the individual is

identified to other users as him or herself, as on Facebook, there is the increased tendency to project perceived positive aspects of one's self and identity and an attempt to maintain positive relationships with the online peer group (Turkle, 1995; Ellison et al., 2006; Nguyen et al., 2011). Therefore, increased use of Facebook might differ from greater use of anonymous social media, such as chat rooms, in its relation to depressive symptoms. This is possibly the case as Facebook promotes positive interactions. In contrast, perhaps greater use of anonymous environments is more likely to relate to depressive symptoms as perceived unrecognizability permits users to more openly express negative sentiment, disclose personal information, or become involved in or subject to adversarial communication from peers (Boyd & Ellison, 2007; Shapiro & Margolin, 2013). Moreover, perhaps individuals experiencing greater depressive symptoms are more likely to engage with anonymous online environments due to feelings of lower self-worth or confidence.

Similarly, in accordance with the literature on presence in computer-mediated communication, perhaps findings against the existence of a relationship between SNS use and depression, including those reported here, are more apparent for those SNS such as Facebook that offer increased presence relative to other forms of Internet use such as online browsing, shopping, or game playing (Jordán-Conde et al., 2014; Zhao, 2003). Therefore, perhaps Internet activities offering users less sense of connection to others might be associated with greater depressive symptoms. Alternatively, it could be the case that individuals experiencing greater depressive symptoms seek reduced online presence as a means to avoid interpersonal interactions they might find anxiety provoking or to provide a distraction from difficult feelings. In addition, as Toma and Hancock (2013) suggest, Facebook might be attractive to users as a means to satisfy

their sense of self-worth. Thereby, users turn to the site to reassure themselves of their value and connection to their social sphere, affirming a positive sense of self and potentially improving mood. In contrast, this might not be the case for other forms of Internet or SNS use.

Therefore, the present findings do not support assertions of a relationship between increased intensity of Facebook use and depressive symptoms. However, further research examining the similarities and differences between Facebook, other SNS, and aspects of Internet use more broadly appears pertinent. Similarly, the present study did not aim to explore the potential motivations late adolescents may have for increased time spent on Facebook, which might be beneficial for further understandings of the apparent discrepancies across different Internet and social media in their relationship to depressive symptoms. Moreover, as platforms such as Facebook include multiple and diverse functions, including instant messaging, posting photographs, commenting on friends posts, and updating status information, amongst others, of interest to future research might be to further specify and compare the intensity of use of each of these features and their possible individual associations to depressive symptoms.

The Intensity of Facebook Use and the Quality of Interactions

The present findings also revealed interesting associations between the intensity of Facebook use and the reported quality of late adolescents' Facebook interactions. Specifically, increased quantity and integration of Facebook use was found to be related to increased experiences of both *positive* as well as *distressing* interactions with peers on the site. Although potentially apparently contradictory results, these findings may in fact support existing assertions that Facebook, similar to

other virtual environments, are for many contemporary adolescents, social spaces acting as online extensions of offline contexts. In this way, Facebook appears to offer a space in which, comparable to offline social situations, late adolescents might experience interactions with peers that can be diverse in quality (Boyd, 2007).

This is also consistent with what Nguyen et al. (2012) suggest. Specifically, that any self-nominated friends, whether online or offline, share equivalent levels of intimacy. Therefore, interactions with friends online are likely to include similar content to those conducted offline (Nguyen et al., 2012). Therefore, the present findings might suggest that Facebook interactions, comparable to typical offline conversations with friends, may include either positive or distressing elements, dependant on their particular content. Consequently, increased exposure to Facebook might increase the likelihood of late adolescents experiencing interactions of varying quality just as spending time in, for example, a university common area, is likely to. However, this finding in the current research did not extend to negative Facebook interactions. Although, negative Facebook interactions were significantly correlated ($r = .49, p < .01$) to depressing Facebook interactions.

Therefore, these findings suggest that increased use of Facebook might relate to experiences of feeling down or depressed following interactions on the site as well as to increased positive interactions. This supports suggestions that online spaces mirror offline environments in their capacity to afford adolescents opportunities to engage with peers (Boyd & Ellison, 2007) and, moreover, to similarly experience a range of associated emotional experiences. However, this is an association in need of further investigation by future research. It may be that the content of particular Facebook interactions contribute to these changes in affect. Alternatively, however, it

may also be that variations in mood prior to engagement in online interactions subsequently impact on the ways in which their content is perceived. Additionally, existing individual differences in use of the platform or perceptions of the material peers employ it to display might influence associated emotional experiences.

Facebook Connection Strategy

Facebook is principally a medium for connecting with peers (Boyd & Ellison, 2007). Authors such as Ellison et al. (2007) suggest that late adolescents largely employ the SNS to maintain existing connections with peers. This is a view in support of the social enhancement hypothesis of SNS use for developing peer relationships. Specifically, that individuals are more likely to use Facebook to support and augment existing offline friendships. This position is, however, debated by proponents of the social compensation hypothesis who argue that individuals unable to adequately appropriate social networks offline are likely to use those such as Facebook to develop new friendships, otherwise unknown in offline contexts (see Shapiro & Margolin, 2013 for a review). Consequently, a further aim of this study was to investigate the nature of late adolescents' use of Facebook to connect with peers. In addition, of interest was to explore whether it might be the type of strategy used by individuals to connect with peers on Facebook that is associated with depressive symptoms in this age group.

The current study found that most participants reported using Facebook to connect with existing offline contacts rather than use the site to meet new people. In addition, this late adolescent sample used Facebook most to learn more about and follow up an interaction with someone met socially, offline. These findings appear to support the social enhancement hypothesis (McKenna et al., 2002). They suggest that

late adolescents primarily employ Facebook to enhance and extend existing social networks, potentially using the platform to progress a new offline acquaintance, possibly leading to further offline contact in the future. This is also consistent with the literature exploring the uses and gratifications sought by Facebook users. These investigations suggest that individuals knowingly make use of such platforms to gather information, seek entertainment, socialise, which includes maintaining contact, enhancing social status, sharing ideas and problems with peers, and for self-development or promotion (Cheung et al., 2011; Park, Kee, & Valenzuela, 2009; Quan-Haase & Young, 2010).

The present study also examined the possible implications on mood of different uses of Facebook for social connection. Similar to the findings discussed above that dispute an association between the intensity of Facebook use and depressive symptoms, Facebook connection strategy was also not found to be significantly related to depressive symptoms by the current study. This was the case both for use of Facebook to connect with existing offline contacts as well as to meet new people. This suggests that aspects of Facebook usage are not related to depressive symptoms in late adolescents. However, reportedly using Facebook to meet new people not already known in offline contexts was significantly related to reports of increased negative and depressing interactions on the site.

This finding appears consistent with that suggested by research on experiences of online dating, where individuals explicitly seek to meet new people as potential partners. For example, Smith and Duggan (2013) report that although online dating is a popular and widely accepted medium for establishing new relationships in many contemporary societies, the majority of its users report having had negative

experiences on such sites. Specifically, the nature of these interactions were said to be related either to the use of deception, whereby it was felt that the other individual markedly misrepresented themselves on the site, or to communications by which they were made to feel uncomfortable or harassed.

Similarly, research predominantly in younger adolescent populations, on the risks of eliciting unwanted sexual advances online suggests that increased interactions with strangers on SNS is related to more negative and potentially harmful effects (Hasebrink, Livingstone, Haddon, & Olafsson, 2009; Wolak, Finkelhor, & Mitchell, 2008). This has been linked to a tendency towards greater self-disclosure between strangers online (Nguyen et al., 2011; Walther, 2007). However, it is argued that this is more likely to be the case for adolescents also experiencing psychological difficulties, including depression. This is because the quality of their interactions with unknown online contacts (Wolak et al., 2008) as well as their potentially increased need for self-affirming experiences to increase their self-worth (Toma & Hancock, 2013) might intensify this risk.

Consequently, the current finding suggesting an association between using Facebook to meet new people and experiences of negative and/or depressing interactions on the site could be interpreted similarly. Perhaps as Facebook is predominantly used to interact with and maintain existing friendships and acquaintances, use of the site to meet new people may be related to the likelihood of experiencing negative and distressing interactions as these occur with unknown individuals who are more likely than one's existing friends to misrepresent themselves or be less amicable in online exchanges. This is consistent with Ross's (2010) assertion based on the findings of his empirical research that greater use of

SNS to communicate with unknown peers can lead to adverse social and relational consequences. This is because, as Ross (2010) suggests, over-reliance on SNS to meet new people and communicate with others unknown offline may increase unilateral, rather than bidirectional, interactions unsupportive of positive, overall relationship development.

However, it is important to note that the present study also discovered a relationship between use of Facebook to connect with peers already known in some capacity offline and increased reports of feeling down or depressed following online interactions. This relationship did not, however, extend to reports of negative interactions as it did to connections with strangers. Yet, use of Facebook for this purpose, connecting with known contacts, was also associated with increased positive interactions on the site. This was in contrast to use of Facebook to meet new people, which was not significantly related to reports of positive interactions.

These findings appear to support theories on the interplay between online and offline realities. Namely, propositions that in contemporary society online and offline frameworks are no longer perceived as distinct social spaces but are instead both extensions of one another (Turkle, 1995). In this way, it could be argued that similar to offline social contexts, increased use of SNS such as Facebook offer opportunities for *either* positive or distressing interactions with friends and acquaintances, as they are merely another social milieu for relationships of any kind. However, the present results do imply some element of difference between use of Facebook to connect with existing and unknown contacts in relation to experiences of the quality of online interactions on the site that possibly warrant further investigation by future research.

The Quality of Facebook Interactions and Depression

The findings discussed above pertain to possible relationships between aspects of Facebook usage, including intensity of use and peer connection strategy, and depressive symptoms. The present study, in replication of a number of other related investigations, did not discover a relationship between these variables representative of various aspects of the *quantity* of late adolescents Facebook use. In contrast, however, this study did find evidence to suggest that it might be the *quality* of Facebook interactions that is associated with depressive symptoms in late adolescents. Specifically, increased reports of feeling down or depressed following interactions on Facebook were significantly related to greater depressive symptoms in the current sample. In addition, the amount of variance in depressive symptoms explained by this variable (12%) represented a moderate effect.

This finding replicates that reported by Davila et al. (2012) who developed the SN Survey (Davila et al., 2012) as a means to assess self-reported quality of SNS interactions overall, with friends, and with romantic interests. Davila et al. (2012) similarly discovered a relationship between the quality of interactions reported by their late adolescent sample and depressive symptoms. Specifically, Davila et al. (2012) found that decreased positive and increased negative and depressing interactions were associated with increased depressive symptoms in this age group. The current study replicated this result for depressing interactions, also providing further support for previous studies suggestive of an association between the quality of young people's SNS experiences and depressive symptoms (e.g., Valkenburg et al., 2006).

Overall, participants in the present study largely reported experiencing positive rather than negative or depressing interactions on Facebook. This finding is comparable to that reported by a recent, large-scale American survey by the Pew Research Centre (Madden et al., 2013) of younger adolescents' (aged 12 to 18) SNS experiences, as well as to Davila et al.'s (2012) research with late adolescents, and many of the investigations recruiting adolescents reviewed by Shapiro and Margolin (2013).

However, the results also suggested that when participants did report feeling down or depressed following Facebook interactions, that this was associated with increased depressive symptoms. These findings suggest that peer interactions occurring on Facebook may be related to depressive symptoms in adolescents when these are experienced by the individual as leaving them feeling down or depressed. This is in accordance with the wider literature linking distressing interpersonal relationships, such as peer victimisation, in offline contexts with depression (Thapar et al., 2012). This suggests that Facebook might be another context within which young people may engage in peer relationships that potentially precipitate distressing feelings and subsequently relate to experiences of psychological distress, including depression.

In contrast, however, as Toma and Hancock (2013) and Gonzales and Hancock (2010) suggest, Facebook also appears to offer users opportunities for increased self-awareness and affirmation. This is because they are able to create and manipulate Facebook profiles to exemplify characteristics of themselves deemed personally and socially desirable and to have these representations acknowledged and confirmed by friends and family, making these features more likely to be re-

experienced, on receipt of positive feedback, as true. This is, consequently, associated with an increased sense of esteem and self-worth (Toma & Hancock, 2013).

However, the findings of the present research suggest that perhaps although it might broadly be the case that Facebook is associated with more positive peer interactions, it also affords the opportunity for interactions more distressing in quality to take place, and that these might be related to depression in late adolescents. This is consistent with previous investigations such as that by Valkenburg et al. (2006) who reported on the importance of the tone of SNS profile feedback received on psychological well-being, specifically in the case of those authors' research, social self-esteem. Valkenburg et al.'s (2006) study suggested that negative feedback from peers was associated with lower self-esteem and reported friendship quality.

Moreover, the current finding that there may be a relationship between reports of feeling down or depressed following interactions on Facebook and depressive symptoms appears to correspond with existing research examining the potential impact of disclosure on SNS and adolescent well-being (Christofides, Muise, & Desmarais, 2012). Specifically, there is evidence that the nature of Facebook posts and the ways in which they are received by others may be associated with adverse social or legal consequences. This may be the case if, for example, young people post stories or images, or are implicated in these by friends on the site, of themselves engaging in illicit activities (Pelechette & Karl, 2008). It is also suggested that as a consequence of unwanted activities being posted on and subsequently viewed by others on Facebook, adolescents might experience feelings of anxiety, regret, or guilt at the content they have shared or the activities engaged in that are shared, possibly impulsively, with a wide online audience (Youn, 2005). Furthermore, previous

studies suggest that due to their potential for ambiguity, as they provide little context with which to clarify interactions (Christofides et al., 2012), Facebook posts can elicit increased jealousy between partners in romantic relationships (Muise, Christofides, & Desmarais, 2009), potentially adversely affecting mood.

Similarly, social comparison has important implications for adolescent mood and well-being (Kraye, Ingledew, & Iphofen, 2008). SNS such as Facebook provide a platform on which this can take place as peers share, for example, details of their relationship status and photos (Shapiro & Margolin, 2013). This might precipitate increased self-affirmation if feedback is positive (Toma & Hancock, 2013). However, if such appraisals are felt to be distressing or embarrassing, there may be a negative impact on mood (Chou & Edge, 2012; Haferkamp & Kramer, 2011). This is a hypothesis similarly supported by Feinstein et al. (2013) who found a significant relationship between increased use of Facebook to compare oneself to peers negatively, subsequent increased risk of rumination regarding these comparisons, and greater depressive symptoms.

Furthermore, interactions that might leave adolescents feeling low in mood may be related to experiences of online, or cyber, bullying which is suggested to be common amongst adolescents on SNS (Bazelon, 2013; Strom & Strom, 2006), including Facebook (Juvonen & Gross, 2008; Kwan & Skoric, 2013). However, this largely appears to be reported to be the case for younger adolescents (see Strom & Strom, 2006 for a review). In what way this might relate more directly to late adolescents' online experiences seems, therefore, less certain. Nonetheless, the pervasiveness of Facebook content coupled with its capacity to reach a wide audience and for potentially distressing material to endure in online format (Campbell, 2005;

Chisholm, 2006; Shariff, 2005) makes it an environment in which bullying can occur, that may similarly affect some late adolescents' experiences on the site.

Therefore, the current finding of a relationship between feeling down following interactions on Facebook and depressive symptoms might have similarly been associated with particular kinds of Facebook interactions or content precipitating these difficult feelings in participants. Explicitly examining what participants might have had in mind when considering Facebook interactions that they subsequently reported left them feeling down or depressed fell outside of the scope of the present study. However, this appears an important development for future research. Specifically, exploring in more depth which interactions on Facebook might be felt to be depressing, and thereby associated with increased depressive symptoms. Moreover, of interest might be to examine independently, by means other than self-report, the quality of late adolescents' Facebook interactions on, for example, conversational Timeline posts or photo comments, in relation to depression. This is in line with recent research capturing and coding Facebook profile and message content (see e.g., Krämer & Winter, 2008; Wise, Alhabash, & Park, 2010).

Alternatively, further research might explore this qualitatively, in interview with the young people themselves. For the purposes of this study, the construct of 'quality of online interactions' was defined as an individuals' reported experience of how often he or she felt positive, negative, or down and depressed following interactions on Facebook, as operationalised by the SN Survey (Davila et al., 2012). However, what is meant by quality of online interactions could be constructed differently according to individual and social norms and narratives (Boiger & Mesquita, 2012). Therefore, individual perceptions of the quality of online

relationships might differ as quality is a subjective and difficult to define concept. This may have biased participants' self-reports regarding the nature of their relationships online on the SN Survey (Davila et al., 2012). Further qualitative investigations exploring what is meant by 'quality' in terms of online relationships and how this might be socially bound, is likely to contribute to our understanding of late adolescents' online experiences further.

The present findings might help to clarify further the dissonance in the literature exploring relationships between SNS and mood (Shapiro & Margolin, 2013). This is because they are suggestive of a relationship not between aspects of the quantity of Facebook use but the *quality* of interactions on the site and depressive symptoms. However, as described above, the particular nature of these interactions still need further consideration. In addition, the current correlational study did not propose to determine a causal relationship between interactions that leave late adolescents feeling down or depressed and increased depressive symptoms. Consequently, the direction of this relationship remains to be identified. It may be that individuals who are experiencing depressive symptoms are more likely to either participate in interactions on Facebook that are more likely to adversely impact on their mood, to perceive information on the site negatively, or to severely judge themselves in comparison to others based on media posted on the site.

An example of this was described by Forest and Wood (2012) in their research recruiting late adolescents experiencing low self-esteem that aimed to investigate whether it might be the opportunity that Facebook offers for increased self-disclosure among friends that in fact supports those individuals less able to form intimate relationships offline to develop their friendships online. Interestingly, however, Forest

and Wood (2012) discovered that although Facebook was considered an appealing means for young people experiencing low self-esteem to express themselves to peers, the quality of these self-disclosures were low in positive and high in negative sentiment. Consequently, the quality of these expressions were shown more likely to elicit negative feedback from others.

Findings such as these suggest that perhaps individuals already experiencing emotional difficulties might be more likely to engage with SNS such as Facebook in ways that could perpetuate detrimental peer interactions and consequently the extent of the difficulties they experience. In this way, as Davila et al. (2012) suggest, perhaps depressive symptoms function as both a predictor and outcome of the quality of SNS experiences. Indeed, this is consistent with wider literature suggestive of a bidirectional relationship between depressive symptoms and interpersonal relationships in offline contexts (Davila, Karney, Hall, & Bradbury, 2003; Joiner & Timmons, 2002).

In contrast, however, it may also be the case that this relationship is directional but it is depression that leads to poor interpersonal interactions online, rather than the converse. For example, in an investigation of offline peer relationship quality and depressive symptoms in middle adolescents, Oppenheimer and Hankin (2011) discovered that depressive symptoms predicted more negative and less positive peer interactions but that neither positive nor negative interactions predicted depressive symptoms. The nature of this relationship is, therefore, undoubtedly complex in offline environments. Moreover, the additional contemporary context of interactions occurring online may further contribute in different ways to these associations.

Consequently, further longitudinal investigations or between-group comparisons are required to explore the direction of this relationship further in online contexts.

Another important avenue for future research to consider might be to specify further differences in the quality of interactions with peers online according to SNS. As discussed above, the present research largely replicated Davila et al.'s (2012) findings of a relationship between the quality of Facebook interactions, specifically feeling down or depressed following interactions, and depressive symptoms. However, this research did not reveal a similarly significant association between increased negative and decreased positive interactions on Facebook and depressive symptoms.

An important distinction between the current research and Davila et al.'s (2012) study was that Davila et al. (2012) combined interactions on three different forms of social networking use, namely Facebook or MySpace use, instant messaging, and texting, to investigate their collective relationship to depressive symptoms. Contrastingly, the present study aimed to specify SNS use according to Facebook use alone. This difference discovered between the current and Davila et al.'s (2012) findings employing the same measure of the quality of online interactions with a comparable late adolescent sample may similarly represent an interesting divergence between interactions on Facebook and other forms of social media in terms of their relationships to mood.

Indeed, there is much evidence to suggest marked differences between different forms of social media in many respects including their uses (Quan-Haase & Young, 2010), the type of communication facilitated, potential rewards (Baym, Zhang, & Lin, 2004; Leung, 2001), and access to social resources (Ross, 2010). In

addition, there is evidence that individuals employ multiple modes of online social media simultaneously rather than swapping between them, suggesting fundamentally diverse uses (Baym et al., 2004; Quan-Haase, 2007; Squires, 2002).

Furthermore, some studies report differences between type of social media used and depression. For example, increased instant messaging, but not online chat room use, has in some studies found to be associated to depressive symptoms (van den Eijnden et al., 2008). Consequently, further research might benefit from explicitly comparing the quality of interactions with peers on different SNS in order to explore their potentially differing relationships to depressive symptoms. It is possible that the quality of interactions on different SNS and other forms of social media relate to depression in unique ways.

Relationships between Self-Definition and Identity Variables

Late adolescence is a developmental period associated with important negotiations of self-definition and identity. As such, late adolescents are hypothesised to undergo a process of attempting to define who they are in relation to the other, including parents, peers, and wider society (Kroger, 2007). Moreover, there is evidence to suggest that these processes are related to depression in offline contexts (Campbell et al., 2003; Kins et al., 2012; Kroger, 2007; Kruse & Walper, 2008; Schwartz et al., 2011).

The findings of the present research were somewhat consistent with existing literature on the relationship between these variables and adverse psychological symptoms, including depression (Berman et al., 2006; Campbell et al., 2003; Kins et al., 2012; Kruse & Walper, 2008; Luyckx et al., 2006). Specifically, lower SCC,

greater emotionally insecure separation from parents, and less ego-identity commitment were associated with increased depressive symptoms in bivariate correlational analyses. However, in a subsequent multivariate analysis only lower SCC was found to significantly predict depressive symptoms once the other two variables had been controlled.

This was an unexpected corollary finding of the current research. It is, however, consistent with hypotheses posited by authors such as Koepke and Denissen (2012) who advocate for self-definition and identity to be understood according to a dynamic systems perspective wherein conceptual integration is achieved. According to a dynamic systems theory of self-definition and identity development (Bosma & Kunnen, 2001) identity formation is a fluid process during which internal representations of the self, for example, self-concept, both precipitate and are developed through interactions between the individual and his/her immediate social environment. In turn, these micro-level processes consequently promote further development of internal frames for self-evaluation and, at a macro-level, one's overall sense of identity.

Drawing on this perspective Koepke and Denissen (2012) review the relevant literature on Eriksonian conceptualisations of ego-identity development and adolescent separation-individuation, and suggest that identity development cannot be entirely understood without consideration of parental identity and the process of separation-individuation, during which parental authority is renegotiated, influencing the capacity of the adolescent to explore ideological identity possibilities. Consequently, those authors suggest that empirical research on self-definition and identity include investigation of parent-child relationships and examine the combined

effects of intrapsychic and interpersonal variables to better understand the complex dynamics of identity development.

Schwartz et al. (2011) empirically investigated the daily dynamics of SCC and ego-identity and their relationship to anxiety and depression in early adolescents. Those authors subsequently discovered that SCC and ego-identity commitment reciprocally influenced each other and that fluctuations in identity, specifically, reconsideration of ego-identity over time, predicted increased symptoms of anxiety and depression. Specifically, Schwartz et al. (2011) suggested based on their results that greater ego-identity commitments might support an individual's ability to maintain a clear sense of self-concept that, in turn, may promote greater ego-identity commitment. This is also consistent with suggestions by previous authors of a reciprocal relationship between aspects of identity and self-definition (e.g. Luyckx et al., 2006; Luyckx, Lens, Smits, & Goossens, 2010). There are, however, suggestions that this relationship might differ across adolescence. Specifically, that decreased identity commitment more significantly relates to adverse psychological symptoms in later adolescents while perceived parental support and successful individuation plays a more important role in predicting psychological distress in younger adolescents (Meeus, Iedema, Maassen, & Engels, 2005).

Therefore, the interrelationships between self-definition and identity variables and their possible individual and combined effects on mood appears an important area for continued theoretical as well as empirical enquiry. Moreover, increased integration of concepts at a theoretical level may provide the means to clarify and investigate the complex dynamics of the process of self-definition and identity development in adolescence further. Consequently, a tentative explanation for the current finding that

in this sample, once combined, lower SCC, and not insecure parental separation or reduced ego-identity commitment, predicted greater depressive symptoms might be that these processes are in dynamic development in relation to one another (Kroger, 1985). Furthermore, it might be that in late adolescence, when relational, particularly in terms of parent-child relationships, and social aspects of identity are more clearly established, assimilation of these processes into one's self-concept becomes more salient. This is in line with the dynamic-systems theory of identity development that suggests that the trajectory of identity development can move between micro- (e.g., SCC) to macro-level processes (e.g. ego-identity establishment) and vice versa (Bosma & Kunnen, 2001).

Moreover, the present late adolescent, predominantly university student sample, reported largely successful separation from their parents and greater ego-identity commitment. It may be that for this population SCC might be more associated with experiences of psychological distress as of importance is successfully assimilating already established relational and social identity developments into one's internal self-representation. These are, however, cautious and preliminary interpretations of this finding that require further exploration by future research employing methods explicitly designed to examine these hypotheses, as was not the case in the current study.

Potential Moderating Influence of Self-Definition and Identity

A further aim of the present study was, however, to investigate relationships between these self-definition and identity variables and mood in the context of online interactions. Specifically, of interest was to assess the potential moderating effect of SCC, emotionally insecure separation, and ego-identity commitment on the

relationship between the quality of Facebook interactions and depressive symptoms. Davila et al. (2012) similarly investigated the possible role of rumination and corumination in predicting when or for which late adolescents this relationship might be strongest. Davila et al. (2012) failed to find a significant effect of rumination on this relationship. Moreover, although corumination moderated the relationship between reports of feeling down or depressed following SNS interactions and depressive symptoms in a cross-sectional study, this finding was not replicated longitudinally.

Similarly, the present research did not find a significant moderating effect of self-definition and identity variables on the relationship between feeling down or depressed following Facebook interactions and depressive symptoms. Specifically, neither lower SCC, greater emotionally insecure separation-individuation from parents, nor less ego-identity commitment significantly influenced the strength or direction of this relationship.

However, two of these variables, SCC and ego identity commitment were found, alongside depressed affect following Facebook interactions, to significantly independently predict depressive symptoms in this sample. Lower SCC and increased reports of feeling down or depressed following Facebook interactions independently predicted 28% of the variance in depressive symptoms, representing a moderate effect. This was also the case for less ego-identity commitment and increased reports of feeling down or depressed following Facebook interactions which explained 15% of the variance in depression scores. Greater emotionally insecure separation from parents similarly trended towards, although was not, a significant ($p = .075$)

independent predictor of depressive symptoms once the influence of reports of depressed affect following Facebook interactions had been controlled.

Therefore, although no evidence was found to suggest that SCC, separation-individuation, and ego-identity moderated the relationship between reports of distressing interactions on Facebook and depressive symptoms, each of these constructs were related to distressing Facebook experiences and depressive symptoms. However, for greater emotionally insecure separation the strength of this relationship fell below the level required to reach statistical significance.

This corresponds to literature on depression in offline contexts suggestive of relationships between difficulties in aspects of self-definition and identity in late adolescence and increased emotional difficulty, including depressive symptoms. Moreover, these findings are also consistent with the literature suggestive of associations between poor interpersonal relationships, specifically in this case, interactions leaving participants feeling down, and depression (see Davila et al., 2009; Thapar et al., 2012).

Interestingly, Davila et al. (2012) similarly failed to find much evidence in support of the moderating role of rumination and corumination, two factors of known association to depressive symptoms and perceptions of interpersonal relationships, on associations discovered between the quality of online peer interactions and depressive symptoms as those authors had expected. Specifically, no moderating role of rumination was discovered and although corumination was found a significant moderator when measured at a single time point, this was not replicated longitudinally. This is of interest as, comparable to the current research, recognised individual and relational factors implicated in increased risks of depression in offline

contexts were not similarly associated to online interactions. Indeed, Huang's (2010) meta-analysis aiming to investigate across the existing literature what moderators might enhance or reduce the effect of Internet use more broadly on psychological difficulty also did not discover significant moderator effects.

In contrast, however, Simoncic (2012) reported a moderating effect of personality type on the relationship between the frequency of Facebook activity and depressive symptoms in a late adolescent sample. Specifically, he found that for females high in neuroticism, increased Facebook activity was associated with greater depressive symptoms. Therefore, there is some evidence to suggest that for certain individuals, with particular personality traits, the risks might be greater of Facebook activity being associated with depressive symptoms. However, this appears an area in need of further research. As Huang (2010) suggests, perhaps comparisons between adolescent and adult populations and further investigations of potential group differences between males and females might reveal these as potential moderators of the relationship between interactions on Facebook and depression. Moreover, it also appears salient to investigate possible differences in the nature of this relationship between clinical and non-clinical populations.

Methodological Constraints

An initial intention of the current research was to recruit late adolescent participants from both clinical and non-clinical settings. This was hoped to facilitate greater diversity in the data. Particularly, a broader distribution of depressive symptoms and scores on the measures of self-definition and identity employed. Unfortunately, however, recruiting participants from mental health clinics was challenging. This might possibly have been due to a reliance on the use of leaflets,

posters, and cards placed in clinic waiting rooms to introduce the study to potential participants. Therefore, the majority of late adolescents taking part were university students. Consequently, the current sample was limited in several ways.

Firstly, participants in this sample were predominantly not significantly low in mood, as recorded by the depression measure used. Similarly, most participants showed greater SCC, successful separation-individuation from their parents, and greater ego-identity commitment, suggesting they were fulfilling the self-definition and identity developments expected during this stage of development. Perhaps the current sample's consistently high scores on these measures of psychological well-being impacted on the present findings. It could be that for those individuals experiencing clinical depression or who might be failing to develop a coherent and clear sense of self, separate from their parents, or commit to a set of personal standards of beliefs and values, relationships between Facebook use, quality and depressive symptoms might be more problematic. This is, however, a hypothesis in need of further investigation in clinical populations.

Moreover, the relationship between either intensity or quality of Facebook use and depressive symptoms may be non-linear. Specifically, there may exist a curvilinear relationship between depressive symptoms and aspects of Facebook use such that at differing levels of depressive symptoms correlations with Facebook use differ in direction. Therefore, late adolescents experiencing greater depressive symptoms than those recruited to the current research might show an inverse relationship than that discovered here to frequency of Facebook use by, for example, displaying greater depressive symptoms in relation to increased use. This might also

be the case in terms of the relationship between depressive symptoms and feeling down or depressed following Facebook interactions.

It may be that individuals experiencing greater depressive symptoms than that of those participants recruited here might not report feeling more down or depressed following interactions on Facebook if, for example, they use the site to maintain a sense of connection with peers and decrease social isolation, consistent with the social compensation hypothesis (McKenna & Bargh, 2000; McKenna et al., 2002; Valkenburg et al., 2005). As Shapiro and Margolin (2013) suggest, studies such as that by Pempek et al. (2009) asking participants to report on their Facebook use and mood daily may be used to explore within-person variations in relation to mood over time. Similarly, such methods might be employed by future research to support investigations of the potential non-linearity of these relationships.

A further limitation of the restricted sample of the present study is that participants' demographic backgrounds, including sex, culture, and socio-economic status, were constrained. Specifically, the current sample were largely White British female students living away from home in university halls of residence. Due to the low numbers of male and participants from culturally diverse backgrounds recruited to this study, the contributions of these variables as possible covariates influencing the nature of the relationships of interest could not be assessed.

There is previous evidence suggestive of possible gender differences in extent and expression of depressive symptoms (Hankin et al., 1998; Thapar et al., 2012) as well as relationships between aspects of Internet use and psychological adjustment (e.g., Lanthier & Windham, 2004; Quinn & Oldmeadow, 2013). Moreover, research on the expression of cultural identity in online contexts suggests some divergence in

the ways in which adolescents from different cultures use SNS (Shapiro & Margolin, 2013). Specifically, SNS are thought to support adolescents from ethnic minority groups to develop their sense of cultural identity by affording them the opportunity to extend their social networks beyond their immediate community (Markstrom, 2010). Similarly, ethnic minority adolescents have been shown to use their Facebook profiles to express their sense of cultural identity. This has, in turn, been associated with improved psychological outcomes, including increased self-esteem (Grasmuck et al., 2009).

The limited diversity of the present sample unfortunately precluded any analyses on the possible influence of ethnicity on the relationships assessed. Although, as described above, this is of interest to further a more nuanced understanding of the interrelationships between peer relationships, identity, and mood in online contexts. Therefore, future research exploring the possible contribution of ethnicity to associations between Facebook use, quality, self-definition and identity, and depressive symptoms appears beneficial. Despite these sampling constraints, however, the current sample size ($n = 169$) was sufficient to obtain satisfactory power (0.95) and effect sizes were moderate. In addition, all assumptions to suggest the potential generalizability of results to equivalent samples were met.

A further limitation of this research was its reliance on self-report as the sole means to measure the constructs of interest. Inherent to this form of measurement are potential participant response biases, including social desirability (Wilcox, 2005) or, as is reportedly particularly pervasive in adolescent samples, inaccurate or false responding (Fan et al., 2006). In addition, the psychological phenomena of interest arguably required a relatively high level of self- and psychological awareness to

accurately understand and respond to questions (Wilcox, 2005). Nevertheless, each of the scales used in this study were previously validated and employed in published empirical research. In addition, sound reliability estimates reported by previous studies were similarly found in relation to the current data, with Cronbach's α coefficients ranging between .66 and .89.

In this study, quality of interactions on Facebook was operationalised in terms of ratings obtained using the SN Survey (Davila et al., 2012), also a self-report measure. Therefore, we were unable to specify what specific content or which particular peer interactions and what about these interactions respondents might have had in mind when rating their interactions on this measure. For example, participants may have felt down or depressed following interactions with friends when online conversations related to exams, an uncomplimentary comment, or, consistent with use of Facebook for social comparison (Kraye et al., 2008), perceived exclusion from social events or the belief that other users might be better off in some way (Butzer & Kuiper, 2006).

Therefore, the measure of the quality Facebook interactions used in this research was not able to expand on what participants meant by interactions with friends or romantic interests and could not capture the content with which subsequent negative feelings may have been associated. Although beyond the scope of the present research, future investigations analysing actual content of Facebook screen shots or interviewing participants and employing qualitative methods to explore the individual experiences of late adolescents' online interactions in relation to depressive symptoms are of interest to contribute to our understanding of the nuances of this invariably complex association further.

The potential interrelationships between aspects of psychological adjustment such as peer interactions, intrapersonal, relational, and ideological features of self-definition and identity, and depression are inherently complicated. Consequently, constructs can be challenging to operationalise and are highly likely to overlap (Frazier et al., 2004). In the present study, self-definition and identity were operationalised according to particular theoretical and empirical descriptions of these concepts, with a focus on the structure rather than content of the self and the process of identity development in late adolescence. There exists, however, numerous other means by which to define these constructs and also other related aspects of psychological and identity development such as attachment to peers and parents or self-esteem that might contribute to possible relationships between peer interactions, identity, and mood in online contexts. Therefore, it would be useful for future research to test more detailed and complex relational models associated with online interactions possibly using path analyses and including other related mechanisms such as self-esteem, social comparison, and self-affirmation (Feinstein et al., 2013; Jordán-Conde et al., 2014; Toma & Hancock, 2013).

Furthermore, the cross-sectional, correlational design of this research limits conclusions drawn from its results. Although some evidence has been found by this study to suggest associations between the intensity of Facebook use and the quality of Facebook interactions as well as distressing interactions on the site and increased depressive symptoms, the direction of these relationships cannot be determined by these methods. Therefore, longitudinal investigations are required to examine this further.

Clinical Implications

Due to the pervasiveness of SNS in the lives of contemporary adolescents, it appears important that researchers investigate the potential impact that use of these platforms for interactions with peers and identity experiments may have on psychological development, as was aimed by the present study. Parents of adolescents frequently express concern over the amount of time their children spend on sites such as Facebook (Hoffman, 2013). In addition, possibly owing to the relative novelty of SNS and previous generations' unfamiliarity with them in comparison to 'wired generation' youth, fears abound about the potential negative effects on adolescent well-being (O'Keeffe & Clarke-Pearson, 2011).

Therefore, it appears appropriate for researchers and clinicians to explore the accurate nature of these relationships. This is so that we might be able to continue to contribute to developments in psychological theories of adolescence (Shapiro & Margolin, 2013). In addition, such considerations might facilitate clinicians' understandings of the cultural context of late adolescents presenting to mental health services. Thereby, increasing clinicians' cultural competency and possibly supporting engagement of this population with psychological interventions (Hoffman, 2013).

Also, consistent with investigations aiming to predict which adolescents might be at greater risk of developing depressive symptoms (Thapar et al., 2012), this study hoped to contribute to the clinical literature by exploring whether some adolescents might be at greater risk of increased depressive symptoms in association with poor quality interactions on Facebook. There is some evidence from previous research to suggest this (Davila et al., 2012; Feinstein et al., 2013). Although, this was not corroborated by the current findings in relation to the self-definition and identity

variables investigated as potential moderators of the relationship between distressing interactions on Facebook and depressive symptoms. Nonetheless, as the use of SNS continue to increase, clinical risk assessments might usefully include questions related to Facebook and other SNS use and interactions in order to determine potentially maladaptive uses of these sites by some emerging adults and to consider whether the online life of the individual assessed might in some way be contributing to or perpetuating the emotional difficulties they might experience (Feinstein et al., 2013; Hoffman, 2013).

Furthermore, although thus far much research, including the current study, has focussed more on the potential negative effects of SNS on adolescents, future investigations might wish to explore the ways in which we might take advantage of the potential positive effects of SNS for adolescents. This might be by possibly incorporating SNS use into psychological interventions or using them to promote adaptive psychosocial development more broadly in campaigns aiming to improve psychological well-being in this age group (Shapiro & Margolin, 2013).

Conclusion

The findings of the present research need to be considered in the context of the methodological constraints described above. Nevertheless, they do contribute to a rapidly increasing body of evidence calling into question indiscriminate assertions of possible detrimental effects of SNS use on adolescents (Davila et al., 2012; Feinstein et al., 2013; Shapiro & Margolin, 2013). In particular, they suggest that even if young people use Facebook frequently and feel that it is integrated into their daily social lives, Facebook use is not necessarily associated to increased depressive symptoms. In fact, the current study, in replication of a growing body of recent research (see e.g.,

Davila et al., 2012; Feliciano et al., 2014; Simoncic, 2010), did not discover relationships between any quantity of Facebook use variables, including use of the platform to meet new people, and depressive symptoms.

However, the current findings do suggest that Facebook, similar to other social contexts, can provide a platform for emerging adults to experience interpersonal relationships that might be poor in quality. In addition, this study suggests that if these interactions leave late adolescents feeling low in mood, they can be associated with depressogenic effects. However, the direction of this relationship is uncertain. These conclusions replicate those reported by Davila et al. (2012) and suggest that future research continue to explore possible relationships between the quality of SNS interactions and psychological well-being rather than focus solely on the frequency of use of these networks alone.

Self-definition and identity variables were not found by this study to moderate the relationship between the quality of Facebook interactions and depressive symptoms. However, there is tentative evidence from previous research (Davila et al., 2012; Feinstein et al., 2013; Simoncic, 2012) to suggest that some emerging adults may be at greater risk than others of experiencing adverse psychological symptoms in relation to their online experiences. Therefore, this appears an important avenue for further consideration by future research.

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Appendix A: National Research Ethics Committee Approval Letter



NRES Committee South West - Exeter

Bristol Research Ethics Committee Centre
Whitefriars
Level 3
Block B
Lewins Mead
Bristol
BS1 2NT

Telephone: 0117 342 1332
Facsimile: 0117 342 0445

03 July 2013

Miss Michelle Daniels
Camden and Islington NHS Foundation Trust/Royal Holloway
University of London
Department of Clinical Psychology
Royal Holloway
University of London
Egham
Surrey
TW20 0EX

Dear Miss Daniels

Study title: The Relationship between the Quality of Peer Interactions Online and Depression in Late Adolescence: Investigating the Moderating Influence of Ego Identity and Adolescent Separation-Individuation
REC reference: 13/SW/0109
IRAS project ID: 114386

Thank you for your letter of 11 June 2013, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Vice Chair.

We plan to publish your research summary wording for the above study on the NRES website, together with your contact details, unless you expressly withhold permission to do so. Publication will be no earlier than three months from the date of this favourable opinion letter. Should you wish to provide a substitute contact point, require further information, or wish to withhold permission to publish, please contact the Co-ordinator Mrs Kirsten Peck, nrescommittee.southwest-exeter@nhs.net.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Advertisement	1	18 April 2013
Covering Letter		18 April 2013
Covering Letter		11 June 2013
Evidence of insurance or indemnity		
Investigator CV		18 April 2013
Other: CV - Student		
Other: Appendix C Debrief (clinical Settings)	1	11 June 2013
Other: Appendix D (University setting)	1	11 June 2013
Other: Appendix E (Clinical setting)	1	11 June 2013
Other: Appendix F (University setting)	1	11 June 2013
Other: E-mail re Out of Hours resources		30 May 2013
Other: Study Debrief (online) - clinical setting	2	11 June 2013
Other: Study Debrief (online) - University setting	2	11 June 2013
Participant Consent Form: Online Consent Form - Online Social Networking and Mood (Clinical settings)	2	11 June 2013

Participant Consent Form: Online Consent Form - Online social Networking and Mood (university setting)	2	11 June 2013
Participant Information Sheet: Appendix A (clinical setting) tracked changes	2	11 June 2013
Participant Information Sheet: Appendix B (University setting) - tracked changes	2	11 June 2013
Participant Information Sheet: University setting - clean copy	2	11 June 2013
Participant Information Sheet: Clinical setting - clean copy	2	11 June 2013
Protocol	2	11 June 2013
REC application	3.5	18 April 2013
Referees or other scientific critique report		18 April 2013
Response to Request for Further Information		

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document "*After ethical review – guidance for researchers*" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

Further information is available at National Research Ethics Service website > After Review

13/SW/0109	Please quote this number on all correspondence
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We are pleased to welcome researchers and R & D staff at our NRES committee members' training days – see details at <http://www.hra.nhs.uk/hra-training/>

With the Committee's best wishes for the success of this project.

Yours sincerely

Kirsten Peck

pp **Dr Lee Burton**
Vice Chair

e-mail: nrescommittee.southwest-exeter@nhs.net

Enclosures: "After ethical review – guidance for researchers" [SL-AR2]

Appendix B: Site Specific Research and Design Approval



Bedford House, 3rd Floor
125-133 Camden High Street
London, NW1 7JR

Tel: 020 3317 3045
Fax: 020 7685 5830/5788
www.noclor.nhs.uk

12 July 2013

Miss Michelle Daniels
Trainee Clinical Psychologist
Department of Clinical Psychology
Royal Holloway, University of London
Egham, Surrey TW20 0EX

Dear Michelle,

Study Title: Social Networking and Depression in Late Adolescence		
R&D reference: 13MHS43		
REC reference: 13/SW/0109		
This NHS PIC Permission is based on the REC favourable opinion given on 03 July 2013 . The potential participants will referred to the PI/LC stated below.		
Name of the trust	Name of current PI/LC at research site	Date of permission issue(d)
Tavistock & Portman NHS Foundation Trust	Michelle Daniels	12 July 2013
If any information on this document is altered after the date of issue, this document will be deemed INVALID		


Specific Conditions of Permission (if applicable)
If any information on this document is altered after the date of issue, this document will be deemed INVALID

I am pleased to confirm that any site within **the trusts identified above** can act as a PIC for the above study subject to the following conditions:

- Any site within **the trusts identified above** that is acting as a PIC **MUST** indicate their willingness to participate by completing the second page of this letter and returning it to our office.
- Please note that it is the responsibility of the Chief Investigator/Principal Investigator for the research study to ensure that this PIC agreement confirmation slip is completed for each participating PIC site and returned to the R&D office. Audits will be conducted on randomly selected PIC sites to ensure this requirement of R&D approval is adhered to.
- The role of the relevant sites will be restricted to identifying potential patients. No research procedures will be conducted in these PICs and these sites **will not** take on the duty of care for patients in relation to the research study; this responsibility will be retained by the external research site.
- The ethically approved details and relevant guidelines, including data protection, are adhered to.
- The Trust accepts no responsibility, and provides no indemnity, for any patient-related research procedures, including recruitment and informed consent. Please ensure that all members of the research team are aware of their responsibilities as researchers. For more details on these responsibilities, please check the NoCLoR website: <http://www.noclor.nhs.uk>.

We would like to wish you every success with your project.

Yours sincerely,



Mabel Salli
Senior Research Governance Officer

Cc: Principle Investigator(s)/Local Collaborator(s), Sponsor Contact

Appendix C: Royal Holloway Psychology Department Ethics Approval

From: Psychology-Webmaster@rhul.ac.uk <Psychology-Webmaster@rhul.ac.uk>

Sent: 12 July 2013 10:17

To: nwjt078@rhul.ac.uk; Cinnirella, M

Cc: PSY-EthicsAdmin@rhul.ac.uk; Leman, Patrick

Subject: Ref: 2013/060 Ethics Form Approved

Application Details:

Applicant Name: **Michelle Daniels**

Application title: **Online Social Networking and Mood in Late Adolescence**

Appendix D: Online Survey Questions

Online Social Networking and Mood Survey (student)

Study Information Sheet



Department of Psychology

Royal Holloway, University of London
Egham, Surrey TW20 0EX, UK

Information Sheet: Online Social Networking and Mood

We're inviting you to take part in a study. Before you decide whether to join, it's important you know why the research is being done and what it involves. Please read this information carefully.

This study is being carried out as part of a Doctorate in Clinical Psychology from Royal Holloway, University of London. This study has attained ethical approval from the NHS Exeter Research Ethics Committee and the Royal Holloway Department of Psychology Ethics Committee.

We are interested in finding out more about whether there is a link between the quality of young adults' interactions on Facebook and feelings of low mood or depression. We also want to look at whether individual attributes like identity, self-understanding, and family relationships affect this link.

About 114 young adults aged 18-22 will be asked to join the study. Some of these people will be accessing a psychotherapy or sexual health clinic for support or advice and others will be university students.

If you are between 18 and 22 years old and can read and understand English, you can join. It doesn't matter if you don't use Facebook much or use it a lot.

The online survey is likely to take between 15 and 30 minutes to complete. The questions in the survey are multiple choice questions. There are no right or wrong answers. There are questions in the survey about: symptoms of depression, identity, how well you feel you know yourself, your relationship with family members and using Facebook.

As a thank you for participating, on completion of the survey you will receive course credits, managed via the Royal Holloway Research Participation Scheme.

We will ask you for your name and email address. This information will be used to allocate course credits via the Research Participation Scheme. Your name and any other personal information asked for during the study will be stored securely. Only the researchers will have access to this information.

Your name and email address will not be used for any purpose other than those listed above.

There are no known disadvantages to taking part in this study. However, some of the questions measure symptoms of depression, which some people might find upsetting. Information is provided at the end of the survey about who to contact if you are experiencing distress.

We hope this study will help us understand how online social networking might affect mood and how this might be different for people depending on their different beliefs, relationships, and identity.

In all of the ways the results of this study might be fed back to people no personal information about you will be included so you cannot be identified.

At the end of the study we will email you information about the findings. The findings might also later be published in science journals. Again, in all these cases no personal information about you will be included.

It is up to you whether or not you would like to take part. If you do decide to join we'll ask you to sign an online form on the next page saying you understand what's involved and agree to take part.

If you decide you don't want to do the study any more, you can stop at any time without giving us a reason and your treatment will be the same as what you would have received if you had never taken part in the study. Any future health care or education you receive will not be affected if you decide to leave the study.

For more information about this study please contact: Michelle Daniels (Student Researcher) nwjt078@live.rhul.ac.uk

Dr Marco Cinnirella (Academic Supervisor)
m.cinnirella@rhul.ac.uk

If you would like to find out more about your general rights as a research participant or about the process of being involved in research, contact:

The North Central London Research Consortium (NoCLOR) Telephone: 020 3317 3045
Fax: 020 7685 5788
Email: contact.noclor@nhs.net
Website: <http://www.noclor.nhs.uk/>

1. Have you read the information about the study provided above?*

Yes No

2. Do you understand that you are free to withdraw from the study at any time, and to omit questions, without giving a reason and without it affecting your health care or education? *

Yes No

3. Do you agree that you have had the chance to ask questions about this study should you have any and that they have all been answered to your satisfaction? As this is an online survey this would have been made available to you via email and telephone, details of which are in the participation information sheet.*

Yes No

4. Do you agree to take part in the study?*

Yes No

5. Age (in years)*

You must be between 18 and 22 years old to complete this survey

6. Date of Birth*

You indicated you are not 18 to 22 years old

I'm sorry, but you need to be between the ages of 18 and 22 years to take part in this study. This is because the focus of the study is to look at social networking use in young adults within this age group.

Thank you for your interest in this study, and sorry you can't participate on this occasion. If you have any questions please contact Dr Marco Cinnirella: m.cinnirella@rhul.ac.uk

You indicated you have not consented to take part

I'm sorry, but you need to have indicated that you have read, understood, and consent to taking part in this study if you are to continue with the survey. This is to ensure that you are fully aware of and understand what the study is about and agree that you would like to take part.

Thank you for your interest in this study, and sorry you can't participate on this occasion. If you have any questions please contact Dr Marco Cinnirella: m.cinnirella@rhul.ac.uk

About You

Thank you for offering to participate in this online questionnaire. You are free to withdraw from the study at any time, without giving a reason. If you are attending a clinic for support, any future health care you receive will not be affected if you decide not to participate in or to leave the study. If you are a university student, any current or future education or support you receive will not be affected if you decide not to participate in or to leave the study. Please also remember that you can choose to leave out any questions if you wish to.

Before you begin, we need you to fill in some information about yourself.

7. Gender

Select no more than 1 response.

Male

Female

8. Your ethnicity

It is helpful that we have this background information about participants so that we can accurately describe the sample when we write up the results of the study. Thank you for your co-operation. Select no more than 1 response.

White British

White Irish

Other White Background

Mixed White and Black Caribbean Mixed White and Black African Mixed White and Asian

Other Mixed Background

Asian Indian

Asian Pakistani

Asian Bangladeshi

Any Other Asian Background

Black Caribbean

Black African

Other Black Background

Chinese

Other Ethnic Group

9. Your Name*

We need to record the names of all participants so that we can verify that we have used an informed consent procedure correctly. Only IT staff, myself and my supervisor will have access to this information.

10. Your E-mail Address*

We are asking for your e-mail address so we are able to allocate course credits and also to send you information about the outcomes of the study. Thank you for your co-operation.

11. Would you like the research team to send a summary report of the findings of this study to the email address provided above?*

Yes

No

12. Who you currently live with

It is helpful that we have this background information about participants so that we can accurately describe the sample when we write up the results of the study. Thank you for your co-operation. Select no more than 1 response.

Parents Grandparents Siblings

Other family

Alone

Friends

Flatmates/ house share

University residence (single occupancy)

University residence (shared occupancy)

My partner (in rented accommodation)

My partner (in bought accommodation)

Other, please specify

13. Are you currently accessing a mental health/counselling service for support?*

We need you to answer this question so that we can determine which questions to ask you in the next part of the survey.

Yes

No

Information about the service you are accessing

If you have indicated that you are currently accessing a clinic for mental health or counselling support, it is helpful for us to know a bit more about the reasons you are accessing this support. Thank you for your co-operation.

14. Are you accessing mental health/ psychological support through any of the following?*

If you are accessing more than one of these sources for support, please choose only the one you consider your main source of support currently.

University

School

The Tavistock Clinic

The Brandon Centre

Another NHS Clinic

Another independent clinic

15. How long have you been attending the clinic for this support?

1 - 2 weeks

Less than 1 month

1 - 3 months

4 - 6 months

7 - 9 months

10 - 12 months

1 - 2 years

2 - 3 years

More than 3 years

16. What have you been going for support for?

Anxiety/ worry

Low mood/ depression

Relationship difficulties

Worries about eating

Difficulties with aggression

I would rather not say

Other, please specify

Your Facebook Use (I)

Please answer the following questions about your Facebook use and habits. Your participation is appreciated.

17. About how many total Facebook friends do you have?

Less than 10

10 - 49

50 - 99

100 - 149

150 - 199

200 - 249

250 - 299

300 - 349

350 - 399

400 or more

18. In the past week, on average, how many minutes per day have you spent on Facebook?

Less than 10

10 - 30

31 - 60

1 - 2 hours

2 - 3 hours

More than 3 hours

Other, please specify

Your Facebook Use (II)

How do much do you agree or disagree with the following statements about Facebook?

19. Facebook is part of my every day activity

Please select no more than 1 response.

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

20. I am proud to tell people I am on Facebook

Please select no more than 1 response.

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

21. Facebook has become part of my daily routine
Please select no more than 1 response.

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

22. I feel out of touch when I haven't logged onto Facebook for a while
Please select no more than 1 response.

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

23. I feel I am part of the Facebook community
Please select no more than 1 response.

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

24. I would be sorry if Facebook was shut down
Please select no more than 1 response.

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

25. I use Facebook to connect with offline contacts
Please select no more than 1 response.

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

26. I have used Facebook to check out someone I met socially
Please select no more than 1 response.

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

27. I use Facebook to learn more about other people in my classes
Please select no more than 1 response.

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

28. I use Facebook to learn more about other people living near me
Please select no more than 1 response.

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

29. I use Facebook to keep in touch with my old friends
Please select no more than 1 response.

Strongly Agree
Agree
Neutral Disagree
Strongly Disagree

30. I use Facebook to meet new people
Please select no more than 1 response.

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

The quality of your Facebook interactions

31. Overall, how positive are your interactions on Facebook?

Please rate how positive you feel your interactions on Facebook are from "Not at all" (1) on the left to "Extremely" (7) on the right

1 (Not at all) 2 3 4 5 6 7 (Extremely)

32. How positive are your interactions with your friends on Facebook?

Please rate how positive you feel your interactions on Facebook are from "Not at all" (1) on the left to "Extremely" (7) on the right

1 (Not at all) 2 3 4 5 6 7 (Extremely)

33. How positive are your romantic interactions on Facebook?

Please rate how positive you feel your interactions on Facebook are from "Not at all" (1) on the left to "Extremely" (7) on the right

1 (Not at all) 2 3 4 5 6 7 (Extremely)

34. Overall, how negative are your interactions on Facebook?

Please rate how negative you feel your interactions on Facebook are from "Not at all" (1) on the left to "Extremely" (7) on the right

1 (Not at all) 2 3 4 5 6 7 (Extremely)

35. How negative are your interactions with your friends on Facebook?

Please rate how negative you feel your interactions on Facebook are from "Not at all" (1) on the left to "Extremely" (7) on the right

1 (Not at all) 2 3 4 5 6 7 (Extremely)

36. How negative are your romantic interactions on Facebook?

Please rate how negative you feel your interactions on Facebook are from "Not at all" (1) on the left to "Extremely" (7) on the right

1 (Not at all) 2 3 4 5 6 7 (Extremely)

37. How often do you feel down or depressed after interactions on Facebook?

Please rate how often you feel this way after your interactions Facebook from "Never" (1) on the left to "All the time" (7) on the right

1 (Never) 2 3 4 5 6 7 (All the time)

38. How often do you feel down or depressed after you interact with friends on Facebook?

Please rate how often you feel this way after these interactions Facebook from "Never" (1) on the left to "All the time" (7) on the right

1 (Never) 2 3 4 5 6 7 (All the time)

39. How often do you feel down or depressed after romantic interactions on Facebook?

Please rate how often you feel this way after these interactions Facebook from "Never" (1) on the left to "All the time" (7) on the right

1 (Never) 2 3 4 5 6 7 (All the time)

Your Mood

The following questions are about how you have been feeling in the last 2 weeks.

If your answers on this questionnaire suggest that you might be at risk of harming yourself we will provide you with information on who to contact for support.

40. Over the last 2 weeks, how often have you felt bothered by little interest or pleasure in doing things?

Not at all

Several days

More than half the days

Nearly every day

41. Over the last 2 weeks, how often have you felt bothered by feeling down, depressed, or hopeless?

Not at all

Several days

More than half the days

Nearly every day

42. Over the last 2 weeks, how often have you felt bothered by trouble falling or staying asleep, or sleeping too much?

Not at all

Several days

More than half the days

Nearly every day

43. Over the last 2 weeks, how often have you felt bothered by feeling tired or having little energy?

Not at all

Several days

More than half the days

Nearly every day

44. Over the last 2 weeks, how often have you felt bothered by poor appetite or overeating?

Not at all

Several days

More than half the days

Nearly every day

45. Over the last 2 weeks, how often have you felt bothered by feeling bad about yourself- or that you are a failure or have let yourself or your family down?

Not at all

Several days

More than half the days

Nearly every day

46. Over the last 2 weeks, how often have you felt bothered by trouble concentrating on things, such as reading the newspaper or watching television?

Not at all

Several days

More than half the days

Nearly every day

47. Over the last 2 weeks, how often have you felt bothered by moving or speaking so slowly that other people could have noticed? Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual?

Not at all

Several days

More than half the days

Nearly every day

48. Over the last 2 weeks, how often have you felt bothered by thoughts that you would be better off dead or of hurting yourself in some way?

Not at all

Several days

More than half the days

Nearly every day

Your answer to the previous question

Your answer on this question suggests that you might be feeling as if you want to harm yourself in some way. If this is the case we would urge you to please contact any of the following to talk about this.

If you are feeling in immediate distress or as if you want to harm yourself in some way now, we would strongly advise you to please contact your local A&E department, 999, your GP, or the Samaritans on 08457 90 90 90 (available 24 hours a day, 7 days a week).

You can also contact the Royal Holloway Health Centre (you will be transferred to the out-of-hours service if the Health Centre is closed) in an emergency or Campus Security if you are in residence: College Security on 01784 443 063
Health Centre on 01784 443 131

Royal Holloway students can also contact the campus counselling service. You can visit them in person in the Founders West building, Room 171 between 9am and 12pm and 1pm and 4pm, Monday to Friday, during term time. You can also contact them to arrange an appointment by phone on 01784 443128 or by email on: counselling@rhul.ac.uk.

The College also subscribes to the student Nightline service which can be rung between 6pm and 8am in term-time. You will be talking to a trained student volunteer from a London University College. The Nightline number is: 020 7631 0101

How well you feel you know yourself

Please rate how strongly you agree or disagree with the following statements.

49. My beliefs about myself often conflict with one another

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

50. On one day I might have one opinion of myself and on another day I might have a different opinion

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

51. I spend a lot of time wondering about what kind of person I really am

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

52. Sometimes I feel that I am not really the person I appear to be

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

53. When I think about the kind of person I have been in the past, I'm not sure what I was really like

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

54. I seldom experience conflict between the different aspects of my personality

Strongly Agree

Agree

Neutral
Disagree

Strongly Disagree

55. Sometimes I think I know other people better than I know myself

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

56. My beliefs about myself seem to change very frequently

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

57. If I were asked to describe my personality, my description might end up being different from one day to another day

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

58. Even if I wanted to, I don't think I could tell someone what I'm really like

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

59. In general, I have a clear sense of who I am and what I am
Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

60. It is often hard for me to make up my mind about things because I don't really know what I want
Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

Your Parents (I)

The following questions are about your relationship with the person in your family that you consider your 'mother' figure and also the person in your family that you consider your 'father' figure.

We understand that all families are different, so you might have someone you consider your mother and someone you consider your father, or you might have one or the other, or neither.

Please answer the following questions based on those family members who you are still in some contact with. First we will ask you to let us know who in your family you consider your 'mother' figure and then to please answer a series of questions in relation to that person, if applicable.

61. Please choose who you consider to be a 'mother' figure for you
Please select no more than 1 response

Biological mother

Adoptive or foster mother

Step mother or father's partner

Aunt

Grandmother

Sister

Not applicable

Other, please specify

Your relationship with your 'mother' figure

Please answer the following questions thinking about the person who you listed in the last question as the person you consider a 'mother' figure for you.

Please rate to what extent you agree or disagree with the following statements.

62. I like it when my [parent] talks to me

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

63. Even if I argue with my [parent], we still like each other

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

64. My [parent] is still important to me even if I pursue my own interests

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

65. When I disappoint my [parent] I am afraid that she will love me less

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

66. I often am afraid of doing something wrong and disappointing my [parent] Strongly Agree

Agree
Neutral
Disagree
Strongly Disagree

67. When I make a mistake I wonder if my [parent] still likes me

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

68. I hide my feelings from my [parent] so she won't make fun of me

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

69. I am sometimes uncertain whether it makes my [parent] happy when I let her know that I like her

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

70. I sometimes have the feeling that I like my [parent] more than she likes me

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Your Parents (II)

The following questions are about your relationship with the person in your family that you consider your 'mother' figure and also the person in your family that you consider your 'father' figure.

We understand that all families are different, so you might have someone you consider your mother and someone you consider your father, or you might have one or the other, or neither. Please answer the following questions based on those family members with whom you are still in some contact with. We will now ask you to let us know who in your family you consider your 'father' figure. We will then ask you to answer a series of questions related to that person, if applicable.

71. Please choose who you consider to be a 'father' figure for you
Please select no more than 1 response

Biological father
Adoptive or foster father
Step father or mother's partner
Uncle Grandfather Brother
Not applicable

Other, please specify

Your relationship with your 'father' figure

Please answer the following questions thinking about the person with whom you listed in the last question as the person you consider a 'father' figure for you.

Please rate to what extent you agree or disagree with the following statements.

72. I like it when my [parent] talks to me

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

73. Even if I argue with my [parent], we still like each other

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

74. My [parent] is still important to me even if I pursue my own interests

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

75. When I disappoint my [parent] I am afraid that he will love me less

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

76. I often am afraid of doing something wrong and disappointing my [parent] Strongly Agree

Agree
Neutral
Disagree
Strongly Disagree

77. When I make a mistake I wonder if my [parent] still likes me

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

78. I hide my feelings from my [parent] so he won't make fun of me

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

79. I am sometimes uncertain whether it makes my [parent] happy when I let him know that I like him

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

80. I sometimes have the feeling that I like my [parent] more than he likes me

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Your Beliefs and Views

How much do you agree or disagree with the following statements?

81. I have definitely decided on the occupation I want to pursue

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

82. I don't expect to change my political principles and ideals

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

83. I have considered adopting different kinds of religious beliefs

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

84. There has never been a need to question my values

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

85. I am very confident about what kinds of friends are best for me

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

86. My ideas about men's and women's roles have never changed as I became older

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

87. I will always vote for the same political party

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

88. I have firmly held views concerning my role in the family

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

89. I have engaged in several discussions concerning behaviours involved in dating relationships

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

90. I have considered different political views thoughtfully

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

91. I have never questioned my views concerning what kind of friend is best for me

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

92. My values are likely to change in the future

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

93. When I talk to people about religion, I make sure to voice my opinion

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

94. I am not sure about what type of dating relationship is best for me

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

95. I have not felt the need to reflect upon the importance I place on my family

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

96. Regarding my religion, my beliefs are likely to change in the near future

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

97. I have definite views regarding the ways in which men and women should behave

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

98. I have tried to learn about different occupational fields to find the best one for me

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

99. I have undergone several experiences that made me change my views on men's and women's roles

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

100. I have constantly re-examined many different values in order to find which ones are best for me

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

101. I think what I look for in a friend could change in the future

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

102. I have questioned what kind of date is right for me

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

103. I am unlikely to alter my vocational goals

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

104. I have evaluated many ways in which I fit into my family structure

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

105. My ideas about men's and women's roles will never change

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

106. I have never questioned my political beliefs

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

107. I have had many experiences that led me to review the qualities that I would like my friends to have

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

108. I have discussed religious matters with a number of people who believe differently than I do

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

109. I am not sure that the values I hold are right for me

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

110. I have never questioned my occupational aspirations

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

111. The extent to which I value my family is likely to change in the future

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

112. My beliefs about dating are firmly held

Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Study Debrief: Online Social Networking and Mood

Thank you for taking the time to participate in this study. I greatly appreciate your help and readiness to complete this survey to help me investigate the links between online social networking, mood, and individual personality characteristics.

As individuals are increasingly using online social networking to interact with peers, researchers are investigating the possible reciprocal influences of these interactions on emotional well-being. At present, there is inconsistency in the literature regarding the nature of this relationship. Some authors have shown that online social networking is associated with positive social and relational outcomes. However, others suggest that increased social networking use is correlated with adverse psychological outcomes. Recently, authors have attempted to address these inconsistencies by further clarifying whether it is the frequency or quality of online interactions that might possibly be associated with adverse effects. In addition, of interest is whether, and if so, which, individual personality factors might moderate this relationship. As such, the aim of this study is to investigate the possible role of identity development, individuation, and self-concept clarity - all important in the development of sense of self in young adulthood - in moderating the relationship between the quality of online interactions on Facebook and adverse psychological effects, in this case specifically low mood and depression.

References:

Campbell, J. D., Assanand, S., and Di Paula, A. (2003). The structure of self-concept and its relation to psychological adjustment. *Journal of Personality, 71*, 115-139.

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Huang, C. (2010). Internet use and psychological well-being: a meta-analysis. *Cyberpsychology, Behaviour, and Social Networking, 3*, 241-252.

Kroger, J. (2007). *Identity Development: Adolescence Through Adulthood*. Thousand Oaks, CA: Sage.

Rice, K. G. (1992). Separation-individuation and adjustment to college: A longitudinal study. *Journal of Counseling Psychology; Journal of Counseling Psychology, 39*, 203-213.

If completing this survey has left you feeling anxious, low in mood, or distressed in any way and you would like to access advice or support, please do not hesitate to contact the following organisations and/or healthcare professionals:

If you are in crisis and feel you might need urgent assistance, please visit your local A&E department or call 999 immediately.

Alternatively, the Samaritans offers a free and confidential telephone counselling service that operates 24 hours a day, 7 days a week. To contact The Samaritans, please call: 08457 90 90

90, or if you think your request can wait for 12 hours or so for a response, you can email jo@samaritans.org. Further details can be found at www.samaritans.org/how-we-can-help-you

You can also contact the Royal Holloway Health Centre (you will be transferred to the out-of-hours service if the Health Centre is closed) in an emergency or Campus Security if you are in residence: College Security on 01784 443 063
Health Centre on 01784 443 131

Royal Holloway students can also contact the campus counselling service. You can visit them in person in the Founders West building, Room 171 between 9am and 12pm and 1pm and 4pm, Monday to Friday, during term time. You can also contact them to arrange an appointment by phone on 01784 443128 or by email on: counselling@rhul.ac.uk.

Thank you for your participation in this study. Further details and any other questions you may have, including if you are unhappy with any aspect of the procedure related to this research, can be made by contacting Dr Marco Cinnirella on m.cinnirella@rhul.ac.uk